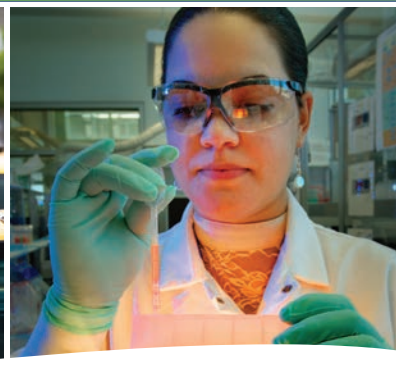




# 2017

## Fourth National Report on Human Exposure to Environmental Chemicals *Updated Tables, January 2017, Volume One*



**U.S. Department of  
Health and Human Services**  
Centers for Disease  
Control and Prevention

# Complete Table of Contents - Volumes One and Two

## Volume One

### General Information

- 1 Introduction
- 2 What's New and Different?
- 4 Calculation of Urinary Inorganic-related Arsenic Species
- 5 Calculation of PFOS and PFOA as the Sum of the Isomers

### Adducts of Hemoglobin

- 7 Acrylamide  
CAS No. 79-06-1
- 8 Glycidamide  
CAS No. 486-56-6

### Tobacco Smoke

- 9 Cotinine  
CAS No. 486-56-6
- 12 NNAL  
CAS No. 76014-81-8

### Disinfection By-Products

- 16 Bromodichloromethane  
CAS No. 75-27-4
- 17 Dibromochloromethane (Chlorodibromomethane)  
CAS No. 124-48-1
- 18 Tribromomethane (Bromoform)  
CAS No. 75-25-2
- 19 Trichloromethane (Chloroform)  
CAS No. 67-66-3

### Personal Care and Consumer Product Chemicals and Metabolites

- 20 Benzophenone-3  
CAS No. 131-57-7
- 24 Bisphenol A  
CAS No. 80-05-7
- 28 4-*tert*-Octylphenol  
CAS No. 140-66-9
- 30 Triclocarban  
CAS No. 101-20-2
- 32 Triclosan  
CAS No. 3380-34-5
- 36 Butyl paraben  
CAS No. 94-26-8
- 40 Ethyl paraben  
CAS No. 120-47-8
- 44 Methyl paraben  
CAS No. 99-76-3
- 48 *n*-Propyl paraben  
CAS No. 94-13-3
- 52 2,4-Dichlorophenol  
CAS No. 120-83-2

56 2,5-Dichlorophenol  
CAS No. 583-78-8

#### Fungicides and Metabolites

60 *ortho*-Phenylphenol  
CAS No. 90-43-7

62 Ethylene thiourea  
CAS No. 96-45-7

64 Pentachlorophenol  
CAS No. 87-86-5

66 Propylene thiourea  
CAS No. 2122-19-2

#### Herbicides and Metabolites

68 Atrazine  
CAS No. 1912-24-9

70 Atrazine mercapturate  
CAS No. 138722-96-0

72 Desethyl atrazine  
CAS No. 6190-65-4

74 Desisopropyl atrazine  
CAS No. 1007-28-9

76 Desisopropyl atrazine mercapturate  
CAS No. 1007-28-9

78 Diaminochlorotriazine

80 2,4-Dichlorophenoxyacetic acid  
CAS No. 94-75-7

84 2,4,5-Trichlorophenoxyacetic acid  
CAS No. 93-76-5

#### Sulfonyl Urea Herbicides

88 Urinary Bensulfuron-methyl  
CAS No. 83055-99-6

90 Urinary Chlorsulfuron  
CAS No. 64902-72-3

92 Urinary Ethametsulfuron-methyl  
CAS No. 97780-06-8

94 Urinary Foramsulfuron  
CAS No. 173159-57-4

96 Urinary Halosulfuron  
CAS No. 135397-30-7

98 Urinary Mesosulfuron-methyl  
CAS No. 208465-21-8

100 Urinary Metsulfuron-methyl  
CAS No. 74223-64-6

102 Urinary Nicosulfuron  
CAS No. 111991-09-4

104 Urinary Oxasulfuron  
CAS No. 144651-06-9

106 Urinary Primisulfuron-methyl  
CAS No. 86209-51-0

108 Urinary Prosulfuron  
CAS No. 94125-34-5

- 110 Urinary Rimsulfuron  
CAS No. 122931-48-0
- 112 Urinary Sulfometuron-methyl  
CAS No. 74222-97-2
- 114 Urinary Sulfosulfuron  
CAS No. 141776-32-1
- 116 Urinary Thifensulfuron-methyl  
CAS No. 79277-27-3
- 118 Urinary Triasulfuron  
CAS No. 82097-50-5
- 120 Urinary Triflusulfuron-methyl  
CAS No. 126535-15-7

#### Insect Repellent and Metabolites

- 122 N,N-Diethyl-*meta*-toluamide (DEET)  
CAS No. 134-62-3
- 124 3-(Diethylcarbamoyl) benzoic acid (DCBA)  
CAS No. 858981-15-4
- 126 N,N-Diethyl-3-(hydroxymethyl) benzamide (DHMB)  
CAS No. 72236-22-7

#### Carbamate Pesticide Metabolites

- 128 Carbofuranphenol  
CAS No. 1563-38-8
- 130 2-Isopropoxyphenol  
CAS No. 4812-20-8

#### Organochlorine Pesticide Metabolites

- 132 2,4,5-Trichlorophenol  
CAS No. 95-95-4
- 134 2,4,6-Trichlorophenol  
CAS No. 88-06-2

#### Organophosphorus Insecticides: Specific Metabolites

- 136 Acephate  
CAS No. 30560-19-1
- 138 Dimethoate  
CAS No. 60-51-5
- 140 Methamidophos  
CAS No. 10265-92-6
- 142 Omethoate  
CAS No. 1113-02-6
- 144 Malathion dicarboxylic acid  
CAS No. 1190-28-9
- 146 2-Isopropyl-4-methyl-pyrimidinol  
CAS No. 2814-20-2
- 148 *para*-Nitrophenol  
CAS No. 100-02-7
- 150 3,5,6-Trichlor-2-pyridinol  
CAS No. 6515-38-4

#### Organophosphorus Insecticides: Dialkyl Phosphate Metabolites

- 152 Diethylphosphate (DEP)  
CAS No. 598-02-7



- 156 Dimethylphosphate (DMP)  
CAS No. 813-78-5
- 160 Diethylthiophosphate (DETP)  
CAS No. 5871-17-0
- 164 Dimethylthiophosphate (DMTP)  
CAS No. 59401-04-6
- 168 Diethyldithiophosphate (DEDTP)  
CAS No. 298-06-6
- 172 Dimethyldithiophosphate (DMDTP)  
CAS No. 756-80-9

#### Pyrethroid Metabolites

- 176 *trans*-3-(2,2-Dichlorovinyl)-2,2-dimethylcyclopropane carboxylic acid  
CAS No. 55701-05-8
- 180 *cis*-3-(2,2-Dibromovinyl)-2,2-dimethylcyclopropane carboxylic acid
- 182 4-Fluoro-3-phenoxybenzoic acid  
CAS No. 77279-89-1
- 184 3-Phenoxybenzoic acid  
CAS No. 3739-38-6

#### Metals and Metalloids

- 186 Antimony  
CAS No. 7440-36-0
- 192 Arsenic, Total  
CAS No. 7440-38-2
- 196 Inorganic-related Arsenic Species
- 200 Arsenic (V) acid
- 204 Arsenobetaine  
CAS No. 64436-13-1
- 208 Arsenocholine  
CAS No. 96055-45-7
- 212 Arsenous (III) acid  
CAS No. 13464-58-9
- 216 Dimethylarsinic acid  
CAS No. 917-76-0
- 220 Monomethylarsonic acid  
CAS No. 65513-69-1
- 224 Trimethylarsine oxide  
CAS No. 4964-14-1
- 228 Barium  
CAS No. 81-25-4
- 234 Beryllium  
CAS No. 7440-41-7
- 238 Cadmium  
CAS No. 81271-94-5
- 247 Cesium  
CAS No. 7440-46-2
- 253 Cobalt  
CAS No. 7440-48-4
- 259 Copper  
CAS No. 7440-50-8
- 260 Lead  
CAS No. 7439-92-1

- 269 Manganese  
CAS No. 8075-39-6
- 272 Mercury (total; inorganic; ethyl and methyl species)  
CAS No. 92786-62-4
- 283 Molybdenum  
CAS No. 7439-98-7
- 289 Platinum  
CAS No. 7740-106-4
- 293 Selenium  
CAS No. 7782-49-2
- 295 Strontium  
CAS No. 7440-24-6
- 297 Thallium  
CAS No. 7440-28-0
- 303 Tin  
CAS No. 7440-31-5
- 305 Tungsten  
CAS No. 7440-33-7
- 311 Uranium  
CAS No. 7440-61-1
- 317 Zinc  
CAS No. 7440-66-6

#### Perchlorate and Other Anions

- 318 Nitrate  
CAS No. 84145-82-4
- 322 Perchlorate  
CAS No. 14797-73-0
- 328 Thiocyanate  
CAS No. 302-04-5

#### Perfluoroalkyl and Polyfluoroalkyl Substances: Surfactants

- 332 Perfluorobutane sulfonic acid (PFBS)  
CAS No. 375-73-5
- 335 Perfluorodecanoic acid (PFDeA)  
CAS No. 335-76-2
- 338 Perfluorododecanoic acid (PFDoA)  
CAS No. 307-55-1
- 341 Perfluoroheptanoic acid (PFHpA)  
CAS No. 375-85-9
- 344 Perfluorohexane sulfonic acid (PFHxS)  
CAS No. 355-46-4
- 347 Perfluorononanoic acid (PFNA)  
CAS No. 375-95-1
- 350 Perfluorooctanoic acid (PFOA)  
CAS No. 335-67-1
- 353 *n*-Perfluorooctanoic acid (*n*-PFOA)
- 354 Branched Perfluorooctanoic isomers (Sb-PFOA)
- 355 Perfluorooctane sulfonic acid (PFOS)  
CAS No. 1763-23-1
- 358 *n*-Perfluorooctane sulfonic acid (*n*-PFOS)
- 359 Perfluoromethylheptane sulfonic acid isomers (Sm-PFOS)

- 360 Perfluorooctane sulfonamide (PFOSA)  
CAS No. 754-91-6
- 363 2-(N-Ethyl-perfluorooctane sulfonamido) acetic acid (Et-PFOSA-AcOH)  
CAS No. 2991-50-6
- 366 2-(N-Methyl-perfluorooctane sulfonamido) acetic acid (Me-PFOSA-AcOH)  
CAS No. 2355-31-9
- 369 Perfluoroundecanoic acid (PFUA)  
CAS No. 2058-94-8

#### Phthalate and Phthalate Alternative Metabolites

- 372 Mono-benzyl phthalate (MBzP)  
CAS No. 2528-16-7
- 378 Mono-*n*-butyl phthalate (MnBP)  
CAS No. 131-70-4
- 384 Mono-isobutyl phthalate (MiBP)  
CAS No. 30833-53-5
- 390 Mono-cyclohexyl phthalate (MCHP)  
CAS No. 7517-36-4
- 394 Mono-ethyl phthalate (MEP)  
CAS No. 863029-89-4
- 400 Mono-2-ethylhexyl phthalate (MEHP)  
CAS No. 4376-20-9
- 406 Mono-(2-ethyl-5-hydroxyhexyl) phthalate (MEHHP)  
CAS No. 40321-99-1
- 412 Mono-(2-ethyl-5-oxohexyl) phthalate (MEOHP)  
CAS No. 40321-98-0
- 418 Mono-(2-ethyl-5-carboxypentyl) phthalate (MECPP)  
CAS No. 40809-41-4
- 422 Mono-(carboxynonyl) phthalate (MCNP)  
CAS No. 1373125-93-9
- 426 Mono-isononyl phthalate (MiNP)  
CAS No. 297182-83-3
- 432 Mono-(carboxyoctyl) phthalate (MCOP)  
CAS No. Di-isononyl phthalate (DNP)
- 436 Mono-methyl phthalate (MMP)  
CAS No. 4376-18-5
- 442 Mono-(3-carboxypropyl) phthalate (MCPPE)  
CAS No. 66851-46-5
- 448 Mono-*n*-octyl phthalate (MOP)  
CAS No. 5393-19-1
- 452 Cyclohexane-1,2-dicarboxylic acid mono(hydroxy-isononyl ester) (MHNCH)

#### Phytoestrogens and Metabolites

- 454 Daidzein  
CAS No. 486-66-8
- 458 Enterodiol  
CAS No. 80226-00-2
- 462 Enterolactone  
CAS No. 77756-20-8
- 466 Equol  
CAS No. 531-95-3
- 470 Genistein  
CAS No. 446-72-0

474 O-Desmethylangolensin  
CAS No. 21255-69-6

#### Polycyclic Aromatic Hydrocarbon Metabolites

- 478 2-Hydroxyfluorene  
CAS No. 2443-58-5
- 484 3-Hydroxyfluorene  
CAS No. 6344-67-8
- 490 9-Hydroxyfluorene  
CAS No. 1689-64-1
- 496 1-Hydroxyphenanthrene  
CAS No. 2433-56-9
- 502 2-Hydroxyphenanthrene  
CAS No. 605-55-0
- 508 3-Hydroxyphenanthrene  
CAS No. 605-87-8
- 514 4-Hydroxyphenanthrene  
CAS No. 7657-86-7
- 518 1-Hydroxypyrene  
CAS No. 5315-79-7
- 524 1-Hydroxynaphthalene (1-Naphthol)  
CAS No. 90-15-3
- 530 2-Hydroxynaphthalene (2-Naphthol)  
CAS No. 135-19-3

#### Volatile Organic Compounds (VOCs)

- 536 1,1,1-Trichloroethane (Methyl chloroform)  
CAS No. 71-55-6
- 537 1,1,1,2-Tetrachloroethane  
CAS No. 79-34-5
- 538 1,1,2,2-Tetrachloroethane  
CAS No. 79-34-5
- 539 1,1,2-Trichloroethane  
CAS No. 79-00-5
- 540 1,2,3-Trichloropropane  
CAS No. 96-18-4
- 541 1,1-Dichloroethane  
CAS No. 75-34-3
- 542 1,1-Dichloroethene (Vinylidene chloride)  
CAS No. 75-34-3
- 543 1,2-Dibromo-3-chloropropane (DBCP)  
CAS No. 96-12-8
- 544 1,2-Dibromoethane  
CAS No. 106-93-4
- 545 1,2-Dichlorobenzene (*o*-Dichlorobenzene)  
CAS No. 95-50-1
- 546 1,2-Dichloroethane (Ethylene dichloride)  
CAS No. 107-06-2
- 547 *cis*-1,2-Dichloroethene  
CAS No. 156-59-2
- 548 *trans*-1,2-Dichloroethene  
CAS No. 156-60-5
- 549 1,2-Dichloropropane  
CAS No. 78-87-5

- 550 1,3-Dichlorobenzene (*m*-Dichlorobenzene)  
CAS No. 95-50-1
- 551 1,4-Dichlorobenzene (Paradichlorobenzene)  
CAS No. 106-46-7
- 552 2,5-Dimethylfuran  
CAS No. 625-86-5
- 553 Benzene  
CAS No. 71-43-2
- 554 Chlorobenzene (Monochlorobenzene)  
CAS No. 108-90-7
- 555 Dibromomethane  
CAS No. 74-95-3
- 556 Dichloromethane (Methylene chloride)  
CAS No. 75-09-2
- 557 Ethylbenzene  
CAS No. 100-41-4
- 558 Furan  
CAS No. 110-00-9
- 559 Hexachloroethane  
CAS No. 67-72-1
- 560 Isopropylbenzene (Cumene)  
CAS No. 98-82-8
- 561 Methyl-*tert*-butyl ether (MTBE)  
CAS No. 1634-04-4
- 562 Nitrobenzene  
CAS No. 98-95-3
- 563 Nitromethane  
CAS No. 75-52-5
- 564 Styrene  
CAS No. 100-42-5
- 565 Tetrachloroethene (Perchloroethylene)  
CAS No. 127-18-4
- 566 Tetrachloromethane (Carbon tetrachloride)  
CAS No. 56-23-5
- 567 Toluene  
CAS No. 108-88-3
- 568 Trichloroethene (Trichloroethylene)  
CAS No. 79-01-6
- 569 *m-p*-Xylene  
CAS No. 108-38-3/106-42-3
- 570 *o*-Xylene  
CAS No. 95-47-6

#### Volatile Organic Compound (VOC) Metabolites

- 571 N-Acetyl-S-(2-carboxyethyl)-L-cysteine  
CAS No. 51868-61-2
- 573 N-Acetyl-S-(3-hydroxypropyl)-L-cysteine  
CAS No. 23127-40-4
- 575 N-Acetyl-S-(2-carbamoylethyl)-L-cysteine  
CAS No. 81690-92-8
- 577 N-Acetyl-S-(2-carbamoyl-2-hydroxyethyl)-L-cysteine
- 579 N-Acetyl-S-(2-cyanoethyl)-L-cysteine  
CAS No. 74514-75-3

- 581 N-Acetyl-S-(2-hydroxyethyl)-L-cysteine  
CAS No. 15060-26-1
- 583 N-Acetyl-S-(phenyl)-L-cysteine  
CAS No. 4775-80-8
- 585 N-Acetyl-S-(*n*-propyl)-L-cysteine
- 587 N-Acetyl-S-(3,4-dihydroxybutyl)-L-cysteine  
CAS No. 144889-50-9
- 589 N-Acetyl-S-(1-hydroxymethyl-2-propenyl)-L-cysteine
- 591 N-Acetyl-S-(2-hydroxy-3-butenyl)-L-cysteine  
CAS No. 159092-64-5
- 593 N-Acetyl-S-(4-hydroxy-2-butenyl)-L-cysteine  
CAS No. 159092-65-6
- 595 2-Thioxothiazolidine-4-carboxylic acid  
CAS No. 20933-67-9
- 597 N-Acetyl-S-(3-hydroxypropyl-1-methyl)-L-cysteine  
CAS No. 33164-70-4
- 599 2-Aminothiazoline-4-carboxylic acid  
CAS No. 40283-41-8
- 601 N-Acetyl-S-(N-methylcarbamoyl)-L-cysteine  
CAS No. 103974-29-4
- 603 Phenylglyoxylic acid  
CAS No. 611-73-4
- 605 N-Acetyl-S-(2-hydroxypropyl)-L-cysteine  
CAS No. 923-43-3
- 607 N-Acetyl-S-(phenyl-2-hydroxyethyl)-L-cysteine
- 609 Mandelic acid  
CAS No. 90-64-2, 611-71-2 (R), 17199-29-0 (S)
- 611 N-Acetyl-S-(trichlorovinyl)-L-cysteine  
CAS No. 111348-61-9
- 613 N-Acetyl-S-(benzyl)-L-cysteine  
CAS No. 19542-77-9
- 615 N-Acetyl-S-(1,2-dichlorovinyl)-L-cysteine  
CAS No. 2148-31-4
- 617 N-Acetyl-S-(2,2-dichlorovinyl)-L-cysteine  
CAS No. 126543-43-9
- 619 N-Acetyl-S-(dimethylphenyl)-L-cysteine
- 621 2-Methylhippuric acid  
CAS No. 42013-20-7
- 623 3- and 4-Methylhippuric acid  
CAS No. 27115-49-7, 27115-50-0

## Appendices

- 625 Appendix C
- 631 Appendix D

## Volume Two

### *Special Analysis of Pooled Samples for Select Chemicals*

- 1 Special Analysis of Pooled Samples for Select Chemicals

### Organochlorine Pesticides and Metabolites (Pooled Samples after 2004)

- 3 Aldrin  
CAS No. 309-00-2
- 5 Dieldrin  
CAS No. 60-57-1
- 7 Endrin  
CAS No. 72-20-8
- 9 Heptachlor epoxide  
CAS No. 1024-57-3
- 11 Oxychlorane  
CAS No. 27304-13-8
- 17 *trans*-Nonachlor  
CAS No. 39765-80-5
- 23 *p,p'*-DDT  
CAS No. 50-29-3
- 29 *p,p'*-DDE  
CAS No. 72-55-9
- 35 *o,p'*-DDT
- 37 Hexachlorobenzene  
CAS No. 118-74-1
- 43 *beta*-Hexachlorocyclohexane  
CAS No. 319-85-7
- 49 *gamma*-Hexachlorocyclohexane
- 55 Mirex  
CAS No. 2385-85-5

### Polybrominated Diphenyl Ethers and PBB 153 (Pooled Samples after 2004)

- 61 2,2',4'-Tribromodiphenyl ether (BDE 17)  
CAS No. 147217-75-2
- 64 2,4,4'-Tribromodiphenyl ether (BDE 28)  
CAS No. 41318-75-6
- 67 2,2',4,4'-Tetrabromodiphenyl ether (BDE 47)  
CAS No. 5436-43-1
- 70 2,3',4,4'-Tetrabromodiphenyl ether (BDE 66)  
CAS No. 189084-61-5
- 73 2,2',3,4,4'-Pentabromodiphenyl ether (BDE 85)  
CAS No. 182346-21-0
- 76 2,2',4,4',5-Pentabromodiphenyl ether (BDE 99)  
CAS No. 60328-60-9
- 79 2,2',4,4',6-Pentabromodiphenyl ether (BDE 100)  
CAS No. 189084-64-8
- 82 2,2',4,4',5,5'-Hexabromodiphenyl ether (BDE 153)  
CAS No. 68631-49-2
- 85 2,2',4,4',5,6'-Hexabromodiphenyl ether (BDE 154)  
CAS No. 207122-15-4
- 88 2,2',3,4,4',5',6-Heptabromodiphenyl ether (BDE 183)  
CAS No. 207122-16-5
- 91 2,2',3,3',4,4',5,5',6,6'-Decabromodiphenyl ether (BDE 209)  
CAS No. 1163-19-5
- 93 2,2',4,4',5,5'-Hexabromobiphenyl (PBB 153)  
CAS No. 59080-40-9

### Polychlorinated Dibenzo-*p*-dioxins (Pooled Samples after 2004)

- 96 1,2,3,4,6,7,8-Heptachlorodibenzo-*p*-dioxin (HpCDD)

- 102 1,2,3,4,7,8-Hexachlorodibenzo-*p*-dioxin (HxCDD)  
CAS No. 39227-28-6
- 108 1,2,3,6,7,8-Hexachlorodibenzo-*p*-dioxin (HxCDD)  
CAS No. 57653-85-7
- 114 1,2,3,7,8,9-Hexachlorodibenzo-*p*-dioxin (HxCDD)  
CAS No. 19408-74-3
- 120 1,2,3,4,6,7,8,9-Octachlorodibenzo-*p*-dioxin (OCDD)  
CAS No. 3268-87-9
- 126 1,2,3,7,8-Pentachlorodibenzo-*p*-dioxin (PeCDD)  
CAS No. 40321-76-4
- 132 2,3,7,8-Tetrachlorodibenzo-*p*-dioxin (TCDD)  
CAS No. 1746-01-6

#### Polychlorinated Dibenzofurans (Pooled Samples after 2004)

- 138 1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)  
CAS No. 67562-39-4
- 144 1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)  
CAS No. 55673-89-7
- 150 1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)  
CAS No. 70648-26-9
- 156 1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)  
CAS No. 57117-44-9
- 162 1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)  
CAS No. 72918-21-9
- 168 2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)  
CAS No. 60851-34-5
- 174 1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)  
CAS No. 39001-02-0
- 180 1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)  
CAS No. 57117-41-6
- 186 2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)  
CAS No. 57117-31-4
- 192 2,3,7,8-Tetrachlorodibenzofuran (TCDF)  
CAS No. 51207-31-9

#### Dioxin-like Polychlorinated Biphenyls: coplanar PCBs (Pooled Samples after 2004)

- 198 3,4,4',5'-Tetrachlorobiphenyl (PCB 81)  
CAS No. 70362-50-4
- 204 3,3',4,4',5'-Pentachlorobiphenyl (PCB 126)  
CAS No. 57465-28-8
- 210 3,3',4,4',5,5'-Hexachlorobiphenyl (PCB 169)  
CAS No. 32774-16-6

#### Dioxin-like Polychlorinated Biphenyls: mono-*ortho*-substituted PCBs (Pooled Samples after 2004)

- 216 2,3,3',4,4'-Pentachlorobiphenyl (PCB 105)  
CAS No. 32598-14-4
- 222 2,3,3',4,4'-Pentachlorobiphenyl (PCB 114)  
CAS No. 74472-37-0
- 226 2,3',4,4',5-Pentachlorobiphenyl (PCB 118)  
CAS No. 31508-00-6
- 232 2',3,4,4',5-Pentachlorobiphenyl (PCB 123)  
CAS No. 65510-44-3
- 236 2,3,3',4,4',5-Hexachlorobiphenyl (PCB 156)  
CAS No. 38380-08-4



- 242 2,3,3',4,4',5'-Hexachlorobiphenyl (PCB 157)  
CAS No. 69782-90-7
- 248 2,3',4,4',5,5'-Hexachlorobiphenyl (PCB 167)  
CAS No. 52663-72-6
- 254 **2,3,3',4,4',5,5'-Heptachlorobiphenyl (PCB 189)**  
CAS No. 39635-31-9

**Polychlorinated Biphenyls: Non-Dioxin-Like (Pooled Samples after 2004)**

- 260 2,4,4'-Trichlorobiphenyl (PCB 28)  
CAS No. 7012-37-5
- 266 2,2',3,5'-Tetrachloro biphenyl (PCB 44)  
CAS No. 41464-39-5
- 272 2,2',4,5'-Tetrachloro biphenyl (PCB 49)  
CAS No. 41464-40-8
- 278 2,2',5,5'-Tetrachlorobiphenyl (PCB 52)  
CAS No. 35693-99-3
- 284 2,3',4,4'-Tetrachlorobiphenyl (PCB 66)  
CAS No. 33025-41-1
- 290 2,4,4',5-Tetrachlorobiphenyl (PCB 74)  
CAS No. 32690-93-0
- 296 2,2',3,4,5'-Pentachlorobiphenyl (PCB 87)  
CAS No. 41464-51-1
- 302 2,2',4,4',5-Pentachlorobiphenyl (PCB 99)  
CAS No. 38380-02-8
- 308 2,2',4,5,5'-Pentachlorobiphenyl (PCB 101)  
CAS No. 37680-73-2
- 314 **2,3,3',4',6-Pentachlorobiphenyl (PCB 110)**  
CAS No. 74472-35-8
- 320 2,2',3,3',4,4'-Hexachlorobiphenyl (PCB 128)  
CAS No. 38380-07-3
- 326 **2,2',3,4,4',5' and 2,3,3',4,4',6-Hexachlorobiphenyl (PCB 138 & 158)**  
CAS No. 52712-04-6 and 74472-42-7
- 332 2,2',3,4',5,5'-Hexachlorobiphenyl (PCB 146)  
CAS No. 51908-16-8
- 338 **2,2',3,4',5',6-Hexachlorobiphenyl (PCB 149)**  
CAS No. 38380-04-0
- 344 **2,2',3,5,5',6-Hexachlorobiphenyl (PCB 151)**  
CAS No. 52663-63-5
- 350 2,2',4,4',5,5'-Hexachlorobiphenyl (PCB 153)  
CAS No. 35065-27-1
- 356 2,2',3,3',4,4',5-Heptachlorobiphenyl (PCB 170)  
CAS No. 35065-30-6
- 362 2,2',3,3',4,5,5'-Heptachlorobiphenyl (PCB 172)  
CAS No. 52663-74-8
- 368 2,2',3,3',4,5',6'-Heptachlorobiphenyl (PCB 177)  
CAS No. 40186-70-7
- 374 2,2',3,3',5,5',6-Heptachlorobiphenyl (PCB 178)  
CAS No. 52663-67-9
- 380 2,2',3,4,4',5,5'-Heptachlorobiphenyl (PCB 180)  
CAS No. 35065-29-3
- 386 2,2',3,4,4',5',6-Heptachlorobiphenyl (PCB 183)  
CAS No. 52663-69-1
- 392 2,2',3,4',5,5',6-Heptachlorobiphenyl (PCB 187)  
CAS No. 52663-68-0

- 398 **2,2',3,3',4,4',5,5'-Octachlorobiphenyl (PCB 194)**  
CAS No. 35694-08-7
- 404 **2,2',3,3',4,4',5,6-Octachlorobiphenyl (PCB 195)**  
CAS No. 52663-78-2
- 410 **2,2',3,3',4,4',5,6' and 2,2',3,4,4',5,5',6-Octachlorobiphenyl (PCB 196 & 203)**  
CAS No. 42740-50-1 and 52663-76-0
- 416 **2,2',3,3',4,5,5',6-Octachlorobiphenyl (PCB 199)**  
CAS No. 52663-73-7
- 422 **2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl (PCB 206)**  
CAS No. 40186-72-9
- 428 **2,2',3,3',4,4',5,5',6,6'-Decachlorobiphenyl (PCB 209)**  
CAS No. 2051-24-3

*Exposure to Chemicals Found in Cigarette Smoke in U.S. Adults*

- 434 Exposure to Chemicals Found in Cigarette Smoke in U.S. Adults: Analysis of Select Chemicals in a Special Sample

**Metals and Metalloids (Special Sample: Adult Smokers & Nonsmokers)**

- 435 Antimony  
CAS No. 7440-36-0
- 437 Arsenic, Total  
CAS No. 7440-38-2
- 439 Arsenic (V) acid
- 441 Arsenobetaine  
CAS No. 64436-13-1
- 443 Arsenocholine  
CAS No. 96055-45-7
- 445 Arsenous (III) acid  
CAS No. 13464-58-9
- 447 Dimethylarsinic acid  
CAS No. 917-76-0
- 449 Monomethylarsonic acid  
CAS No. 65513-69-1
- 451 Trimethylarsine oxide  
CAS No. 4964-14-1
- 453 Barium  
CAS No. 81-25-4
- 455 Cadmium  
CAS No. 81271-94-5
- 457 Cesium  
CAS No. 7440-46-2
- 459 Cobalt  
CAS No. 7440-48-4
- 461 Lead  
CAS No. 7439-92-1
- 463 Manganese  
CAS No. 8075-39-6
- 465 Molybdenum  
CAS No. 7439-98-7
- 467 Strontium  
CAS No. 7440-24-6
- 469 Thallium  
CAS No. 7440-28-0
- 471 Tin  
CAS No. 7440-31-5

473 Tungsten  
CAS No. 7440-33-7

475 Uranium  
CAS No. 7440-61-1

#### Perchlorate and Other Anions (Special Sample: Adult Smokers & Nonsmokers)

477 Nitrate  
CAS No. 84145-82-4

479 Perchlorate  
CAS No. 14797-73-0

481 Thiocyanate  
CAS No. 302-04-5

#### Polycyclic Aromatic Hydrocarbon Metabolites (Adult Cigarette Smokers & Nonsmokers: Special Sample)

483 2-Hydroxyfluorene  
CAS No. 2443-58-5

485 3-Hydroxyfluorene  
CAS No. 6344-67-8

487 9-Hydroxyfluorene  
CAS No. 1689-64-1

489 1-Hydroxyphenanthrene  
CAS No. 2433-56-9

491 2-Hydroxyphenanthrene  
CAS No. 605-55-0

493 3-Hydroxyphenanthrene  
CAS No. 605-87-8

495 4-Hydroxyphenanthrene  
CAS No. 7657-86-7

497 1-Hydroxypyrene  
CAS No. 5315-79-7

499 1-Hydroxynaphthalene (1-Naphthol)  
CAS No. 90-15-3

501 2-Hydroxynaphthalene (2-Naphthol)  
CAS No. 135-19-3

#### Volatile Organic Compound (VOC) Metabolites (Special Sample: Adult Smokers & Nonsmokers)

503 N-Acetyl-S-(2-carboxyethyl)-L-cysteine  
CAS No. 51868-61-2

505 N-Acetyl-S-(3-hydroxypropyl)-L-cysteine  
CAS No. 23127-40-4

507 N-Acetyl-S-(2-carbamoyl-ethyl)-L-cysteine  
CAS No. 81690-92-8

509 N-Acetyl-S-(2-carbamoyl-2-hydroxyethyl)-L-cysteine

511 N-Acetyl-S-(2-cyanoethyl)-L-cysteine  
CAS No. 74514-75-3

513 N-Acetyl-S-(2-hydroxyethyl)-L-cysteine  
CAS No. 15060-26-1

515 N-Acetyl-S-(phenyl)-L-cysteine  
CAS No. 4775-80-8

517 N-Acetyl-S-(n-propyl)-L-cysteine

519 N-Acetyl-S-(3,4-dihydroxybutyl)-L-cysteine  
CAS No. 144889-50-9

521 N-Acetyl-S-(1-hydroxymethyl-2-propenyl)-L-cysteine

- 523 N-Acetyl-S-(2-hydroxy-3-butenyl)-L-cysteine  
CAS No. 159092-64-5
- 525 N-Acetyl-S-(4-hydroxy-2-butenyl)-L-cysteine  
CAS No. 159092-65-6
- 527 2-Thioxothiazolidine-4 carboxylic acid  
CAS No. 20933-67-9
- 529 N-Acetyl-S-(3-hydroxypropyl-1-methyl)-L-cysteine  
CAS No. 33164-70-4
- 531 2-Aminothiazoline-4-carboxylic acid  
CAS No. 40283-41-8
- 533 N-Acetyl-S-(N-methylcarbamoyl)-L-cysteine  
CAS No. 103974-29-4
- 535 Phenylglyoxylic acid  
CAS No. 611-73-4
- 537 N-Acetyl-S-(2-hydroxypropyl)-L-cysteine  
CAS No. 923-43-3
- 539 N-Acetyl-S-(phenyl-2-hydroxyethyl)-L-cysteine
- 541 Mandelic acid  
CAS No. 90-64-2, 611-71-2 (R), 17199-29-0 (S)
- 543 N-Acetyl-S-(trichlorovinyl)-L-cysteine  
CAS No. 111348-61-9
- 545 N-Acetyl-S-(benzyl)-L-cysteine  
CAS No. 19542-77-9
- 547 N-Acetyl-S-(1,2-dichlorovinyl)-L-cysteine  
CAS No. 2148-31-4
- 549 N-Acetyl-S-(2,2-dichlorovinyl)-L-cysteine  
CAS No. 126543-43-9
- 551 N-Acetyl-S-(dimethylphenyl)-L-cysteine
- 553 2-Methylhippuric acid  
CAS No. 42013-20-7
- 555 3- & 4-Methylhippuric acid  
CAS No. 27115-49-7, 27115-50-0

## Appendices

- 557 Appendix C
- 563 Appendix D

## ***Fourth National Report on Human Exposure to Environmental Chemicals, Updated Tables, January 2017***

The *Fourth Report on Human Exposure to Environmental Chemicals, Updated Tables, January 2017* (abbreviated as *Updated Tables, January 2017*) is cumulative, containing the nationally representative biomonitoring data presented in each of the previous *National Reports on Human Exposure to Environmental Chemicals* and each of the previous *Updated Tables*. The earliest biomonitoring data included is from 1999-2000.

Starting with this release, the *Updated Tables* have expanded to **two volumes**. **Volume One** provides data for the general U.S. population and includes recently released data from NHANES 2005-2006, 2007-2008, 2009-2010, and 2013-2014. **Volume Two** provides data for chemicals previously measured in individual samples but currently measured in pooled samples and includes recently released data from NHANES 2005-2006 and 2007-2008 using the corrected NHANES sampling weights. **Volume Two** also provides data for the special sample of adult cigarette smokers and nonsmokers, including recently released data from NHANES 2013-2014. Of note, the age for eligibility in the special sample decreased from 20 years and older in NHANES 2011-2012 to 18 years and older beginning in NHANES 2013-2014 (NHANES lowered the age for asking the smoking questions in 2013).

The *Updated Tables, January 2017* provides data for 308 chemicals, of which 20 are new and 96 have updated data since the *Updated Tables, February 2015*. A link to a Biomonitoring Summary providing information about a specific chemical or chemical group is provided at the bottom of many of the data tables. Several chemicals also have a link to a factsheet about the chemical or chemical group. Two appendices have been updated to include information pertinent to these chemicals and the other chemicals included in the *Updated Tables* ([Appendix C. Limit of Detection Table](#); [Appendix D. References for Biomonitoring Methods](#)).

A complete list of the chemicals included in this *Updated Tables* is posted on the *Report* website: Chemicals in the *Fourth Report: Updated Tables, January 2017*. The *Updated Tables, January 2017* provides updated data for 207 chemicals since the publication of the *Fourth Report*, new data for 96 chemicals, and *Fourth Report* data for 5 chemicals that are no longer measured.

The *Report* website is the best resource for updates of available data (<http://www.cdc.gov/exposurereport>). The *Fourth National Report on Human Exposure to Environmental Chemicals, 2009*, at this website contains details of the Data Sources and Data Analysis, Interpretation of *Report* Data, and Chemical and Toxicological Information that pertain to the *Updated Tables*.

## What's New and Different?

The *Updated Tables, January 2017*, include chemicals that have results available from the NHANES survey periods 2005-2006, 2007-2008, 2009-2010, and 2013-2014. No new 2011-2012 data were released for this *Updated Tables*. New chemicals measured for the first time include the herbicide atrazine and five of its metabolites, the insect repellent DEET and two of its metabolites, triclocarban, branched and linear isomers of both PFOS and PFOA, and six blood VOCs: 1,1,1,2-tetrachloroethane; 1,2,3-trichloropropane; 1,2-dibromoethane; furan; isopropylbenzene (cumene); and nitromethane. A new chemical group created in 2013-2014 is the Personal Care and Consumer Product Chemicals and Metabolites, which reflects the chemical uses and combines three previous groups: Environmental Phenols, Parabens, and Other Pesticide Metabolites. The chemical group previously called Perfluorinated Compounds: Surfactants has been renamed as Perfluoroalkyl and Polyfluoroalkyl Substances: Surfactants.

Chemicals with updated data in this release are

- adducts of hemoglobin (acrylamide and glycidamide);
- blood VOCs, including disinfection by-products;
- urinary PBA, benzophenone-3, triclosan, four parabens, 2,4-dichlorophenol, and 2,5-dichlorophenol;
- whole blood metals and mercury species;
- serum metals;
- urinary metals and arsenic species;
- urinary perchlorate, nitrate, and thiocyanate;
- serum perfluoroalkyl and polyfluoroalkyl substances (PFAS);
- urinary polycyclic aromatic hydrocarbon metabolites;
- serum polychlorinated dibenzo-*p*-dioxins (pooled);
- serum polychlorinated dibenzofurans (pooled);
- serum dioxin-like polychlorinated biphenyls: coplanar PCBs (pooled).

### CAS Registry Numbers (CAS Nos.)

With this *Updated Tables*, we are including CAS registry numbers in the Table of Contents placed along with the chemical name. Not all chemicals have a CAS No. assigned, and there is no number for chemicals that have values calculated from two or more species (e.g., arsenic) or isomers (e.g., PFOS, PFOA).

### Updated Tables in Two Volumes

In this release, we have expanded the *Updated Tables* to **two volumes**, each as a separate PDF. This change was made because the file size of the single PDF had become so large that it could not easily be shared or sent as an attachment. **Volume One** contains data tables for most of the chemicals measured in the U.S. general population. **Volume Two** contains data tables for the persistent organic pollutants and pesticides previously measured in individual samples and are currently measured in pooled samples. **Volume Two** also contains data tables for the special sample of adult cigarette smokers and nonsmokers, including recently released data

from NHANES 2013-2014. We anticipate that future *Updated Tables* will continue to be presented in two volumes.

### **PFOS and PFOA Results for NHANES 2013-2014**

Starting in 2013, we began measuring linear and branched isomers of both PFOS and PFOA and no longer measure total PFOS or PFOA. The isomers of each chemical represent more than 95% of what was previously reported as PFOS and PFOA. PFOS and PFOA were calculated by summing the linear and branched isomers for each participant before applying the appropriate sample weight. Because the 2013-2014 values are a calculated sum, there is no limit of detection (LOD) for PFOS and PFOA. Data tables for each of the four isomers also are presented. See [Calculation of PFOS and PFOA as the Sum of the Isomers](#) for more details. The 2013-2014 PFOS and PFOA results can be used to compare with previous measurements and to examine trends in the general U.S. population.

### **NHANES 2005-2006 Urine VOC Metabolite Data Were Withdrawn**

The NHANES 2005-2006 urine VOC metabolite data were withdrawn in January 2016 because of a systematic bias in several analytes. We have removed the data tables that were previously presented using those data. Once the data are revised and re-posted, we will again present data tables for these chemicals.

With the exception of one analyte, *t,t*-muconic acid, a metabolite of benzene, the NHANES 2011-2012 data were not affected and those data tables are included in this *Updated Tables*. The data for *t,t*-muconic acid was withdrawn for NHANES 2011-2012 because of recently identified analytical issues that could not be resolved.

### **Chemicals No Longer Being Reported**

Results for several chemicals are no longer reported in the *Updated Tables* because their concentrations have been largely undetectable in previous survey periods. These chemicals are atrazine and five atrazine metabolites (measured in 2007-2008), and two PFAS chemicals: PFOSA (also referred to as FOSA) and Et-PFOSA-AcOH (also referred to as EtFOSA).

For the information in this section, “What’s New and Different,” contained in previous releases of *Updated Tables*, please see the Archives from *Updated Tables* at: <http://www.cdc.gov/exposurereport/>.

## Calculation of Urinary Inorganic-related Arsenic Species

In this *Updated Tables*, we present updated data for the urinary inorganic-related arsenic species. The values are calculated using results for each NHANES survey period for the following four arsenic species: arsenic (V) acid, arsenous (III) acid, dimethylarsinic acid (DMA), and monomethylarsonic acid (MMA). The sum of the four species is calculated for each individual NHANES participant. If the value of a species is less than the limit of detection (LOD), then the imputed value is used. The imputed value is calculated as the LOD divided by the square root of 2 (Hornung and Reed, 1990) and imputed values are provided in the NHANES public release file. If all four arsenic species are reported as less than the LOD, then the sum will be the sum of the four imputed values.

The geometric means, selected percentiles, and confidence intervals are calculated using sums with detectable values of 60 percent or higher. If the detection frequency for a category is less than 60 percent, this is indicated by an asterisk (\*). There is no LOD for the inorganic-related arsenic species because the values are calculated, rather than measured.

Reference: Hornung RW, Reed LD. 1990. Estimation of average concentration in the presence of nondetectable values. *Appl Occup Environ Hyg* 5(1):46-51.



## Calculation of PFOS and PFOA as the Sum of the Isomers

In this *Updated Tables, January 2017*, we report NHANES 2013-2014 results for both serum PFOS and PFOA as the sum of their respective isomers. This is because in 2013 we began measuring separately linear and branched isomers of both PFOS and PFOA and no longer measure total PFOS or PFOA. This calculated sum of PFOS (or PFOA) isomers is comparable to the total PFOS (or PFOA) reported before. Production of PFOS and PFOA employed electrochemical fluorination (ECF) or fluorotelomerization. ECF used from the 1950s until the early 2000s yielded branched and linear isomers. In contrast, fluorotelomerization produced almost exclusively linear compounds. Measurement of the two types of isomers may be informative because branched isomers may be eliminated from the body more rapidly than linear isomers (Benskin et al, 2009a). In addition, separate measurements may provide information that is helpful for evaluating exposure source contributions (Benskin et al, 2010, 2009b).

The value of PFOS is calculated as the sum of branched PFOS isomers (perfluoromethylheptane sulfonate isomers, Sm-PFOS) plus the linear isomer (*n*-PFOS). PFOA is calculated as the sum of branched PFOA isomers (Sb-PFOA) plus the linear isomer (*n*-PFOA). For each chemical (PFOS and PFOA), the sum of the branched and linear isomers is calculated for each individual NHANES participant. If the value for any isomer is below the limit of detection (LOD), then the imputed value is used. The imputed value is calculated as the LOD divided by the square root of 2 (Hornung and Reed, 1990) and imputed values are provided in the NHANES public release file. If both isomers for calculating either PFOS or PFOA are reported as less than the LOD, then two imputed values are summed. These calculated PFOA and PFOS results can be used to compare with previous measurements and examine trends in the U.S. population.

The geometric means, selected percentiles, and confidence intervals are calculated using sums with detectable values of 60 percent or higher. If the detection frequency for a category is less than 60 percent, this is indicated by an asterisk (\*). Because the 2013-2014 values for PFOA and PFOS are a calculated sum, there is no limit of detection (LOD) for either of these two chemicals.

The branched isomers of PFOS (Sm-PFOS) and PFOA (Sb-PFOA) are a mixture of isomers. The isomers known to be included in Sm-PFOS are perfluoro-3-methylheptane sulfonate, perfluoro-4-methylheptane sulfonate, perfluoro-5-methylheptane sulfonate, and perfluoro-6-methylheptane sulfonate. The isomers known to be included in Sb-PFOA are perfluoro-3-methylheptanoic acid, perfluoro-4-methylheptanoic acid, perfluoro-5-methylheptanoic acid, perfluoro-6-methylheptanoic acid, perfluoro-4,4-dimethylhexanoic acid, perfluoro-5,5-dimethylhexanoic acid, perfluoro-3,5-dimethylhexanoic acid, and perfluoro-4,5-dimethylhexanoic acid. The linear isomers of PFOS (*n*-PFOS) and PFOA (*n*-PFOA) are single chemicals. Data tables are also presented for each of the four isomers that were measured.

**References:**

Benskin JP, Hold A, Martin JW. 2009a. Isomer-specific biotransformation rates of a perfluorooctane sulfonate (PFOS) precursor by cytochrome P450 isozymes and human liver microsomes. *Environ Sci Technol* 43:8566-8572.

Benskin JP, DeSilver AO, Martin LJ, Arsenault G, McCrindle R, Riddell N, et al. 2009b. Disposition of perfluorinated acid isomers in Sprague-Dawley rats: part 1: single dose. *Environ Toxicol Chem* 28:542-554.

Benskin JP, DeSilver AG, Martin JW. 2010. Isomer profiling of perfluorinated substances as a tool for source tracking: a review of early findings and future applications. *Rev Environ Contamin Toxicol* 208:111-160.

Hornung RW, Reed LD. 1990. Estimation of average concentration in the presence of nondetectable values. *Appl Occup Environ Hyg* 5(1):46-51.

## Acrylamide (2003 - 2006)

Geometric mean and selected percentiles of hemoglobin adduct concentrations (in pmol/g hemoglobin) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Total</b>	03-04	<b>61.2</b> (58.1-64.4)	<b>54.8</b> (52.8-57.7)	<b>79.1</b> (73.5-85.6)	<b>141</b> (124-155)	<b>192</b> (168-217)	7101
	05-06	<b>61.6</b> (58.1-65.4)	<b>54.8</b> (52.8-56.8)	<b>79.1</b> (75.1-86.1)	<b>165</b> (151-178)	<b>221</b> (204-246)	7857
<b>Age group</b>							
3-5 years	03-04	<b>59.4</b> (53.6-65.7)	<b>58.6</b> (51.7-64.9)	<b>75.7</b> (63.4-83.6)	<b>90.6</b> (81.9-105)	<b>108</b> (86.2-118)	350
	05-06	<b>59.1</b> (55.8-62.6)	<b>63.6</b> (58.6-66.4)	<b>74.4</b> (73.2-76.3)	<b>90.3</b> (80.8-100)	<b>102</b> (87.3-121)	483
6-11 years	03-04	<b>58.6</b> (56.1-61.2)	<b>57.3</b> (55.2-59.7)	<b>71.0</b> (67.4-76.3)	<b>86.8</b> (81.2-91.4)	<b>98.8</b> (91.0-104)	769
	05-06	<b>56.1</b> (53.9-58.5)	<b>57.1</b> (54.8-59.9)	<b>67.8</b> (65.3-69.8)	<b>78.8</b> (74.9-86.8)	<b>93.8</b> (81.1-103)	924
12-19 years	03-04	<b>57.4</b> (54.4-60.5)	<b>54.5</b> (52.1-57.4)	<b>70.7</b> (65.6-75.7)	<b>100</b> (89.2-114)	<b>132</b> (115-151)	1889
	05-06	<b>56.4</b> (52.5-60.6)	<b>53.1</b> (50.7-55.8)	<b>69.5</b> (66.2-73.1)	<b>112</b> (98.0-127)	<b>162</b> (131-221)	1977
20-59 years	03-04	<b>66.2</b> (62.2-70.6)	<b>57.9</b> (54.6-61.1)	<b>96.1</b> (83.6-108)	<b>163</b> (147-191)	<b>223</b> (194-243)	2570
	05-06	<b>66.8</b> (62.1-71.9)	<b>56.4</b> (53.7-59.8)	<b>101</b> (87.1-118)	<b>196</b> (177-210)	<b>257</b> (222-298)	3066
60 years and older	03-04	<b>50.1</b> (47.9-52.3)	<b>46.5</b> (44.0-49.2)	<b>61.0</b> (57.6-66.0)	<b>96.1</b> (88.0-108)	<b>141</b> (120-152)	1523
	05-06	<b>52.5</b> (49.4-55.7)	<b>47.8</b> (45.0-49.6)	<b>65.9</b> (60.2-71.6)	<b>136</b> (112-156)	<b>184</b> (167-198)	1407
<b>Gender</b>							
Males	03-04	<b>63.9</b> (60.2-67.9)	<b>57.0</b> (53.7-60.1)	<b>85.5</b> (79.2-93.7)	<b>152</b> (139-175)	<b>220</b> (189-237)	3509
	05-06	<b>65.7</b> (61.5-70.1)	<b>57.5</b> (55.1-60.4)	<b>91.5</b> (80.9-101)	<b>183</b> (163-208)	<b>246</b> (213-277)	3826
Females	03-04	<b>58.7</b> (55.9-61.5)	<b>53.4</b> (51.8-55.9)	<b>73.9</b> (69.5-80.6)	<b>126</b> (111-142)	<b>164</b> (147-191)	3592
	05-06	<b>58.1</b> (54.6-61.7)	<b>52.8</b> (50.9-54.7)	<b>73.1</b> (68.3-78.2)	<b>146</b> (131-160)	<b>199</b> (182-211)	4031
<b>Race/ethnicity</b>							
Mexican Americans	03-04	<b>61.7</b> (58.7-64.9)	<b>57.4</b> (54.4-60.4)	<b>73.0</b> (69.2-77.3)	<b>101</b> (95.0-115)	<b>149</b> (125-179)	1792
	05-06	<b>57.2</b> (54.0-60.7)	<b>54.8</b> (51.4-58.2)	<b>70.2</b> (67.2-73.7)	<b>94.0</b> (86.2-104)	<b>130</b> (110-148)	2035
Non-Hispanic blacks	03-04	<b>63.8</b> (57.3-71.1)	<b>57.1</b> (52.1-64.1)	<b>86.5</b> (74.6-104)	<b>156</b> (120-203)	<b>218</b> (172-271)	1874
	05-06	<b>58.1</b> (53.5-63.2)	<b>54.2</b> (52.4-55.7)	<b>82.3</b> (74.0-95.4)	<b>170</b> (147-189)	<b>226</b> (198-259)	2061
Non-Hispanic whites	03-04	<b>62.4</b> (59.0-66.0)	<b>55.3</b> (53.0-58.6)	<b>82.2</b> (75.4-89.1)	<b>146</b> (129-163)	<b>197</b> (172-223)	2994
	05-06	<b>63.9</b> (59.8-68.3)	<b>55.4</b> (53.0-58.5)	<b>83.8</b> (76.5-94.9)	<b>177</b> (160-194)	<b>228</b> (208-258)	3153

Limit of detection (LOD, see Data Analysis section) for Survey year 03-04 and 05-06 are 3.0 and 0.11, respectively.

## Glycidamide (2003 - 2006)

Geometric mean and selected percentiles of hemoglobin adduct concentrations (in pmol/g hemoglobin) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Total</b>	03-04	<b>59.3</b> (56.7-62.1)	<b>59.9</b> (57.6-62.5)	<b>85.9</b> (81.6-90.5)	<b>130</b> (120-141)	<b>167</b> (153-181)	7278
	05-06	<b>50.4</b> (46.9-54.1)	<b>49.4</b> (46.5-52.4)	<b>71.3</b> (67.1-75.6)	<b>109</b> (98.4-120)	<b>142</b> (130-151)	7740
<b>Age group</b>							
3-5 years	03-04	<b>71.6</b> (66.9-76.7)	<b>71.1</b> (66.9-78.9)	<b>94.7</b> (87.3-101)	<b>118</b> (103-126)	<b>126</b> (119-135)	411
	05-06	<b>66.7</b> (61.5-72.2)	<b>72.9</b> (65.9-76.3)	<b>89.4</b> (82.8-96.8)	<b>107</b> (104-113)	<b>120</b> (109-129)	482
6-11 years	03-04	<b>74.1</b> (70.3-78.2)	<b>75.0</b> (70.9-77.9)	<b>95.6</b> (90.4-103)	<b>121</b> (112-134)	<b>141</b> (126-157)	784
	05-06	<b>58.2</b> (55.4-61.2)	<b>59.6</b> (57.3-61.8)	<b>73.7</b> (70.0-77.5)	<b>90.8</b> (81.3-99.8)	<b>106</b> (93.8-113)	907
12-19 years	03-04	<b>55.4</b> (51.1-60.1)	<b>59.2</b> (56.1-62.1)	<b>79.2</b> (72.7-86.7)	<b>113</b> (94.9-138)	<b>146</b> (123-169)	1931
	05-06	<b>48.2</b> (45.1-51.6)	<b>47.3</b> (44.8-49.3)	<b>64.1</b> (60.5-67.9)	<b>92.0</b> (82.8-103)	<b>123</b> (103-149)	1944
20-59 years	03-04	<b>62.5</b> (59.4-65.8)	<b>60.9</b> (58.7-64.4)	<b>90.7</b> (84.4-98.2)	<b>143</b> (130-159)	<b>187</b> (169-204)	2623
	05-06	<b>52.3</b> (47.9-57.1)	<b>50.1</b> (46.3-54.2)	<b>74.5</b> (69.5-80.9)	<b>121</b> (107-134)	<b>154</b> (140-179)	3025
60 years and older	03-04	<b>45.5</b> (42.8-48.3)	<b>46.8</b> (44.8-49.3)	<b>65.2</b> (63.5-66.9)	<b>96.4</b> (90.0-103)	<b>129</b> (111-141)	1529
	05-06	<b>40.9</b> (38.1-44.0)	<b>39.5</b> (37.4-42.7)	<b>56.7</b> (51.1-63.8)	<b>88.7</b> (75.7-103)	<b>118</b> (103-133)	1382
<b>Gender</b>							
Males	03-04	<b>59.5</b> (56.9-62.3)	<b>59.4</b> (56.8-61.8)	<b>87.1</b> (82.5-92.3)	<b>136</b> (123-148)	<b>174</b> (157-197)	3604
	05-06	<b>50.8</b> (46.9-55.0)	<b>49.4</b> (46.1-53.2)	<b>74.5</b> (70.2-78.8)	<b>113</b> (102-127)	<b>148</b> (131-165)	3761
Females	03-04	<b>59.1</b> (56.0-62.5)	<b>60.4</b> (57.5-64.0)	<b>85.0</b> (80.2-90.0)	<b>125</b> (116-135)	<b>159</b> (143-175)	3674
	05-06	<b>50.0</b> (46.7-53.6)	<b>49.2</b> (46.5-52.3)	<b>68.3</b> (63.9-73.2)	<b>101</b> (93.8-114)	<b>136</b> (125-145)	3979
<b>Race/ethnicity</b>							
Mexican Americans	03-04	<b>64.7</b> (61.2-68.4)	<b>65.4</b> (61.1-70.1)	<b>87.4</b> (81.5-94.4)	<b>118</b> (110-129)	<b>152</b> (135-170)	1841
	05-06	<b>50.3</b> (46.5-54.4)	<b>50.7</b> (46.8-54.8)	<b>66.1</b> (61.6-70.5)	<b>86.6</b> (80.6-95.8)	<b>106</b> (98.1-114)	2022
Non-Hispanic blacks	03-04	<b>53.8</b> (51.1-56.7)	<b>56.0</b> (52.4-59.7)	<b>83.0</b> (75.2-91.5)	<b>121</b> (108-140)	<b>159</b> (129-204)	1954
	05-06	<b>42.3</b> (38.9-46.0)	<b>44.1</b> (41.7-45.9)	<b>64.0</b> (60.3-67.8)	<b>99.9</b> (87.2-109)	<b>129</b> (117-140)	2008
Non-Hispanic whites	03-04	<b>61.1</b> (57.6-64.9)	<b>60.7</b> (57.9-64.2)	<b>87.5</b> (83.0-93.5)	<b>136</b> (124-149)	<b>172</b> (157-194)	3044
	05-06	<b>52.5</b> (48.5-56.9)	<b>50.7</b> (46.8-55.0)	<b>74.5</b> (69.9-80.1)	<b>115</b> (102-129)	<b>147</b> (134-160)	3110

Limit of detection (LOD, see Data Analysis section) for Survey year 03-04 and 05-06 are 4.0 and 0.66, respectively.

## Serum Cotinine (1999 – 2010)

Metabolite of nicotine (component of tobacco smoke)

Geometric mean and selected percentiles of serum concentrations (in ng/mL) for the \*\*\*non-smoking U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	<b>.060</b> (<LOD-.080)	<b>.240</b> (.190-.302)	<b>1.02</b> (.770-1.28)	<b>1.96</b> (1.60-2.62)	5999
	01-02**	<b>.062</b> (.050-.077)	< LOD	<b>.160</b> (.120-.220)	<b>.930</b> (.740-1.17)	<b>2.20</b> (1.83-2.44)	6819
	03-04	<b>.071</b> (.057-.089)	<b>.050</b> (.040-.070)	<b>.210</b> (.140-.310)	<b>.990</b> (.740-1.30)	<b>2.17</b> (1.81-2.54)	6320
	05-06	<b>.054</b> (.047-.061)	<b>.040</b> (.030-.040)	<b>.120</b> (.100-.150)	<b>.630</b> (.460-.870)	<b>1.47</b> (1.15-1.92)	6347
	07-08	<b>.057</b> (.048-.068)	<b>.040</b> (.030-.040)	<b>.130</b> (.100-.180)	<b>.760</b> (.550-1.09)	<b>1.81</b> (1.45-2.43)	6197
	09-10	<b>.041</b> (.037-.046)	<b>.030</b> (.020-.030)	<b>.070</b> (.070-.090)	<b>.450</b> (.350-.580)	<b>1.29</b> (1.04-1.61)	6678
Age group 3-11 years	99-00	<b>.164</b> (.115-.234)	<b>.110</b> (.066-.188)	<b>.500</b> (.260-1.16)	<b>1.88</b> (.997-3.44)	<b>3.44</b> (1.42-4.79)	1174
	01-02**	<b>.110</b> (.076-.160)	<b>.070</b> (<LOD-.130)	<b>.570</b> (.310-1.00)	<b>2.23</b> (1.63-2.78)	<b>3.23</b> (2.53-4.01)	1415
	03-04	<b>.137</b> (.088-.213)	<b>.120</b> (.060-.220)	<b>.620</b> (.310-1.20)	<b>2.04</b> (1.38-2.94)	<b>3.35</b> (2.12-4.68)	1252
	05-06	<b>.078</b> (.062-.097)	<b>.050</b> (.040-.070)	<b>.220</b> (.160-.350)	<b>1.22</b> (.880-1.82)	<b>2.42</b> (1.63-3.46)	1296
	07-08	<b>.095</b> (.067-.136)	<b>.060</b> (.040-.100)	<b>.380</b> (.170-.840)	<b>1.67</b> (1.10-2.54)	<b>2.81</b> (2.26-3.54)	1337
	09-10	<b>.060</b> (.047-.075)	<b>.040</b> (.030-.050)	<b>.160</b> (.110-.250)	<b>.920</b> (.560-1.58)	<b>2.15</b> (1.35-3.00)	1355
12-19 years	99-00	<b>.163</b> (.142-.187)	<b>.110</b> (.080-.163)	<b>.540</b> (.428-.660)	<b>1.66</b> (1.50-1.95)	<b>2.62</b> (2.09-3.39)	1773
	01-02**	<b>.086</b> (.059-.126)	<b>.050</b> (<LOD-.110)	<b>.350</b> (.190-.580)	<b>1.53</b> (1.09-2.12)	<b>3.12</b> (2.47-3.99)	1902
	03-04	<b>.110</b> (.087-.139)	<b>.080</b> (.060-.120)	<b>.510</b> (.350-.670)	<b>1.55</b> (1.21-1.93)	<b>2.68</b> (1.96-4.02)	1783
	05-06	<b>.074</b> (.060-.092)	<b>.050</b> (.040-.060)	<b>.230</b> (.150-.350)	<b>1.16</b> (.860-1.69)	<b>2.26</b> (1.69-2.72)	1714
	07-08	<b>.081</b> (.061-.106)	<b>.050</b> (.030-.070)	<b>.350</b> (.170-.550)	<b>1.25</b> (.930-1.99)	<b>2.54</b> (2.04-2.94)	934
	09-10	<b>.056</b> (.044-.072)	<b>.030</b> (.020-.040)	<b>.130</b> (.080-.230)	<b>.980</b> (.510-1.80)	<b>2.49</b> (1.31-3.65)	1042
20 years and older	99-00	*	<b>.050</b> (<LOD-.061)	<b>.167</b> (.140-.193)	<b>.630</b> (.533-.820)	<b>1.50</b> (1.28-1.66)	3052
	01-02**	<b>.052</b> (<LOD-.063)	< LOD	<b>.110</b> (.090-.150)	<b>.630</b> (.470-.790)	<b>1.42</b> (1.14-1.89)	3502
	03-04	<b>.058</b> (.047-.071)	<b>.040</b> (.030-.050)	<b>.140</b> (.100-.200)	<b>.630</b> (.480-.840)	<b>1.54</b> (1.26-1.92)	3285
	05-06	<b>.047</b> (.042-.053)	<b>.030</b> (.030-.040)	<b>.100</b> (.080-.120)	<b>.440</b> (.310-.620)	<b>1.14</b> (.870-1.41)	3337
	07-08	<b>.049</b> (.043-.057)	<b>.030</b> (.030-.040)	<b>.100</b> (.080-.120)	<b>.490</b> (.390-.640)	<b>1.37</b> (.970-1.70)	3926
	09-10	<b>.037</b> (.034-.040)	<b>.020</b> (.020-.030)	<b>.070</b> (.060-.070)	<b>.310</b> (.240-.390)	<b>.990</b> (.700-1.24)	4281
Gender Males	99-00	<b>.124</b> (.106-.145)	<b>.080</b> (.060-.110)	<b>.308</b> (.220-.410)	<b>1.20</b> (.950-1.49)	<b>2.39</b> (1.66-3.22)	2789
	01-02**	<b>.075</b> (.059-.094)	<b>.050</b> (<LOD-.070)	<b>.230</b> (.160-.320)	<b>1.17</b> (.960-1.49)	<b>2.44</b> (2.23-2.99)	3152
	03-04	<b>.087</b> (.070-.108)	<b>.060</b> (.040-.080)	<b>.280</b> (.190-.360)	<b>1.23</b> (.910-1.68)	<b>2.63</b> (2.09-3.19)	2937
	05-06	<b>.064</b> (.055-.074)	<b>.040</b> (.040-.050)	<b>.150</b> (.120-.190)	<b>.720</b> (.550-1.07)	<b>1.85</b> (1.42-2.24)	2922
	07-08	<b>.068</b> (.056-.081)	<b>.040</b> (.040-.050)	<b>.170</b> (.120-.240)	<b>1.07</b> (.690-1.39)	<b>2.52</b> (1.84-2.92)	2948
	09-10	<b>.046</b> (.042-.051)	<b>.030</b> (.030-.030)	<b>.080</b> (.070-.100)	<b>.550</b> (.410-.700)	<b>1.60</b> (1.19-2.38)	3181
Females	99-00	*	< LOD	<b>.180</b> (.148-.230)	<b>.850</b> (.600-1.14)	<b>1.85</b> (1.33-2.45)	3210
	01-02**	<b>.053</b> (<LOD-.066)	< LOD	<b>.120</b> (.090-.180)	<b>.710</b> (.540-.990)	<b>1.77</b> (1.32-2.20)	3667
	03-04	<b>.060</b> (.047-.077)	<b>.040</b> (.030-.060)	<b>.160</b> (.110-.260)	<b>.860</b> (.580-1.15)	<b>1.76</b> (1.32-2.22)	3383
	05-06	<b>.047</b> (.040-.054)	<b>.030</b> (.030-.040)	<b>.100</b> (.070-.130)	<b>.510</b> (.300-.830)	<b>1.23</b> (1.04-1.52)	3425
	07-08	<b>.050</b> (.042-.059)	<b>.030</b> (.030-.040)	<b>.110</b> (.080-.150)	<b>.630</b> (.400-.900)	<b>1.40</b> (1.09-1.87)	3249
	09-10	<b>.037</b> (.033-.042)	<b>.020</b> (.020-.030)	<b>.070</b> (.050-.080)	<b>.380</b> (.270-.570)	<b>1.03</b> (.720-1.61)	3497

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.05, 0.05, 0.015, 0.015, 0.015, and 0.015 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

\*\*In the 2001-2002 survey period, 83% of measurements had an LOD of 0.015 ng/mL, and 17% had an LOD of 0.05 ng/mL.

\*\*\*Non-smoking is defined as a serum cotinine concentration of 10 ng/mL or less.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Cotinine\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Cotinine_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Cotinine\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Cotinine_FactSheet.html)

## Serum Cotinine (1999 – 2010)

Metabolite of nicotine (component of tobacco smoke)

Geometric mean and selected percentiles of serum concentrations (in ng/mL) for the \*\*\*non-smoking U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00	*	< LOD	.140 (.110-.180)	.506 (.370-.726)	1.21 (.900-1.70)	2241
	01-02**	.060 (<LOD-.084)	< LOD	.160 (.080-.310)	.730 (.480-1.19)	2.12 (1.19-2.96)	1878
	03-04	.054 (.043-.068)	.030 (.020-.050)	.120 (.080-.180)	.690 (.430-1.00)	2.65 (1.87-3.57)	1707
	05-06	.047 (.038-.059)	.030 (.020-.040)	.100 (.070-.150)	.500 (.370-.730)	1.54 (.830-2.49)	1807
	07-08	.044 (.033-.057)	.030 (.020-.040)	.080 (.060-.120)	.480 (.290-.880)	1.59 (1.00-3.07)	1412
	09-10	.038 (.032-.045)	.020 (.020-.030)	.060 (.050-.080)	.360 (.230-.640)	1.35 (.710-2.25)	1615
Non-Hispanic blacks	99-00	.175 (.153-.201)	.131 (.111-.150)	.505 (.400-.625)	1.43 (1.21-1.75)	2.34 (1.84-3.50)	1333
	01-02**	.164 (.137-.197)	.130 (.110-.160)	.580 (.450-.770)	1.77 (1.55-2.05)	3.15 (2.50-4.30)	1602
	03-04	.144 (.104-.198)	.120 (.080-.180)	.520 (.350-.770)	1.54 (1.20-2.14)	2.77 (2.18-3.54)	1704
	05-06	.114 (.085-.153)	.080 (.060-.120)	.440 (.240-.690)	1.42 (.900-2.03)	2.45 (1.70-3.70)	1630
	07-08	.094 (.079-.112)	.060 (.050-.090)	.320 (.250-.390)	1.19 (.980-1.46)	2.37 (1.75-2.88)	1244
	09-10	.095 (.074-.122)	.070 (.050-.090)	.320 (.210-.540)	1.33 (.900-2.05)	2.85 (1.97-3.60)	1129
Non-Hispanic whites	99-00	*	.050 (<LOD-.073)	.216 (.154-.312)	.950 (.621-1.40)	1.92 (1.48-3.02)	1950
	01-02**	.052 (<LOD-.068)	< LOD	.120 (.090-.180)	.800 (.570-1.11)	1.88 (1.48-2.30)	2847
	03-04	.066 (.050-.087)	.040 (.030-.070)	.180 (.120-.300)	.920 (.620-1.32)	2.01 (1.70-2.49)	2500
	05-06	.049 (.042-.056)	.030 (.030-.040)	.100 (.080-.130)	.530 (.330-.800)	1.27 (.980-1.62)	2404
	07-08	.056 (.043-.073)	.040 (.030-.050)	.130 (.080-.240)	.750 (.440-1.27)	1.70 (1.24-2.54)	2485
	09-10	.037 (.033-.043)	.020 (.020-.030)	.070 (.050-.080)	.350 (.240-.560)	1.06 (.780-1.60)	2743

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.05, 0.05, 0.015, 0.015, 0.015, and 0.015 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\*Not calculated: proportion of results below limit of detection was too high to provide a valid result.

\*\*In the 2001-2002 survey period, 83% of measurements had an LOD of 0.015 ng/mL, and 17% had an LOD of 0.05 ng/mL.

\*\*\*Non-smoking is defined as a serum cotinine concentration of 10 ng/mL or less.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Cotinine\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Cotinine_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Cotinine\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Cotinine_FactSheet.html)

## Serum Cotinine (2011 - 2012)

Metabolite of nicotine (component of tobacco smoke)

Geometric mean and selected percentiles of serum concentrations (in ng/mL) for the **\*\*non-smoking** U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Total</b>	11-12	*	<b>.020</b> (.018-.023)	<b>.059</b> (.049-.072)	<b>.356</b> (.263-.500)	<b>1.30</b> (.882-1.60)	6108
<b>Age group</b>							
3-11 years	11-12	<b>.058</b> (.045-.074)	<b>.031</b> (.024-.045)	<b>.172</b> (.100-.313)	<b>1.02</b> (.627-1.94)	<b>2.49</b> (1.56-3.36)	1348
12-19 years	11-12	<b>.049</b> (.040-.061)	<b>.025</b> (.020-.037)	<b>.147</b> (.083-.235)	<b>.711</b> (.520-1.06)	<b>1.47</b> (1.05-2.29)	990
20 years and older	11-12	*	<b>.019</b> (.016-.020)	<b>.047</b> (.040-.053)	<b>.210</b> (.176-.263)	<b>.835</b> (.566-1.38)	3770
<b>Gender</b>							
Males	11-12	<b>.041</b> (.037-.045)	<b>.023</b> (.020-.026)	<b>.076</b> (.065-.095)	<b>.530</b> (.397-.715)	<b>1.76</b> (1.35-2.42)	2903
Females	11-12	*	<b>.019</b> (.016-.021)	<b>.048</b> (.040-.059)	<b>.244</b> (.189-.314)	<b>.819</b> (.572-1.31)	3205
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>.033</b> (.027-.042)	<b>.021</b> (.016-.027)	<b>.055</b> (.040-.081)	<b>.230</b> (.106-.386)	<b>.668</b> (.349-2.07)	886
Non-Hispanic blacks	11-12	<b>.076</b> (.054-.107)	<b>.045</b> (.032-.071)	<b>.259</b> (.127-.513)	<b>1.10</b> (.678-2.02)	<b>2.86</b> (1.46-4.20)	1576
Non-Hispanic whites	11-12	*	<b>.017</b> (<LOD-.020)	<b>.048</b> (.039-.061)	<b>.277</b> (.207-.363)	<b>1.10</b> (.627-1.50)	1841
All Hispanics	11-12	<b>.033</b> (.028-.040)	<b>.021</b> (.017-.026)	<b>.054</b> (.041-.074)	<b>.233</b> (.123-.387)	<b>.834</b> (.377-2.37)	1587
Asians	11-12	<b>.030</b> (.026-.035)	<b>.023</b> (.020-.027)	<b>.046</b> (.037-.058)	<b>.123</b> (.083-.201)	<b>.308</b> (.201-.594)	878

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 0.015.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

\*\*Non-smoking is defined as a serum cotinine of 10 ng/mL or less.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Cotinine\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Cotinine_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Cotinine\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Cotinine_FactSheet.html)

## Urinary NNAL (4-(methylnitrosamino)-1-(3-pyridyl)-1-butanol) (2007 – 2010)

Metabolite of (4-(methylnitrosamino)-1-(3-pyridyl)-1-butanone) (NNK)

Geometric mean and selected percentiles of urine concentrations (in pg/mL) for the **\*\*non-smoking** U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	07-08	*	< LOD	2.80 (2.20-3.70)	11.1 (8.80-14.4)	24.5 (18.0-30.4)	5212
	09-10	*	< LOD	1.90 (1.60-2.40)	7.30 (6.40-8.50)	16.7 (13.9-19.6)	6067
<b>Age group</b>							
6-11 years	07-08	*	1.30 (.600-2.60)	8.50 (4.70-13.8)	31.4 (17.5-49.8)	60.6 (37.1-75.7)	875
	09-10	*	.600 (<LOD-1.00)	3.10 (2.20-5.00)	15.5 (10.4-22.8)	29.3 (18.1-59.4)	937
12-19 years	07-08	*	1.20 (.600-2.10)	5.00 (3.80-9.20)	20.0 (11.9-27.5)	39.1 (20.6-60.9)	843
	09-10	*	.900 (<LOD-1.50)	3.70 (2.70-5.20)	12.5 (6.90-25.5)	29.1 (13.9-51.4)	1004
20 years and older	07-08	*	< LOD	2.10 (1.70-2.50)	8.20 (6.90-9.80)	16.6 (13.9-21.5)	3494
	09-10	*	< LOD	1.60 (1.30-1.90)	6.10 (5.10-6.90)	13.1 (10.7-15.8)	4126
<b>Gender</b>							
Males	07-08	*	< LOD	3.80 (3.00-4.50)	12.6 (10.6-15.0)	27.5 (18.9-38.1)	2463
	09-10	*	< LOD	2.40 (1.90-3.00)	8.30 (7.20-9.90)	19.3 (15.2-22.5)	2903
Females	07-08	*	< LOD	2.10 (1.50-2.90)	9.70 (7.10-13.6)	21.6 (16.6-28.0)	2749
	09-10	*	< LOD	1.60 (1.30-1.90)	6.50 (4.70-8.80)	14.0 (10.7-19.0)	3164
<b>Race/ethnicity</b>							
Mexican Americans	07-08	*	< LOD	2.00 (1.20-3.10)	6.90 (4.90-9.00)	13.9 (10.8-17.3)	1206
	09-10	*	< LOD	1.60 (1.20-2.20)	4.90 (3.70-7.00)	11.1 (5.70-18.4)	1476
Non-Hispanic blacks	07-08	*	.800 (<LOD-1.90)	4.90 (3.60-6.30)	14.0 (11.6-17.2)	26.1 (18.5-33.2)	1057
	09-10	1.81 (1.30-2.54)	1.40 (<LOD-2.40)	5.90 (3.80-8.10)	18.9 (11.7-26.1)	34.0 (18.9-61.9)	1004
Non-Hispanic whites	07-08	*	< LOD	2.80 (1.90-4.10)	11.9 (8.20-17.7)	27.5 (19.6-35.4)	2047
	09-10	*	< LOD	1.80 (1.40-2.40)	6.80 (5.40-8.40)	15.2 (11.9-19.3)	2514

Limit of detection (LOD, see Data Analysis section) for Survey years 07-08 and 09-10 are 0.6 and 0.6 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

\*\*Non-smoking is defined as a serum cotinine concentration of 10 ng/mL or less.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/NNAL\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/NNAL_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/NNAL\\_FactSheet.html](http://www.cdc.gov/biomonitoring/NNAL_FactSheet.html)



## Urinary NNAL (4-(methylnitrosamino)-1-(3-pyridyl)-1-butanol) (2011 - 2012)

Metabolite of 4-(methylnitrosamino)-1-(3-pyridyl)-1-butanone (NNK)

Geometric mean and selected percentiles of urine concentrations (in pg/mL) for the **\*\*non-smoking** U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	<b>.800</b> (.700-.900)	<b>2.30</b> (2.00-2.60)	<b>7.40</b> (6.10-8.90)	<b>15.7</b> (11.7-21.0)	5486
<b>Age group</b>							
6-11 years	11-12	<b>1.91</b> (1.57-2.32)	<b>1.30</b> (1.10-1.70)	<b>5.10</b> (3.80-7.30)	<b>21.1</b> (11.5-31.9)	<b>36.7</b> (20.1-60.2)	955
12-19 years	11-12	<b>1.53</b> (1.35-1.73)	<b>1.30</b> (1.10-1.40)	<b>3.10</b> (2.20-4.30)	<b>10.8</b> (7.60-14.4)	<b>19.3</b> (13.2-27.0)	949
20 years and older	11-12	*	<b>.700</b> (.600-.900)	<b>2.00</b> (1.80-2.20)	<b>5.70</b> (4.80-6.80)	<b>11.7</b> (10.0-14.9)	3582
<b>Gender</b>							
Males	11-12	<b>1.32</b> (1.23-1.41)	<b>1.00</b> (.900-1.10)	<b>2.80</b> (2.40-3.10)	<b>9.80</b> (7.60-11.2)	<b>19.5</b> (13.5-26.4)	2616
Females	11-12	*	<b>.700</b> (.600-.800)	<b>1.90</b> (1.70-2.20)	<b>5.70</b> (4.60-7.20)	<b>12.4</b> (9.00-18.5)	2870
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>1.12</b> (.956-1.30)	<b>.900</b> (.700-1.20)	<b>1.90</b> (1.50-2.50)	<b>5.30</b> (3.70-7.40)	<b>9.50</b> (7.70-15.0)	775
Non-Hispanic blacks	11-12	<b>1.98</b> (1.57-2.48)	<b>1.60</b> (1.30-2.10)	<b>5.10</b> (3.30-8.70)	<b>15.9</b> (9.40-28.8)	<b>30.4</b> (18.5-46.7)	1393
Non-Hispanic whites	11-12	*	<b>.800</b> (.600-.900)	<b>2.10</b> (1.80-2.40)	<b>6.70</b> (5.30-8.50)	<b>14.4</b> (11.4-20.4)	1679
Asians	11-12	*	<b>.600</b> (<LOD-.700)	<b>1.20</b> (1.00-1.50)	<b>2.80</b> (1.90-3.80)	<b>5.00</b> (3.40-6.80)	814

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 0.6.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

\*\*Non-smoking is defined as a serum cotinine of 10 ng/mL or less.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/NNAL\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/NNAL_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/NNAL\\_FactSheet.html](http://www.cdc.gov/biomonitoring/NNAL_FactSheet.html)

## Urinary NNAL (4-(methylnitrosamino)-1-(3-pyridyl)-1-butanol) (creatinine corrected) (2007 – 2010)

Metabolite of 4-(methylnitrosamino)-1-(3-pyridyl)-1-butanone) (NNK)

Geometric mean and selected percentiles of urine concentrations (in pg/mg of creatinine) for the **\*\*non-smoking** U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	07-08	*	< LOD	<b>2.79</b> (2.31-3.50)	<b>10.3</b> (7.36-14.0)	<b>20.5</b> (16.4-27.5)	5210
	09-10	*	< LOD	<b>2.05</b> (1.88-2.28)	<b>6.40</b> (5.71-7.41)	<b>14.6</b> (11.5-17.3)	6066
<b>Age group</b>							
6-11 years	07-08	*	<b>2.15</b> (1.38-3.22)	<b>10.7</b> (5.95-17.9)	<b>38.3</b> (21.2-57.1)	<b>60.9</b> (46.4-72.1)	875
	09-10	*	<b>1.19</b> (<LOD-1.52)	<b>4.25</b> (2.88-6.37)	<b>19.2</b> (11.0-28.8)	<b>37.2</b> (22.9-53.0)	936
12-19 years	07-08	*	<b>1.14</b> (.710-1.75)	<b>4.40</b> (2.59-7.36)	<b>14.2</b> (10.5-23.1)	<b>29.2</b> (15.6-41.9)	841
	09-10	*	<b>1.05</b> (<LOD-1.26)	<b>3.08</b> (1.96-4.37)	<b>10.0</b> (6.02-15.2)	<b>20.7</b> (12.3-30.2)	1004
20 years and older	07-08	*	< LOD	<b>2.34</b> (2.00-2.73)	<b>6.82</b> (5.49-8.65)	<b>15.1</b> (11.8-17.7)	3494
	09-10	*	< LOD	<b>1.84</b> (1.71-2.00)	<b>5.21</b> (4.57-6.07)	<b>11.4</b> (8.42-14.1)	4126
<b>Gender</b>							
Males	07-08	*	< LOD	<b>2.98</b> (2.39-3.71)	<b>10.5</b> (7.57-12.9)	<b>20.9</b> (15.7-29.0)	2462
	09-10	*	< LOD	<b>2.00</b> (1.86-2.25)	<b>6.61</b> (6.00-7.83)	<b>15.1</b> (11.7-19.8)	2902
Females	07-08	*	< LOD	<b>2.67</b> (2.14-3.37)	<b>9.87</b> (6.79-14.9)	<b>20.0</b> (15.7-27.9)	2748
	09-10	*	< LOD	<b>2.09</b> (1.82-2.36)	<b>6.15</b> (4.88-8.21)	<b>12.7</b> (9.26-17.3)	3164
<b>Race/ethnicity</b>							
Mexican Americans	07-08	*	< LOD	<b>2.16</b> (1.55-3.00)	<b>5.91</b> (4.32-8.30)	<b>13.3</b> (8.36-17.9)	1205
	09-10	*	< LOD	<b>1.73</b> (1.36-2.11)	<b>5.00</b> (3.72-6.84)	<b>10.0</b> (6.79-14.7)	1476
Non-Hispanic blacks	07-08	*	<b>.960</b> (<LOD-1.42)	<b>3.70</b> (2.50-5.31)	<b>11.5</b> (9.18-14.2)	<b>20.8</b> (14.5-28.8)	1056
	09-10	<b>1.40</b> (.982-2.01)	<b>1.21</b> (<LOD-2.06)	<b>3.96</b> (2.78-5.99)	<b>12.2</b> (7.29-20.3)	<b>23.4</b> (14.3-35.4)	1003
Non-Hispanic whites	07-08	*	< LOD	<b>2.93</b> (2.22-4.00)	<b>11.4</b> (7.22-17.1)	<b>23.9</b> (17.1-32.0)	2047
	09-10	*	< LOD	<b>1.96</b> (1.82-2.15)	<b>6.09</b> (5.00-7.83)	<b>14.7</b> (10.0-18.2)	2514

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

\*\*Non-smoking is defined as a serum cotinine concentration of 10 ng/mL or less.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/NNAL\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/NNAL_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/NNAL\\_FactSheet.html](http://www.cdc.gov/biomonitoring/NNAL_FactSheet.html)

## Urinary NNAL (4-(methylnitrosamino)-1-(3-pyridyl)-1-butanol) (creatinine corrected) (2011 - 2012)

Metabolite of 4-(methylnitrosamino)-1-(3-pyridyl)-1-butanone (NNK)

Geometric mean and selected percentiles of urine concentrations (in pg/mg of creatinine) for the **\*\*non-smoking** U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	<b>1.06</b> (1.00-1.14)	<b>2.47</b> (2.14-2.72)	<b>6.57</b> (5.24-8.25)	<b>14.3</b> (11.7-18.4)	5483
<b>Age group</b>							
6-11 years	11-12	<b>2.57</b> (2.13-3.10)	<b>1.91</b> (1.60-2.47)	<b>5.93</b> (4.21-8.49)	<b>23.5</b> (13.7-31.6)	<b>39.1</b> (23.5-59.0)	954
12-19 years	11-12	<b>1.45</b> (1.31-1.60)	<b>1.14</b> (1.05-1.25)	<b>3.40</b> (2.50-3.99)	<b>9.14</b> (5.71-13.4)	<b>18.4</b> (12.2-22.2)	949
20 years and older	11-12	*	<b>1.00</b> (.938-1.08)	<b>2.12</b> (1.91-2.42)	<b>5.00</b> (4.26-6.18)	<b>10.5</b> (8.56-13.0)	3580
<b>Gender</b>							
Males	11-12	<b>1.19</b> (1.10-1.29)	<b>.984</b> (.909-1.05)	<b>2.38</b> (2.08-2.68)	<b>7.36</b> (5.60-9.33)	<b>15.2</b> (11.5-21.4)	2615
Females	11-12	*	<b>1.18</b> (1.04-1.30)	<b>2.48</b> (2.17-2.86)	<b>5.67</b> (4.69-8.21)	<b>13.5</b> (10.3-18.0)	2868
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>1.15</b> (.985-1.35)	<b>1.03</b> (.860-1.22)	<b>1.94</b> (1.67-2.35)	<b>4.72</b> (3.51-6.74)	<b>9.93</b> (6.46-15.9)	775
Non-Hispanic blacks	11-12	<b>1.50</b> (1.18-1.91)	<b>1.31</b> (1.02-1.63)	<b>3.70</b> (2.36-6.09)	<b>11.5</b> (6.69-19.0)	<b>19.7</b> (11.5-33.7)	1392
Non-Hispanic whites	11-12	*	<b>1.04</b> (.984-1.14)	<b>2.47</b> (2.06-2.79)	<b>5.94</b> (5.14-7.72)	<b>16.1</b> (11.5-18.9)	1677
Asians	11-12	*	<b>.972</b> (<LOD-1.17)	<b>1.82</b> (1.56-2.24)	<b>3.57</b> (2.86-4.79)	<b>5.71</b> (4.29-8.57)	814

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

\*\*Non-smoking is defined as a serum cotinine of 10 ng/mL or less.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/NNAL\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/NNAL_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/NNAL\\_FactSheet.html](http://www.cdc.gov/biomonitoring/NNAL_FactSheet.html)

## Blood Bromodichloromethane (2001 - 2008)

Geometric mean and selected percentiles of whole blood concentrations (in pg/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Total</b>	01-02	<b>2.21</b> (1.65-2.97)	<b>2.30</b> (1.56-3.21)	<b>4.63</b> (3.24-6.20)	<b>8.45</b> (5.86-12.0)	<b>12.0</b> (7.68-19.2)	785
	03-04	<b>1.50</b> (1.20-1.86)	<b>1.40</b> (1.10-1.90)	<b>3.40</b> (2.60-4.20)	<b>6.20</b> (5.30-7.00)	<b>9.50</b> (7.00-12.0)	1322
	05-06	<b>1.41</b> (1.09-1.83)	<b>1.30</b> (.880-1.80)	<b>3.00</b> (2.10-4.40)	<b>6.30</b> (4.30-9.70)	<b>10.0</b> (6.80-14.0)	3139
	07-08	<b>1.52</b> (1.24-1.86)	<b>1.42</b> (1.05-1.90)	<b>3.13</b> (2.50-4.20)	<b>6.42</b> (4.70-8.30)	<b>9.59</b> (7.05-14.6)	2982
<b>Age group</b>							
	12-19 years						
	05-06	<b>1.23</b> (.954-1.58)	<b>1.00</b> (.620-1.60)	<b>2.80</b> (1.70-4.10)	<b>5.50</b> (4.10-7.20)	<b>8.20</b> (6.20-12.0)	932
	07-08	<b>1.49</b> (1.19-1.86)	<b>1.26</b> (.910-1.88)	<b>3.10</b> (2.42-4.05)	<b>6.20</b> (4.13-8.52)	<b>9.02</b> (6.20-15.0)	482
20-59 years	01-02	<b>2.21</b> (1.65-2.97)	<b>2.30</b> (1.56-3.21)	<b>4.63</b> (3.24-6.20)	<b>8.45</b> (5.86-12.0)	<b>12.0</b> (7.68-19.2)	785
	03-04	<b>1.50</b> (1.20-1.86)	<b>1.40</b> (1.10-1.90)	<b>3.40</b> (2.60-4.20)	<b>6.20</b> (5.30-7.00)	<b>9.50</b> (7.00-12.0)	1322
	05-06	<b>1.45</b> (1.11-1.89)	<b>1.30</b> (.900-1.90)	<b>3.10</b> (2.10-4.60)	<b>6.40</b> (4.30-10.0)	<b>11.0</b> (6.90-14.0)	1537
	07-08	<b>1.60</b> (1.28-2.01)	<b>1.56</b> (1.13-2.04)	<b>3.33</b> (2.61-4.43)	<b>6.90</b> (4.94-9.29)	<b>11.0</b> (7.39-15.6)	1607
60 years and older	05-06	<b>1.43</b> (.996-2.05)	<b>1.40</b> (.850-2.00)	<b>3.20</b> (1.60-5.90)	<b>6.50</b> (3.20-15.0)	<b>9.70</b> (5.00-18.0)	670
	07-08	<b>1.28</b> (1.07-1.53)	<b>1.20</b> (.870-1.59)	<b>2.60</b> (1.90-3.41)	<b>4.88</b> (3.67-6.50)	<b>7.39</b> (5.70-8.80)	893
<b>Gender</b>							
Males	01-02	<b>2.19</b> (1.60-3.00)	<b>2.31</b> (1.63-3.21)	<b>4.64</b> (3.21-6.08)	<b>7.96</b> (5.74-15.3)	<b>13.0</b> (6.93-20.5)	382
	03-04	<b>1.48</b> (1.18-1.85)	<b>1.40</b> (.940-2.00)	<b>3.40</b> (2.60-4.30)	<b>6.60</b> (5.40-7.20)	<b>11.0</b> (7.20-14.0)	650
	05-06	<b>1.39</b> (1.07-1.80)	<b>1.20</b> (.830-1.70)	<b>3.00</b> (2.00-4.30)	<b>6.50</b> (4.30-10.0)	<b>11.0</b> (6.80-16.0)	1489
	07-08	<b>1.52</b> (1.24-1.87)	<b>1.50</b> (1.03-1.95)	<b>3.23</b> (2.59-4.20)	<b>6.72</b> (4.80-9.02)	<b>11.0</b> (7.31-15.9)	1487
Females	01-02	<b>2.24</b> (1.66-3.01)	<b>2.28</b> (1.49-3.24)	<b>4.63</b> (3.09-7.01)	<b>8.62</b> (5.26-12.9)	<b>11.1</b> (7.68-25.0)	403
	03-04	<b>1.51</b> (1.21-1.90)	<b>1.50</b> (1.10-1.90)	<b>3.30</b> (2.50-4.20)	<b>6.10</b> (4.69-7.30)	<b>7.80</b> (6.40-12.0)	672
	05-06	<b>1.44</b> (1.10-1.88)	<b>1.30</b> (.900-1.90)	<b>3.10</b> (2.10-4.60)	<b>6.20</b> (4.20-9.40)	<b>9.40</b> (6.30-13.0)	1650
	07-08	<b>1.51</b> (1.22-1.87)	<b>1.40</b> (1.01-1.92)	<b>3.03</b> (2.42-4.10)	<b>6.20</b> (4.60-7.82)	<b>8.31</b> (6.80-12.9)	1495
<b>Race/ethnicity</b>							
Mexican Americans	01-02	<b>3.28</b> (2.29-4.68)	<b>3.32</b> (2.19-4.70)	<b>6.81</b> (3.71-10.4)	<b>10.8</b> (8.24-14.7)	<b>14.7</b> (11.1-20.5)	227
	03-04	<b>1.65</b> (1.15-2.38)	<b>1.60</b> (.820-2.80)	<b>3.50</b> (2.60-4.90)	<b>7.30</b> (4.50-10.0)	<b>10.0</b> (7.30-11.0)	244
	05-06	<b>1.95</b> (1.19-3.18)	<b>1.90</b> (1.00-3.70)	<b>4.40</b> (2.10-9.10)	<b>9.10</b> (4.80-17.0)	<b>14.0</b> (7.50-22.0)	771
	07-08	<b>1.61</b> (1.27-2.03)	<b>1.57</b> (1.08-2.20)	<b>3.44</b> (2.42-4.50)	<b>5.93</b> (4.70-8.15)	<b>8.90</b> (6.80-13.2)	574
Non-Hispanic blacks	01-02	<b>2.32</b> (1.82-2.94)	<b>2.50</b> (1.56-3.55)	<b>4.57</b> (3.60-5.56)	<b>8.69</b> (5.63-9.49)	<b>10.0</b> (5.89-13.5)	130
	03-04	<b>1.56</b> (1.15-2.13)	<b>1.70</b> (1.10-2.20)	<b>2.90</b> (2.15-3.80)	<b>5.10</b> (3.80-6.60)	<b>6.60</b> (4.90-13.0)	290
	05-06	<b>1.74</b> (1.27-2.37)	<b>1.70</b> (1.00-2.70)	<b>3.80</b> (2.70-4.80)	<b>6.40</b> (4.50-8.90)	<b>8.70</b> (6.60-11.0)	817
	07-08	<b>1.72</b> (1.42-2.08)	<b>1.70</b> (1.30-2.21)	<b>3.29</b> (2.80-4.01)	<b>5.78</b> (4.70-7.30)	<b>7.49</b> (6.03-9.70)	593
Non-Hispanic whites	01-02	<b>2.02</b> (1.42-2.87)	<b>2.16</b> (1.36-3.09)	<b>4.34</b> (2.92-6.01)	<b>7.33</b> (4.72-15.3)	<b>11.1</b> (6.01-26.1)	365
	03-04	<b>1.42</b> (1.11-1.81)	<b>1.30</b> (.850-1.90)	<b>3.30</b> (2.30-4.40)	<b>6.20</b> (5.20-7.20)	<b>9.80</b> (6.70-13.0)	684
	05-06	<b>1.29</b> (.989-1.67)	<b>1.10</b> (.710-1.70)	<b>2.70</b> (1.80-4.10)	<b>5.80</b> (4.00-8.60)	<b>9.40</b> (6.20-14.0)	1318
	07-08	<b>1.45</b> (1.11-1.87)	<b>1.32</b> (.917-1.90)	<b>3.03</b> (2.23-4.30)	<b>6.50</b> (4.20-9.29)	<b>9.59</b> (6.30-15.3)	1347

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, and 07-08 are 0.233, 0.62, 0.62, and 0.62, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/THM-DBP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/THM-DBP_BiomonitoringSummary.html)

## Blood Dibromochloromethane (Chlorodibromomethane) (2001 - 2008)

Geometric mean and selected percentiles of whole blood concentrations (in pg/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Total</b>	01-02	<b>.867</b> (.521-1.44)	<b>.780</b> (.340-1.90)	<b>2.61</b> (1.22-4.38)	<b>5.46</b> (3.53-9.71)	<b>8.96</b> (5.04-12.9)	781
	03-04	*	< LOD	<b>1.30</b> (1.00-1.80)	<b>3.60</b> (2.70-4.80)	<b>7.20</b> (4.80-8.60)	1333
	05-06	*	< LOD	<b>1.40</b> (.870-2.40)	<b>4.30</b> (2.40-7.40)	<b>7.80</b> (4.60-13.0)	3122
	07-08	*	<b>.775</b> (<LOD-1.05)	<b>1.90</b> (1.36-2.73)	<b>4.29</b> (3.20-6.13)	<b>7.14</b> (5.54-9.52)	2998
<b>Age group</b>							
	12-19 years						
	05-06	*	< LOD	<b>1.30</b> (.750-2.50)	<b>4.10</b> (2.60-5.50)	<b>6.50</b> (4.10-11.0)	925
	07-08	*	<b>.760</b> (<LOD-1.06)	<b>2.09</b> (1.30-3.05)	<b>4.50</b> (3.09-7.22)	<b>8.32</b> (5.39-14.4)	484
20-59 years	01-02	<b>.867</b> (.521-1.44)	<b>.780</b> (.340-1.90)	<b>2.61</b> (1.22-4.38)	<b>5.46</b> (3.53-9.71)	<b>8.96</b> (5.04-12.9)	781
	03-04	*	< LOD	<b>1.30</b> (1.00-1.80)	<b>3.60</b> (2.70-4.80)	<b>7.20</b> (4.80-8.60)	1333
	05-06	*	< LOD	<b>1.40</b> (.860-2.30)	<b>4.10</b> (2.40-7.10)	<b>7.80</b> (4.20-14.0)	1526
	07-08	*	<b>.846</b> (<LOD-1.15)	<b>2.07</b> (1.50-2.92)	<b>4.75</b> (3.40-6.60)	<b>7.99</b> (5.80-10.5)	1617
60 years and older	05-06	*	< LOD	<b>1.60</b> (.780-4.00)	<b>5.10</b> (1.30-13.0)	<b>7.90</b> (2.20-20.0)	671
	07-08	*	<b>.630</b> (<LOD-.874)	<b>1.40</b> (.918-2.28)	<b>3.40</b> (2.16-4.63)	<b>4.86</b> (3.79-5.50)	897
<b>Gender</b>							
Males	01-02	<b>.850</b> (.481-1.50)	<b>.730</b> (.300-2.25)	<b>2.66</b> (.960-4.38)	<b>4.77</b> (3.33-9.20)	<b>8.06</b> (4.31-14.6)	371
	03-04	*	< LOD	<b>1.30</b> (1.00-1.90)	<b>3.70</b> (2.70-5.70)	<b>7.20</b> (5.20-8.60)	657
	05-06	*	< LOD	<b>1.40</b> (.830-2.30)	<b>4.40</b> (2.30-7.80)	<b>8.30</b> (4.30-14.0)	1487
	07-08	*	<b>.762</b> (<LOD-1.10)	<b>2.10</b> (1.38-2.87)	<b>4.30</b> (3.30-6.50)	<b>7.50</b> (5.66-10.5)	1496
Females	01-02	<b>.884</b> (.550-1.42)	<b>.820</b> (.340-1.69)	<b>2.54</b> (1.37-4.31)	<b>6.30</b> (3.28-10.1)	<b>9.91</b> (5.02-13.0)	410
	03-04	*	< LOD	<b>1.30</b> (1.00-1.80)	<b>3.60</b> (2.50-4.80)	<b>6.60</b> (3.80-9.20)	676
	05-06	*	< LOD	<b>1.50</b> (.920-2.50)	<b>4.20</b> (2.20-7.80)	<b>7.20</b> (4.10-14.0)	1635
	07-08	*	<b>.776</b> (<LOD-1.04)	<b>1.80</b> (1.34-2.62)	<b>4.25</b> (2.88-6.07)	<b>6.40</b> (4.91-9.70)	1502
<b>Race/ethnicity</b>							
Mexican Americans	01-02	<b>1.61</b> (.843-3.06)	<b>1.49</b> (.670-3.99)	<b>4.59</b> (1.93-8.89)	<b>9.26</b> (5.21-12.1)	<b>12.0</b> (9.63-16.1)	233
	03-04	<b>1.20</b> (.963-1.50)	<b>1.10</b> (.810-1.40)	<b>2.30</b> (1.50-4.10)	<b>5.20</b> (3.80-6.90)	<b>7.70</b> (5.20-11.0)	256
	05-06	<b>1.25</b> (.774-2.02)	<b>.950</b> (<LOD-1.70)	<b>2.50</b> (1.00-7.40)	<b>7.40</b> (2.50-19.0)	<b>13.0</b> (5.80-21.0)	759
	07-08	<b>1.54</b> (1.09-2.18)	<b>1.38</b> (.864-2.10)	<b>3.20</b> (1.79-5.80)	<b>7.70</b> (3.35-13.0)	<b>9.81</b> (7.10-18.2)	574
Non-Hispanic blacks	01-02	<b>1.03</b> (.505-2.09)	<b>.930</b> (.530-2.03)	<b>2.03</b> (.770-7.06)	<b>4.22</b> (2.01-10.5)	<b>8.09</b> (2.80-16.5)	128
	03-04	*	< LOD	<b>.970</b> (.650-1.60)	<b>1.90</b> (1.20-3.20)	<b>3.20</b> (1.80-5.20)	288
	05-06	*	<b>.620</b> (<LOD-.820)	<b>1.30</b> (1.00-1.90)	<b>3.40</b> (2.10-4.90)	<b>5.50</b> (4.10-7.10)	822
Non-Hispanic whites	07-08	<b>.979</b> (.752-1.27)	<b>.811</b> (<LOD-1.12)	<b>1.60</b> (1.02-2.70)	<b>3.28</b> (2.18-5.67)	<b>5.67</b> (3.05-8.50)	593
	01-02	<b>.736</b> (.413-1.31)	<b>.640</b> (<LOD-1.93)	<b>2.49</b> (.870-4.27)	<b>4.57</b> (3.00-7.12)	<b>6.98</b> (4.27-11.1)	357
	03-04	*	< LOD	<b>1.30</b> (.950-1.80)	<b>3.30</b> (2.50-4.60)	<b>6.60</b> (3.70-9.20)	685
	05-06	*	< LOD	<b>1.30</b> (.710-2.30)	<b>4.10</b> (2.30-7.10)	<b>7.70</b> (4.60-11.0)	1311
	07-08	*	<b>.665</b> (<LOD-1.02)	<b>1.79</b> (1.09-2.88)	<b>3.95</b> (2.60-5.78)	<b>6.03</b> (4.02-9.80)	1358

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, and 07-08 are 0.271, 0.62, 0.62, and 0.62, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/THM-DBP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/THM-DBP_BiomonitoringSummary.html)

## Blood Tribromomethane (Bromoform) (2001 - 2008)

Geometric mean and selected percentiles of whole blood concentrations (in pg/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Total</b>	01-02	<b>1.57</b> (1.07-2.31)	<b>1.39</b> (.960-2.02)	<b>2.78</b> (1.76-4.63)	<b>6.05</b> (2.92-29.2)	<b>15.5</b> (3.68-85.4)	774
	03-04	*	< LOD	<b>1.80</b> (<LOD-2.80)	<b>3.74</b> (2.30-7.10)	<b>6.40</b> (3.60-14.0)	1310
	05-06	*	< LOD	<b>1.20</b> (<LOD-1.60)	<b>2.70</b> (2.00-4.00)	<b>5.20</b> (3.10-7.60)	3016
	07-08	*	< LOD	< LOD	<b>2.51</b> (1.90-3.34)	<b>5.20</b> (3.54-7.44)	2994
<b>Age group</b>							
	12-19 years						
	05-06	*	< LOD	<b>1.20</b> (<LOD-1.60)	<b>2.40</b> (1.70-4.40)	<b>4.80</b> (2.80-7.10)	892
	07-08	*	< LOD	<b>1.11</b> (<LOD-1.29)	<b>2.80</b> (1.90-4.77)	<b>6.69</b> (3.50-7.88)	484
20-59 years	01-02	<b>1.57</b> (1.07-2.31)	<b>1.39</b> (.960-2.02)	<b>2.78</b> (1.76-4.63)	<b>6.05</b> (2.92-29.2)	<b>15.5</b> (3.68-85.4)	774
	03-04	*	< LOD	<b>1.80</b> (<LOD-2.80)	<b>3.74</b> (2.30-7.10)	<b>6.40</b> (3.60-14.0)	1310
	05-06	*	< LOD	<b>1.20</b> (<LOD-1.60)	<b>2.90</b> (1.90-4.20)	<b>5.20</b> (3.10-8.80)	1478
	07-08	*	< LOD	< LOD	<b>2.73</b> (1.93-3.74)	<b>6.48</b> (3.74-7.98)	1614
60 years and older	05-06	*	< LOD	<b>1.28</b> (<LOD-2.10)	<b>2.60</b> (2.30-3.50)	<b>4.70</b> (3.00-7.70)	646
	07-08	*	< LOD	< LOD	<b>1.78</b> (1.33-2.72)	<b>3.24</b> (2.16-4.91)	896
<b>Gender</b>							
Males	01-02	<b>1.49</b> (.944-2.34)	<b>1.29</b> (.850-1.98)	<b>2.65</b> (1.49-5.05)	<b>6.12</b> (2.26-33.9)	<b>14.9</b> (2.79-69.9)	374
	03-04	*	< LOD	<b>1.90</b> (<LOD-2.87)	<b>4.00</b> (2.40-6.80)	<b>6.50</b> (4.00-13.0)	645
	05-06	*	< LOD	<b>1.16</b> (<LOD-1.60)	<b>2.70</b> (1.90-4.00)	<b>5.00</b> (3.10-7.60)	1424
	07-08	*	< LOD	< LOD	<b>2.40</b> (1.71-3.51)	<b>6.00</b> (3.23-8.49)	1494
Females	01-02	<b>1.67</b> (1.17-2.39)	<b>1.46</b> (1.05-2.21)	<b>2.86</b> (1.89-4.57)	<b>5.69</b> (3.30-27.5)	<b>22.2</b> (5.09-49.6)	400
	03-04	*	< LOD	<b>1.72</b> (<LOD-2.65)	<b>3.20</b> (1.93-7.70)	<b>6.10</b> (3.10-31.0)	665
	05-06	*	< LOD	<b>1.23</b> (1.00-1.60)	<b>2.70</b> (1.90-4.20)	<b>5.20</b> (3.10-8.80)	1592
	07-08	*	< LOD	< LOD	<b>2.57</b> (1.90-3.40)	<b>4.88</b> (3.55-7.30)	1500
<b>Race/ethnicity</b>							
Mexican Americans	01-02	<b>2.34</b> (1.15-4.77)	<b>1.66</b> (.990-3.38)	<b>4.03</b> (1.42-36.5)	<b>28.3</b> (4.39-49.2)	<b>40.8</b> (31.5-57.9)	234
	03-04	*	<b>1.60</b> (<LOD-3.10)	<b>3.30</b> (<LOD-9.40)	<b>7.60</b> (3.60-14.0)	<b>11.0</b> (5.60-210)	242
	05-06	*	< LOD	<b>1.60</b> (1.04-3.20)	<b>4.00</b> (2.40-5.90)	<b>5.90</b> (4.30-8.30)	721
	07-08	*	< LOD	<b>2.82</b> (1.23-6.70)	<b>6.80</b> (2.93-11.0)	<b>9.54</b> (6.10-15.7)	574
Non-Hispanic blacks	01-02	<b>1.51</b> (.857-2.67)	<b>1.47</b> (.780-3.15)	<b>2.58</b> (1.39-4.64)	<b>4.34</b> (2.57-8.48)	<b>6.27</b> (3.28-15.2)	121
	03-04	*	< LOD	<b>1.60</b> (<LOD-2.30)	<b>2.50</b> (1.80-3.20)	<b>3.20</b> (2.40-6.10)	289
	05-06	*	< LOD	<b>1.10</b> (<LOD-1.30)	<b>2.00</b> (1.70-2.40)	<b>3.40</b> (2.30-4.30)	796
	07-08	*	< LOD	< LOD	<b>1.54</b> (<LOD-3.54)	<b>3.07</b> (1.47-7.20)	592
Non-Hispanic whites	01-02	<b>1.47</b> (.980-2.22)	<b>1.29</b> (.840-2.06)	<b>2.58</b> (1.51-4.91)	<b>5.69</b> (2.84-21.2)	<b>11.0</b> (3.30-69.9)	362
	03-04	*	< LOD	<b>1.70</b> (<LOD-2.90)	<b>3.50</b> (2.00-7.70)	<b>5.90</b> (3.30-21.0)	680
	05-06	*	< LOD	<b>1.20</b> (<LOD-1.60)	<b>2.80</b> (2.00-3.90)	<b>5.40</b> (3.10-9.90)	1271
	07-08	*	< LOD	< LOD	<b>1.90</b> (1.33-2.97)	<b>3.51</b> (1.93-7.81)	1355

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, and 07-08 are 0.596, 1.5, 1.0, and 1.0, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/THM-DBP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/THM-DBP_BiomonitoringSummary.html)



## Blood Trichloromethane (Chloroform) (2001 - 2008)

Geometric mean and selected percentiles of whole blood concentrations (in pg/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Total</b>	01-02	<b>16.6</b> (13.0-21.1)	<b>16.1</b> (11.9-22.2)	<b>31.7</b> (23.9-40.4)	<b>55.5</b> (44.5-68.6)	<b>72.1</b> (57.3-105)	744
	03-04	<b>10.2</b> (8.56-12.2)	<b>10.0</b> (8.50-13.0)	<b>20.0</b> (17.0-24.0)	<b>35.0</b> (29.0-40.0)	<b>50.0</b> (37.0-65.0)	1222
	05-06	<b>10.1</b> (9.09-11.3)	<b>9.90</b> (8.90-11.0)	<b>19.0</b> (17.0-21.0)	<b>36.0</b> (31.0-41.0)	<b>54.0</b> (46.0-64.0)	3111
	07-08	<b>6.63</b> (5.30-8.30)	<b>6.56</b> (4.87-8.83)	<b>14.6</b> (11.0-19.4)	<b>27.7</b> (22.0-37.0)	<b>41.8</b> (33.0-54.1)	2754
<b>Age group</b>	12-19 years	05-06 <b>9.22</b> (8.20-10.4)	<b>9.10</b> (8.10-10.0)	<b>17.0</b> (14.0-20.0)	<b>33.0</b> (27.0-40.0)	<b>46.0</b> (36.0-64.0)	913
	07-08 <b>5.95</b> (4.69-7.53)	<b>5.33</b> (3.92-7.98)	<b>12.5</b> (8.56-19.0)	<b>25.5</b> (17.6-48.3)	<b>47.6</b> (26.0-56.8)	440	
20-59 years	01-02	<b>16.6</b> (13.0-21.1)	<b>16.1</b> (11.9-22.2)	<b>31.7</b> (23.9-40.4)	<b>55.5</b> (44.5-68.6)	<b>72.1</b> (57.3-105)	744
	03-04	<b>10.2</b> (8.56-12.2)	<b>10.0</b> (8.50-13.0)	<b>20.0</b> (17.0-24.0)	<b>35.0</b> (29.0-40.0)	<b>50.0</b> (37.0-65.0)	1222
	05-06	<b>10.5</b> (9.29-11.8)	<b>10.0</b> (8.90-12.0)	<b>20.0</b> (18.0-22.0)	<b>37.0</b> (31.0-44.0)	<b>55.0</b> (46.0-71.0)	1529
	07-08	<b>6.89</b> (5.37-8.83)	<b>6.78</b> (5.00-9.53)	<b>15.1</b> (11.2-20.8)	<b>29.0</b> (23.3-38.3)	<b>42.0</b> (34.2-55.8)	1503
60 years and older	05-06	<b>9.71</b> (8.25-11.4)	<b>9.60</b> (8.20-11.0)	<b>19.0</b> (14.0-22.0)	<b>35.0</b> (27.0-40.0)	<b>46.0</b> (39.0-59.0)	669
	07-08	<b>6.25</b> (5.24-7.46)	<b>6.34</b> (4.64-8.30)	<b>14.0</b> (11.0-17.2)	<b>24.8</b> (19.5-33.0)	<b>36.0</b> (25.4-48.6)	811
<b>Gender</b>	Males	01-02 <b>16.8</b> (12.0-23.5)	<b>16.1</b> (11.0-24.8)	<b>34.3</b> (22.4-48.7)	<b>57.0</b> (39.9-76.4)	<b>75.2</b> (54.5-156)	358
	03-04 <b>10.1</b> (8.43-12.1)	<b>10.0</b> (7.90-14.0)	<b>20.0</b> (17.0-25.0)	<b>36.8</b> (29.0-49.0)	<b>53.0</b> (36.8-69.0)	599	
Females	05-06	<b>9.94</b> (8.80-11.2)	<b>9.80</b> (8.50-11.0)	<b>19.0</b> (17.0-22.0)	<b>38.0</b> (33.0-44.0)	<b>54.0</b> (46.0-67.0)	1483
	07-08	<b>6.54</b> (5.25-8.14)	<b>6.32</b> (4.85-8.43)	<b>14.2</b> (11.0-19.1)	<b>29.0</b> (21.9-37.6)	<b>41.8</b> (31.8-59.2)	1376
	01-02	<b>16.4</b> (13.4-20.1)	<b>16.6</b> (12.0-21.5)	<b>29.2</b> (24.0-36.5)	<b>53.5</b> (38.4-68.9)	<b>69.5</b> (53.3-104)	386
	03-04	<b>10.4</b> (8.41-12.7)	<b>10.0</b> (8.40-13.0)	<b>20.0</b> (16.0-23.9)	<b>33.0</b> (26.0-40.0)	<b>46.0</b> (35.0-65.0)	623
<b>Race/ethnicity</b>	Mexican Americans	05-06 <b>10.4</b> (9.24-11.6)	<b>10.0</b> (9.10-11.0)	<b>19.0</b> (17.0-21.0)	<b>32.0</b> (29.0-39.0)	<b>52.0</b> (41.0-67.0)	1628
	07-08	<b>6.73</b> (5.29-8.55)	<b>6.73</b> (4.80-9.35)	<b>15.0</b> (11.0-19.7)	<b>26.9</b> (21.5-37.7)	<b>42.0</b> (31.4-54.0)	1378
	01-02	<b>17.0</b> (10.5-27.6)	<b>14.5</b> (10.0-32.7)	<b>35.1</b> (18.6-57.6)	<b>60.7</b> (41.5-100)	<b>93.0</b> (49.7-243)	223
	03-04	<b>9.17</b> (7.45-11.3)	<b>9.30</b> (7.60-11.0)	<b>19.0</b> (15.0-24.0)	<b>34.0</b> (24.0-44.4)	<b>44.4</b> (30.0-59.0)	225
Non-Hispanic blacks	05-06	<b>10.3</b> (8.59-12.5)	<b>10.0</b> (7.60-14.0)	<b>20.0</b> (17.0-22.0)	<b>36.0</b> (30.0-41.0)	<b>47.0</b> (41.0-64.0)	740
	07-08	<b>5.87</b> (4.20-8.19)	<b>5.23</b> (3.50-7.80)	<b>13.0</b> (7.76-20.0)	<b>30.3</b> (15.8-49.2)	<b>45.9</b> (23.4-89.7)	504
	01-02	<b>19.1</b> (12.9-28.1)	<b>20.9</b> (9.28-37.4)	<b>38.4</b> (27.7-46.0)	<b>55.9</b> (45.5-69.8)	<b>68.9</b> (51.9-74.0)	116
	03-04	<b>11.8</b> (9.54-14.6)	<b>12.0</b> (8.90-15.0)	<b>20.0</b> (15.0-30.0)	<b>35.0</b> (28.0-59.0)	<b>61.0</b> (34.0-100)	272
Non-Hispanic whites	05-06	<b>11.9</b> (9.78-14.4)	<b>12.0</b> (9.10-15.0)	<b>22.0</b> (19.0-26.0)	<b>39.0</b> (31.0-47.0)	<b>55.0</b> (46.0-70.0)	822
	07-08	<b>8.00</b> (6.22-10.3)	<b>8.60</b> (6.20-11.0)	<b>15.7</b> (12.0-20.0)	<b>28.0</b> (22.3-37.0)	<b>39.6</b> (34.5-46.6)	585
	01-02	<b>15.6</b> (12.0-20.2)	<b>15.2</b> (11.2-20.5)	<b>26.8</b> (20.4-39.5)	<b>53.5</b> (35.3-72.1)	<b>69.5</b> (53.5-105)	348
	03-04	<b>9.84</b> (8.09-12.0)	<b>10.0</b> (8.10-13.0)	<b>20.0</b> (16.0-23.0)	<b>33.8</b> (27.0-40.0)	<b>47.0</b> (35.0-67.0)	630
	05-06	<b>9.87</b> (8.79-11.1)	<b>9.70</b> (8.80-11.0)	<b>19.0</b> (16.0-21.0)	<b>34.0</b> (29.0-43.0)	<b>53.0</b> (45.0-67.0)	1318
	07-08	<b>6.45</b> (4.95-8.40)	<b>6.30</b> (4.16-9.23)	<b>14.9</b> (10.1-21.0)	<b>27.7</b> (21.0-40.0)	<b>41.8</b> (31.0-58.9)	1226

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, and 07-08 are 2.37, 2.11, 2.1, and 2.1, respectively. < LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/THM-DBP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/THM-DBP_BiomonitoringSummary.html)

## Urinary Benzophenone-3 (2003 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	<b>22.9</b> (18.1-28.9)	<b>18.1</b> (15.5-23.2)	<b>94.0</b> (67.5-123)	<b>370</b> (225-570)	<b>1040</b> (698-1390)	2517
	05-06	<b>19.4</b> (16.5-22.8)	<b>14.1</b> (12.5-17.5)	<b>68.8</b> (54.5-87.2)	<b>433</b> (294-597)	<b>1150</b> (936-1510)	2548
	07-08	<b>18.3</b> (13.7-24.3)	<b>14.3</b> (10.7-19.8)	<b>64.1</b> (42.8-116)	<b>365</b> (223-524)	<b>801</b> (471-2080)	2604
	09-10	<b>22.3</b> (18.0-27.7)	<b>16.4</b> (12.7-20.5)	<b>81.2</b> (55.0-126)	<b>493</b> (320-742)	<b>1750</b> (931-3120)	2749
<b>Age group</b>							
6-11 years	03-04	<b>21.2</b> (16.4-27.3)	<b>17.2</b> (14.9-25.9)	<b>66.7</b> (38.7-102)	<b>158</b> (106-246)	<b>246</b> (154-618)	314
	05-06	<b>21.2</b> (14.3-31.3)	<b>19.4</b> (11.7-26.1)	<b>58.8</b> (40.5-102)	<b>259</b> (115-433)	<b>852</b> (355-2200)	356
	07-08	<b>24.1</b> (15.0-38.7)	<b>17.2</b> (11.8-25.0)	<b>79.9</b> (32.9-168)	<b>392</b> (129-1610)	<b>1410</b> (165-43600)	389
	09-10	<b>21.7</b> (15.6-30.2)	<b>14.6</b> (12.0-19.7)	<b>52.7</b> (27.2-119)	<b>470</b> (80.7-1900)	<b>1570</b> (153-6440)	415
12-19 years	03-04	<b>22.9</b> (18.0-29.3)	<b>20.1</b> (16.1-25.1)	<b>67.1</b> (45.2-93.8)	<b>170</b> (137-240)	<b>407</b> (183-717)	715
	05-06	<b>21.2</b> (15.8-28.4)	<b>14.9</b> (12.1-21.4)	<b>64.3</b> (39.7-95.3)	<b>227</b> (130-382)	<b>633</b> (252-1260)	702
	07-08	<b>21.5</b> (16.0-28.8)	<b>15.0</b> (11.9-21.3)	<b>59.3</b> (36.7-111)	<b>214</b> (113-613)	<b>613</b> (206-1350)	401
	09-10	<b>23.3</b> (16.6-32.5)	<b>16.6</b> (13.1-19.7)	<b>62.3</b> (35.1-129)	<b>423</b> (184-843)	<b>988</b> (550-2670)	420
20 years and older	03-04	<b>23.1</b> (18.0-29.6)	<b>18.1</b> (14.7-23.3)	<b>109</b> (72.1-140)	<b>450</b> (315-733)	<b>1220</b> (769-1750)	1488
	05-06	<b>19.0</b> (16.5-21.8)	<b>13.5</b> (12.0-16.3)	<b>70.9</b> (55.2-87.2)	<b>543</b> (390-638)	<b>1200</b> (954-1690)	1490
	07-08	<b>17.3</b> (13.0-23.0)	<b>13.7</b> (10.0-19.5)	<b>64.1</b> (41.5-117)	<b>371</b> (240-516)	<b>801</b> (516-1790)	1814
	09-10	<b>22.3</b> (17.9-27.7)	<b>16.5</b> (12.3-22.5)	<b>86.7</b> (63.1-129)	<b>505</b> (339-760)	<b>1890</b> (1240-3170)	1914
<b>Gender</b>							
Males	03-04	<b>16.8</b> (13.2-21.3)	<b>13.7</b> (11.4-16.8)	<b>55.3</b> (33.2-86.6)	<b>178</b> (134-324)	<b>567</b> (238-1350)	1229
	05-06	<b>14.6</b> (10.8-19.7)	<b>11.8</b> (8.80-15.9)	<b>43.4</b> (31.0-68.8)	<b>227</b> (103-552)	<b>909</b> (479-1190)	1270
	07-08	<b>11.9</b> (8.84-16.0)	<b>9.40</b> (7.70-12.3)	<b>37.6</b> (22.6-54.7)	<b>172</b> (79.9-376)	<b>471</b> (208-1410)	1294
	09-10	<b>15.3</b> (12.7-18.6)	<b>12.2</b> (10.0-15.2)	<b>52.8</b> (33.9-72.6)	<b>223</b> (129-332)	<b>610</b> (318-1270)	1399
Females	03-04	<b>30.7</b> (23.7-39.8)	<b>26.0</b> (20.2-34.1)	<b>137</b> (106-172)	<b>596</b> (403-769)	<b>1340</b> (776-1790)	1288
	05-06	<b>25.5</b> (21.7-29.9)	<b>17.9</b> (14.3-23.1)	<b>129</b> (82.9-166)	<b>638</b> (478-900)	<b>1410</b> (945-2620)	1278
	07-08	<b>27.6</b> (20.4-37.3)	<b>25.6</b> (17.5-33.9)	<b>117</b> (72.6-211)	<b>535</b> (361-757)	<b>1260</b> (643-2280)	1310
	09-10	<b>32.0</b> (23.7-43.3)	<b>23.0</b> (16.4-29.8)	<b>148</b> (73.3-260)	<b>1020</b> (540-1800)	<b>3200</b> (1760-4400)	1350
<b>Race/ethnicity</b>							
Mexican Americans	03-04	<b>16.5</b> (10.9-25.1)	<b>11.9</b> (8.50-18.3)	<b>45.5</b> (25.9-78.2)	<b>178</b> (76.4-412)	<b>412</b> (178-2180)	613
	05-06	<b>14.3</b> (10.7-19.1)	<b>10.2</b> (7.40-14.1)	<b>45.6</b> (24.1-75.7)	<b>214</b> (166-313)	<b>635</b> (337-1090)	637
	07-08	<b>12.1</b> (9.49-15.3)	<b>9.90</b> (7.70-12.4)	<b>32.6</b> (25.0-48.3)	<b>142</b> (85.0-268)	<b>409</b> (214-778)	531
	09-10	<b>17.2</b> (13.7-21.6)	<b>12.5</b> (10.5-14.5)	<b>41.9</b> (30.2-57.4)	<b>351</b> (248-546)	<b>1130</b> (493-2140)	566
Non-Hispanic blacks	03-04	<b>12.8</b> (9.38-17.4)	<b>10.2</b> (7.40-14.4)	<b>34.3</b> (22.8-50.6)	<b>127</b> (90.8-176)	<b>247</b> (143-499)	652
	05-06	<b>12.4</b> (9.77-15.6)	<b>9.40</b> (7.30-11.8)	<b>33.0</b> (22.3-46.5)	<b>208</b> (115-291)	<b>556</b> (269-1060)	678
	07-08	<b>8.55</b> (6.75-10.8)	<b>7.40</b> (5.00-9.70)	<b>25.5</b> (17.5-34.5)	<b>117</b> (66.8-217)	<b>422</b> (195-786)	597
	09-10	<b>14.0</b> (10.9-18.1)	<b>8.90</b> (7.30-10.5)	<b>30.9</b> (21.9-50.5)	<b>276</b> (143-437)	<b>705</b> (320-3000)	516
Non-Hispanic whites	03-04	<b>27.7</b> (20.3-37.8)	<b>24.4</b> (16.8-32.0)	<b>121</b> (83.6-162)	<b>507</b> (316-769)	<b>1340</b> (733-2070)	1092
	05-06	<b>21.6</b> (18.5-25.2)	<b>16.0</b> (13.5-19.0)	<b>82.4</b> (64.2-114)	<b>552</b> (392-754)	<b>1370</b> (945-2050)	1038
	07-08	<b>23.1</b> (15.0-35.5)	<b>18.7</b> (11.0-33.7)	<b>101</b> (47.4-206)	<b>459</b> (241-749)	<b>1160</b> (487-2620)	1077
	09-10	<b>26.1</b> (19.0-35.9)	<b>21.1</b> (14.6-29.7)	<b>94.9</b> (59.8-186)	<b>610</b> (325-1240)	<b>2130</b> (934-3820)	1206

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08 and 09-10 are 0.3, 0.4, 0.4, and 0.4 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Benzophenone-3\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Benzophenone-3_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Benzophenone-3\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Benzophenone-3_FactSheet.html)



## Urinary Benzophenone-3 (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>23.2</b> (17.2-31.3)	<b>18.7</b> (13.6-27.0)	<b>83.8</b> (50.8-142)	<b>461</b> (290-861)	<b>1200</b> (861-1610)	2489
	13-14	<b>25.2</b> (20.4-31.2)	<b>21.0</b> (16.8-25.3)	<b>87.9</b> (72.7-102)	<b>417</b> (269-642)	<b>1210</b> (853-1760)	2686
<b>Age group</b>							
6-11 years	11-12	<b>18.7</b> (12.3-28.2)	<b>13.2</b> (8.20-20.8)	<b>55.4</b> (28.0-108)	<b>336</b> (134-653)	<b>657</b> (236-1270)	396
	13-14	<b>26.0</b> (16.5-40.9)	<b>19.2</b> (14.4-30.0)	<b>77.6</b> (39.0-206)	<b>363</b> (171-720)	<b>824</b> (271-1840)	409
12-19 years	11-12	<b>27.8</b> (15.4-50.2)	<b>21.6</b> (10.8-42.1)	<b>109</b> (34.0-255)	<b>433</b> (159-1160)	<b>1120</b> (261-1990)	388
	13-14	<b>29.2</b> (23.3-36.4)	<b>26.2</b> (19.7-36.4)	<b>87.2</b> (57.8-137)	<b>261</b> (167-504)	<b>537</b> (269-1340)	462
20 years and older	11-12	<b>23.1</b> (17.8-30.0)	<b>19.2</b> (14.4-27.0)	<b>83.8</b> (52.8-137)	<b>482</b> (305-805)	<b>1250</b> (975-1640)	1705
	13-14	<b>24.6</b> (19.7-30.6)	<b>20.1</b> (16.0-24.7)	<b>90.6</b> (73.4-102)	<b>482</b> (294-801)	<b>1360</b> (875-2740)	1815
<b>Gender</b>							
Males	11-12	<b>17.2</b> (12.1-24.5)	<b>16.0</b> (9.40-23.6)	<b>50.2</b> (40.1-78.7)	<b>295</b> (141-448)	<b>594</b> (301-1360)	1259
	13-14	<b>19.0</b> (15.8-22.9)	<b>16.8</b> (14.4-19.8)	<b>55.0</b> (46.4-63.1)	<b>231</b> (176-259)	<b>576</b> (340-864)	1285
Females	11-12	<b>31.0</b> (22.7-42.2)	<b>22.2</b> (16.0-34.1)	<b>137</b> (79.9-243)	<b>781</b> (467-1220)	<b>1720</b> (1260-2290)	1230
	13-14	<b>32.9</b> (24.9-43.5)	<b>26.2</b> (19.4-37.2)	<b>120</b> (94.9-195)	<b>733</b> (447-1230)	<b>1950</b> (1200-3460)	1401
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>16.8</b> (10.5-26.8)	<b>13.4</b> (7.20-25.2)	<b>46.1</b> (25.2-115)	<b>305</b> (111-644)	<b>885</b> (305-1740)	316
	13-14	<b>25.9</b> (20.5-32.7)	<b>19.0</b> (15.0-24.2)	<b>69.3</b> (44.1-86.6)	<b>256</b> (204-538)	<b>893</b> (518-1230)	438
Non-Hispanic blacks	11-12	<b>14.5</b> (11.4-18.5)	<b>10.9</b> (8.00-14.1)	<b>41.4</b> (28.8-59.5)	<b>316</b> (192-433)	<b>895</b> (475-1270)	665
	13-14	<b>10.9</b> (7.48-15.8)	<b>9.60</b> (6.60-13.1)	<b>26.9</b> (19.6-39.9)	<b>104</b> (60.3-205)	<b>448</b> (118-1070)	609
Non-Hispanic whites	11-12	<b>26.8</b> (17.8-40.5)	<b>22.2</b> (14.8-36.5)	<b>101</b> (52.8-216)	<b>512</b> (255-1130)	<b>1230</b> (805-1830)	813
	13-14	<b>29.7</b> (22.7-38.8)	<b>24.9</b> (19.5-32.9)	<b>108</b> (94.0-131)	<b>523</b> (340-853)	<b>1470</b> (1150-2860)	988
All Hispanics	11-12	<b>21.2</b> (15.2-29.4)	<b>16.3</b> (10.6-22.7)	<b>57.9</b> (38.2-126)	<b>408</b> (261-684)	<b>1020</b> (527-1610)	571
	13-14	<b>28.2</b> (23.8-33.4)	<b>20.1</b> (16.5-23.9)	<b>81.5</b> (64.7-98.3)	<b>415</b> (219-824)	<b>1120</b> (738-1780)	690
Asians	11-12	<b>16.7</b> (10.5-26.5)	<b>11.9</b> (7.30-21.1)	<b>66.4</b> (37.6-122)	<b>486</b> (157-1350)	<b>1640</b> (770-2780)	352
	13-14	<b>18.6</b> (12.4-28.0)	<b>17.0</b> (8.30-26.8)	<b>64.2</b> (36.1-107)	<b>254</b> (114-532)	<b>532</b> (283-1770)	289

Limit of detection (LOD, see Data Analysis section) for Survey years 11-12 and 13-14 are 0.4 and 0.4, respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Benzophenone-3\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Benzophenone-3_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Benzophenone-3\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Benzophenone-3_FactSheet.html)

## Urinary Benzophenone-3 (creatinine corrected) (2003 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	<b>22.2</b> (17.6-28.0)	<b>16.2</b> (12.7-21.6)	<b>82.0</b> (58.7-108)	<b>415</b> (283-577)	<b>1080</b> (686-1600)	2514
	05-06	<b>18.9</b> (15.8-22.6)	<b>13.5</b> (11.2-16.8)	<b>60.4</b> (47.6-81.4)	<b>445</b> (346-553)	<b>1210</b> (794-1970)	2548
	07-08	<b>18.4</b> (13.9-24.4)	<b>13.5</b> (10.2-17.8)	<b>67.9</b> (45.2-117)	<b>338</b> (215-584)	<b>935</b> (525-1800)	2604
	09-10	<b>23.3</b> (18.7-29.1)	<b>16.1</b> (12.8-19.8)	<b>79.1</b> (52.2-124)	<b>579</b> (355-1040)	<b>2340</b> (1380-3010)	2749
<b>Age group</b>							
6-11 years	03-04	<b>25.8</b> (19.5-34.1)	<b>22.4</b> (14.4-33.7)	<b>84.6</b> (41.0-131)	<b>171</b> (132-365)	<b>427</b> (171-710)	314
	05-06	<b>23.3</b> (15.9-34.1)	<b>17.5</b> (11.6-28.3)	<b>67.7</b> (39.7-105)	<b>249</b> (106-631)	<b>868</b> (264-2080)	356
	07-08	<b>29.7</b> (19.0-46.6)	<b>19.3</b> (12.4-32.3)	<b>103</b> (51.1-159)	<b>442</b> (133-1550)	<b>1430</b> (187-29100)	389
	09-10	<b>28.3</b> (20.4-39.4)	<b>18.8</b> (14.7-21.1)	<b>53.9</b> (33.2-132)	<b>565</b> (104-3410)	<b>1780</b> (253-8230)	415
12-19 years	03-04	<b>17.2</b> (13.7-21.5)	<b>12.9</b> (10.4-16.5)	<b>43.6</b> (29.5-57.7)	<b>136</b> (91.7-239)	<b>350</b> (173-646)	713
	05-06	<b>15.8</b> (11.6-21.6)	<b>12.1</b> (9.16-17.0)	<b>42.5</b> (28.6-58.7)	<b>164</b> (101-438)	<b>625</b> (225-956)	702
	07-08	<b>16.7</b> (12.4-22.4)	<b>12.1</b> (8.57-17.6)	<b>55.7</b> (30.4-74.8)	<b>211</b> (88.2-505)	<b>505</b> (163-902)	401
	09-10	<b>18.7</b> (13.4-26.1)	<b>13.6</b> (10.1-19.7)	<b>39.9</b> (25.5-91.6)	<b>412</b> (89.8-750)	<b>1240</b> (629-2540)	420
20 years and older	03-04	<b>22.8</b> (17.8-29.1)	<b>16.2</b> (12.7-21.9)	<b>93.2</b> (66.0-130)	<b>491</b> (361-700)	<b>1330</b> (880-1880)	1487
	05-06	<b>19.0</b> (16.3-22.2)	<b>13.4</b> (11.2-16.2)	<b>64.2</b> (49.3-87.0)	<b>509</b> (406-628)	<b>1480</b> (816-2200)	1490
	07-08	<b>17.7</b> (13.3-23.6)	<b>12.6</b> (9.93-17.5)	<b>67.7</b> (44.1-127)	<b>362</b> (249-584)	<b>960</b> (581-1970)	1814
	09-10	<b>23.6</b> (18.8-29.5)	<b>16.3</b> (12.7-20.2)	<b>83.6</b> (58.3-146)	<b>602</b> (364-1230)	<b>2470</b> (1350-3080)	1914
<b>Gender</b>							
Males	03-04	<b>13.6</b> (10.8-17.1)	<b>10.3</b> (8.36-12.9)	<b>40.0</b> (24.9-62.5)	<b>169</b> (93.3-316)	<b>381</b> (229-685)	1228
	05-06	<b>11.7</b> (8.74-15.8)	<b>9.43</b> (6.72-12.5)	<b>31.9</b> (19.7-49.4)	<b>176</b> (77.1-406)	<b>553</b> (317-948)	1270
	07-08	<b>10.0</b> (7.37-13.7)	<b>7.50</b> (5.74-10.0)	<b>28.7</b> (18.5-47.3)	<b>142</b> (65.8-225)	<b>332</b> (181-960)	1294
	09-10	<b>13.7</b> (11.4-16.6)	<b>10.7</b> (8.53-12.7)	<b>44.6</b> (29.7-57.4)	<b>186</b> (123-287)	<b>420</b> (287-1230)	1399
Females	03-04	<b>35.5</b> (27.1-46.4)	<b>28.2</b> (20.2-37.0)	<b>144</b> (101-224)	<b>686</b> (491-1130)	<b>1850</b> (1220-2580)	1286
	05-06	<b>30.0</b> (25.3-35.6)	<b>20.9</b> (17.0-29.0)	<b>129</b> (88.0-175)	<b>707</b> (527-912)	<b>1880</b> (1150-2770)	1278
	07-08	<b>33.0</b> (25.0-43.7)	<b>26.2</b> (19.1-41.1)	<b>156</b> (90.2-235)	<b>617</b> (385-935)	<b>1500</b> (746-2710)	1310
	09-10	<b>38.6</b> (28.1-53.0)	<b>25.7</b> (17.5-35.2)	<b>161</b> (76.3-378)	<b>1580</b> (955-2410)	<b>3250</b> (2540-4640)	1350
<b>Race/ethnicity</b>							
Mexican Americans	03-04	<b>15.1</b> (9.44-24.0)	<b>11.1</b> (6.95-16.0)	<b>40.7</b> (18.3-85.8)	<b>158</b> (87.4-362)	<b>595</b> (118-1860)	612
	05-06	<b>12.9</b> (10.2-16.2)	<b>8.63</b> (6.16-12.5)	<b>32.1</b> (23.1-51.8)	<b>216</b> (135-408)	<b>948</b> (441-1220)	637
	07-08	<b>11.8</b> (8.87-15.6)	<b>8.97</b> (7.00-12.4)	<b>33.6</b> (26.0-43.2)	<b>154</b> (93.4-249)	<b>413</b> (217-932)	531
	09-10	<b>17.1</b> (13.4-21.7)	<b>12.2</b> (9.64-14.5)	<b>40.4</b> (26.4-60.3)	<b>288</b> (155-603)	<b>1310</b> (441-2180)	566
Non-Hispanic blacks	03-04	<b>8.78</b> (6.49-11.9)	<b>6.80</b> (5.27-9.00)	<b>19.7</b> (13.5-33.4)	<b>79.8</b> (46.8-139)	<b>185</b> (79.8-536)	651
	05-06	<b>8.69</b> (7.02-10.8)	<b>6.29</b> (5.52-7.78)	<b>21.2</b> (14.5-34.5)	<b>118</b> (74.9-245)	<b>448</b> (208-876)	678
	07-08	<b>6.65</b> (5.24-8.42)	<b>5.09</b> (4.15-6.10)	<b>17.8</b> (13.2-24.2)	<b>86.6</b> (57.5-122)	<b>297</b> (113-903)	597
	09-10	<b>10.2</b> (8.12-12.7)	<b>6.46</b> (5.40-7.67)	<b>23.1</b> (15.5-38.2)	<b>160</b> (79.9-396)	<b>653</b> (305-1580)	516
Non-Hispanic whites	03-04	<b>28.3</b> (20.6-38.8)	<b>22.0</b> (14.6-32.7)	<b>116</b> (73.5-175)	<b>510</b> (380-760)	<b>1330</b> (852-2410)	1091
	05-06	<b>22.7</b> (19.4-26.7)	<b>16.2</b> (13.0-19.7)	<b>77.3</b> (56.5-106)	<b>538</b> (406-679)	<b>1500</b> (828-2430)	1038
	07-08	<b>24.1</b> (15.6-37.2)	<b>18.1</b> (11.0-30.0)	<b>103</b> (53.6-198)	<b>494</b> (227-960)	<b>1170</b> (522-2710)	1077
	09-10	<b>29.3</b> (20.7-41.5)	<b>22.1</b> (14.6-33.1)	<b>99.2</b> (54.3-241)	<b>767</b> (412-1550)	<b>2590</b> (1510-3250)	1206

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Benzophenone-3\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Benzophenone-3_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Benzophenone-3\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Benzophenone-3_FactSheet.html)

## Urinary Benzophenone-3 (creatinine corrected) (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>26.4</b> (19.3-36.2)	<b>18.8</b> (13.3-27.3)	<b>102</b> (57.8-162)	<b>613</b> (330-1020)	<b>1680</b> (1010-2500)	2487
	13-14	<b>25.2</b> (20.5-31.0)	<b>19.8</b> (15.7-24.7)	<b>79.8</b> (66.2-103)	<b>467</b> (299-603)	<b>1190</b> (847-1810)	2684
<b>Age group</b>							
6-11 years	11-12	<b>26.9</b> (17.9-40.2)	<b>18.8</b> (13.0-28.6)	<b>67.8</b> (37.8-135)	<b>552</b> (138-1010)	<b>1010</b> (297-1670)	395
	13-14	<b>32.8</b> (21.5-50.1)	<b>28.8</b> (16.7-45.7)	<b>90.0</b> (46.9-189)	<b>401</b> (152-868)	<b>868</b> (432-1700)	409
12-19 years	11-12	<b>27.1</b> (14.2-51.8)	<b>16.7</b> (8.69-44.3)	<b>102</b> (29.9-331)	<b>631</b> (117-3050)	<b>1720</b> (331-3900)	388
	13-14	<b>23.7</b> (17.8-31.4)	<b>21.6</b> (15.8-28.7)	<b>63.0</b> (49.1-86.2)	<b>221</b> (116-440)	<b>506</b> (221-647)	462
20 years and older	11-12	<b>26.3</b> (19.8-34.8)	<b>19.8</b> (13.9-26.6)	<b>107</b> (68.1-156)	<b>640</b> (371-957)	<b>1890</b> (1080-2500)	1704
	13-14	<b>24.7</b> (20.3-30.0)	<b>18.8</b> (15.2-23.1)	<b>82.3</b> (69.5-102)	<b>529</b> (317-790)	<b>1420</b> (915-2660)	1813
<b>Gender</b>							
Males	11-12	<b>16.1</b> (11.3-22.8)	<b>11.9</b> (8.77-18.1)	<b>48.8</b> (31.6-84.5)	<b>237</b> (120-442)	<b>716</b> (267-1030)	1258
	13-14	<b>15.9</b> (13.2-19.3)	<b>13.8</b> (10.9-17.5)	<b>44.0</b> (33.1-58.5)	<b>181</b> (146-229)	<b>432</b> (299-532)	1284
Females	11-12	<b>42.7</b> (30.6-59.5)	<b>30.1</b> (19.7-49.4)	<b>186</b> (107-374)	<b>1150</b> (771-1910)	<b>2720</b> (1660-4230)	1229
	13-14	<b>38.9</b> (29.2-51.8)	<b>29.7</b> (21.3-39.9)	<b>153</b> (83.6-242)	<b>905</b> (603-1250)	<b>2550</b> (1440-3500)	1400
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>18.9</b> (12.4-29.0)	<b>13.8</b> (8.75-22.0)	<b>45.3</b> (23.5-132)	<b>369</b> (132-820)	<b>1030</b> (371-2330)	316
	13-14	<b>26.4</b> (20.2-34.4)	<b>18.2</b> (15.6-23.2)	<b>59.1</b> (40.6-82.7)	<b>296</b> (122-1090)	<b>1180</b> (473-2130)	438
Non-Hispanic blacks	11-12	<b>11.3</b> (8.82-14.5)	<b>7.48</b> (6.04-9.49)	<b>27.6</b> (18.0-42.1)	<b>269</b> (159-376)	<b>747</b> (376-1010)	665
	13-14	<b>8.02</b> (5.57-11.5)	<b>6.43</b> (4.68-8.60)	<b>16.9</b> (11.6-24.7)	<b>93.5</b> (51.1-204)	<b>332</b> (144-818)	609
Non-Hispanic whites	11-12	<b>32.6</b> (21.1-50.4)	<b>25.5</b> (15.3-41.1)	<b>128</b> (70.8-248)	<b>793</b> (334-1320)	<b>1970</b> (1030-3500)	811
	13-14	<b>31.2</b> (24.5-39.6)	<b>25.3</b> (20.1-31.5)	<b>115</b> (77.3-159)	<b>569</b> (432-765)	<b>1270</b> (871-2550)	987
All Hispanics	11-12	<b>23.7</b> (17.6-32.0)	<b>15.9</b> (11.4-21.7)	<b>65.0</b> (38.6-132)	<b>425</b> (265-916)	<b>1850</b> (784-2330)	571
	13-14	<b>28.0</b> (23.2-33.7)	<b>18.8</b> (16.3-22.5)	<b>66.8</b> (50.9-84.5)	<b>338</b> (190-1020)	<b>1380</b> (974-2740)	690
Asians	11-12	<b>22.3</b> (14.3-34.9)	<b>14.2</b> (8.24-27.8)	<b>73.1</b> (41.6-153)	<b>624</b> (282-1640)	<b>1860</b> (641-4410)	352
	13-14	<b>23.1</b> (16.3-32.8)	<b>20.2</b> (12.9-34.4)	<b>67.5</b> (48.4-102)	<b>253</b> (131-537)	<b>657</b> (287-1900)	288

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Benzophenone-3\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Benzophenone-3_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Benzophenone-3\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Benzophenone-3_FactSheet.html)

## Urinary Bisphenol A (2003 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	<b>2.64</b> (2.38-2.94)	<b>2.80</b> (2.50-3.10)	<b>5.50</b> (5.00-6.20)	<b>10.6</b> (9.40-12.0)	<b>16.0</b> (14.4-17.2)	2517
	05-06	<b>1.90</b> (1.79-2.02)	<b>2.00</b> (1.90-2.00)	<b>3.70</b> (3.50-3.90)	<b>7.00</b> (6.40-7.60)	<b>11.5</b> (10.0-13.6)	2548
	07-08	<b>2.08</b> (1.92-2.26)	<b>2.10</b> (1.90-2.30)	<b>4.10</b> (3.60-4.60)	<b>7.70</b> (6.80-8.70)	<b>13.0</b> (10.0-15.6)	2604
	09-10	<b>1.83</b> (1.72-1.94)	<b>1.90</b> (1.70-2.00)	<b>3.50</b> (3.30-3.80)	<b>6.60</b> (6.00-7.20)	<b>9.60</b> (8.50-11.3)	2749
<b>Age group</b>							
6-11 years	03-04	<b>3.55</b> (2.95-4.29)	<b>3.80</b> (2.70-5.00)	<b>6.90</b> (6.00-8.30)	<b>12.6</b> (9.50-15.1)	<b>16.0</b> (11.5-23.3)	314
	05-06	<b>2.86</b> (2.52-3.24)	<b>2.70</b> (2.30-2.90)	<b>5.00</b> (4.40-5.80)	<b>13.5</b> (9.30-16.8)	<b>22.8</b> (13.6-34.6)	356
	07-08	<b>2.48</b> (2.21-2.77)	<b>2.40</b> (1.90-3.00)	<b>4.50</b> (3.70-5.50)	<b>7.60</b> (6.30-9.50)	<b>13.4</b> (8.80-17.8)	389
	09-10	<b>1.81</b> (1.55-2.10)	<b>1.70</b> (1.50-2.00)	<b>3.40</b> (3.00-4.00)	<b>6.50</b> (4.30-9.70)	<b>9.20</b> (6.50-15.1)	415
12-19 years	03-04	<b>3.74</b> (3.31-4.22)	<b>4.30</b> (3.60-4.60)	<b>7.80</b> (6.50-9.00)	<b>13.5</b> (11.8-15.2)	<b>16.5</b> (15.2-20.9)	715
	05-06	<b>2.42</b> (2.18-2.68)	<b>2.40</b> (2.10-2.70)	<b>4.30</b> (3.90-5.20)	<b>8.40</b> (6.50-10.8)	<b>11.9</b> (10.7-14.8)	702
	07-08	<b>2.45</b> (2.14-2.80)	<b>2.40</b> (2.10-2.60)	<b>4.40</b> (3.60-5.50)	<b>9.70</b> (7.30-11.9)	<b>12.2</b> (9.70-19.0)	401
	09-10	<b>2.11</b> (1.86-2.40)	<b>2.20</b> (1.90-2.40)	<b>3.80</b> (3.20-4.50)	<b>6.90</b> (4.70-10.8)	<b>11.1</b> (6.90-21.0)	420
20 years and older	03-04	<b>2.41</b> (2.15-2.72)	<b>2.60</b> (2.30-2.80)	<b>5.10</b> (4.50-5.70)	<b>9.50</b> (8.10-11.3)	<b>15.2</b> (12.4-18.1)	1488
	05-06	<b>1.75</b> (1.62-1.89)	<b>1.80</b> (1.70-2.00)	<b>3.40</b> (3.10-3.70)	<b>6.40</b> (5.80-7.50)	<b>10.7</b> (8.80-12.1)	1490
	07-08	<b>1.99</b> (1.82-2.18)	<b>2.00</b> (1.80-2.30)	<b>3.90</b> (3.40-4.60)	<b>7.40</b> (6.60-8.50)	<b>13.2</b> (9.10-15.7)	1814
	09-10	<b>1.79</b> (1.67-1.93)	<b>1.80</b> (1.60-2.00)	<b>3.50</b> (3.30-3.70)	<b>6.50</b> (6.00-7.20)	<b>9.60</b> (8.30-11.3)	1914
<b>Gender</b>							
Males	03-04	<b>2.92</b> (2.63-3.24)	<b>3.20</b> (2.70-3.60)	<b>6.10</b> (5.40-6.60)	<b>10.4</b> (9.50-11.6)	<b>16.0</b> (12.7-17.6)	1229
	05-06	<b>2.09</b> (1.92-2.28)	<b>2.10</b> (2.00-2.30)	<b>3.70</b> (3.40-4.20)	<b>7.70</b> (6.80-9.30)	<b>12.8</b> (10.1-15.8)	1270
	07-08	<b>2.20</b> (2.01-2.41)	<b>2.10</b> (1.90-2.40)	<b>4.00</b> (3.60-4.70)	<b>8.10</b> (6.70-9.70)	<b>14.0</b> (8.70-20.8)	1294
	09-10	<b>1.94</b> (1.82-2.07)	<b>1.90</b> (1.70-2.00)	<b>3.70</b> (3.40-4.10)	<b>6.90</b> (5.90-7.90)	<b>10.9</b> (8.40-13.5)	1399
Females	03-04	<b>2.41</b> (2.11-2.75)	<b>2.50</b> (2.20-2.80)	<b>5.00</b> (4.20-6.20)	<b>10.6</b> (8.70-12.5)	<b>15.9</b> (13.5-20.1)	1288
	05-06	<b>1.74</b> (1.55-1.95)	<b>1.80</b> (1.60-2.00)	<b>3.70</b> (3.10-4.00)	<b>6.20</b> (5.80-7.60)	<b>10.4</b> (7.70-14.7)	1278
	07-08	<b>1.97</b> (1.80-2.16)	<b>2.00</b> (1.80-2.20)	<b>4.10</b> (3.60-4.60)	<b>7.40</b> (6.80-8.20)	<b>12.0</b> (9.60-14.1)	1310
	09-10	<b>1.73</b> (1.60-1.87)	<b>1.80</b> (1.60-2.00)	<b>3.40</b> (3.20-3.70)	<b>6.50</b> (5.60-7.10)	<b>9.20</b> (8.00-11.2)	1350
<b>Race/ethnicity</b>							
Mexican Americans	03-04	<b>2.58</b> (2.15-3.08)	<b>2.60</b> (2.10-3.20)	<b>5.20</b> (4.40-6.50)	<b>9.90</b> (7.30-13.9)	<b>15.4</b> (10.2-19.7)	613
	05-06	<b>2.05</b> (1.75-2.40)	<b>2.00</b> (1.70-2.40)	<b>3.60</b> (3.00-4.20)	<b>6.90</b> (5.40-10.1)	<b>12.2</b> (8.00-15.6)	637
	07-08	<b>2.09</b> (1.94-2.26)	<b>2.00</b> (1.80-2.30)	<b>3.80</b> (3.30-4.30)	<b>7.10</b> (6.10-8.60)	<b>11.7</b> (7.70-14.6)	531
	09-10	<b>1.92</b> (1.69-2.19)	<b>2.10</b> (1.80-2.30)	<b>3.50</b> (3.10-4.10)	<b>6.50</b> (5.20-7.50)	<b>9.00</b> (6.90-16.2)	566
Non-Hispanic blacks	03-04	<b>4.24</b> (3.73-4.82)	<b>4.30</b> (3.80-5.10)	<b>8.20</b> (7.10-9.80)	<b>14.2</b> (11.7-16.9)	<b>20.6</b> (14.9-25.2)	652
	05-06	<b>2.50</b> (2.25-2.77)	<b>2.70</b> (2.30-3.00)	<b>4.60</b> (4.00-5.00)	<b>8.00</b> (6.80-9.30)	<b>11.3</b> (8.90-14.2)	678
	07-08	<b>2.66</b> (2.38-2.97)	<b>2.80</b> (2.60-3.10)	<b>5.40</b> (4.40-6.40)	<b>9.10</b> (7.50-10.4)	<b>13.3</b> (10.0-15.1)	597
	09-10	<b>2.51</b> (2.22-2.83)	<b>2.60</b> (2.30-3.00)	<b>4.40</b> (3.80-5.00)	<b>7.30</b> (6.10-8.80)	<b>10.3</b> (7.90-13.6)	516
Non-Hispanic whites	03-04	<b>2.51</b> (2.26-2.79)	<b>2.70</b> (2.50-3.00)	<b>5.20</b> (4.70-5.80)	<b>9.60</b> (8.30-10.9)	<b>15.1</b> (12.6-16.7)	1092
	05-06	<b>1.76</b> (1.62-1.91)	<b>1.80</b> (1.60-2.00)	<b>3.50</b> (3.20-3.80)	<b>6.80</b> (5.90-7.60)	<b>11.0</b> (8.80-13.7)	1038
	07-08	<b>2.06</b> (1.87-2.27)	<b>2.00</b> (1.80-2.30)	<b>4.00</b> (3.40-4.70)	<b>7.80</b> (6.70-8.90)	<b>13.7</b> (9.80-16.1)	1077
	09-10	<b>1.73</b> (1.60-1.87)	<b>1.70</b> (1.60-1.90)	<b>3.40</b> (3.10-3.70)	<b>6.40</b> (5.40-7.60)	<b>9.20</b> (8.20-11.2)	1206

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08 and 09-10 are 0.4, 0.4, 0.4, and 0.4 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/BisphenolA\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/BisphenolA_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/BisphenolA\\_FactSheet.html](http://www.cdc.gov/biomonitoring/BisphenolA_FactSheet.html)

## Urinary Bisphenol A (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>1.51</b> (1.41-1.62)	<b>1.40</b> (1.30-1.60)	<b>3.00</b> (2.70-3.30)	<b>5.60</b> (4.90-6.50)	<b>9.40</b> (7.70-11.2)	2489
	13-14	<b>1.28</b> (1.20-1.36)	<b>1.30</b> (1.20-1.40)	<b>2.50</b> (2.40-2.70)	<b>4.90</b> (4.10-5.60)	<b>7.70</b> (6.80-8.30)	2686
<b>Age group</b>							
6-11 years	11-12	<b>1.58</b> (1.41-1.78)	<b>1.50</b> (1.30-1.70)	<b>3.10</b> (2.60-3.50)	<b>6.70</b> (5.10-8.00)	<b>8.70</b> (6.20-21.4)	396
	13-14	<b>1.43</b> (1.30-1.59)	<b>1.40</b> (1.30-1.60)	<b>2.90</b> (2.30-3.40)	<b>4.40</b> (4.10-5.20)	<b>8.00</b> (5.20-10.2)	409
12-19 years	11-12	<b>1.69</b> (1.42-2.00)	<b>1.70</b> (1.30-2.10)	<b>3.30</b> (2.80-4.00)	<b>6.90</b> (4.80-7.90)	<b>10.0</b> (7.10-13.0)	388
	13-14	<b>1.28</b> (1.16-1.41)	<b>1.20</b> (1.10-1.40)	<b>2.40</b> (1.90-2.70)	<b>4.60</b> (3.30-5.20)	<b>6.80</b> (5.20-8.10)	462
20 years and older	11-12	<b>1.48</b> (1.35-1.61)	<b>1.40</b> (1.20-1.60)	<b>2.90</b> (2.50-3.30)	<b>5.40</b> (4.70-6.30)	<b>9.30</b> (7.30-12.2)	1705
	13-14	<b>1.26</b> (1.18-1.35)	<b>1.30</b> (1.20-1.40)	<b>2.50</b> (2.40-2.80)	<b>4.90</b> (4.10-6.00)	<b>7.80</b> (6.80-8.60)	1815
<b>Gender</b>							
Males	11-12	<b>1.64</b> (1.49-1.81)	<b>1.50</b> (1.40-1.70)	<b>3.20</b> (2.70-3.70)	<b>6.00</b> (5.00-7.70)	<b>9.50</b> (7.80-11.2)	1259
	13-14	<b>1.43</b> (1.30-1.58)	<b>1.40</b> (1.30-1.60)	<b>2.80</b> (2.40-3.20)	<b>5.30</b> (4.30-6.60)	<b>8.30</b> (6.80-10.3)	1285
Females	11-12	<b>1.39</b> (1.25-1.55)	<b>1.30</b> (1.20-1.50)	<b>2.80</b> (2.40-3.20)	<b>5.20</b> (4.30-6.30)	<b>8.50</b> (6.50-13.4)	1230
	13-14	<b>1.15</b> (1.05-1.26)	<b>1.20</b> (1.10-1.30)	<b>2.30</b> (2.00-2.60)	<b>4.20</b> (3.80-5.20)	<b>7.20</b> (5.60-8.10)	1401
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>1.45</b> (1.30-1.63)	<b>1.40</b> (1.20-1.60)	<b>2.80</b> (2.30-3.10)	<b>5.00</b> (4.20-6.50)	<b>7.70</b> (5.90-9.70)	316
	13-14	<b>1.28</b> (1.06-1.53)	<b>1.30</b> (1.00-1.70)	<b>2.50</b> (2.10-2.80)	<b>4.10</b> (3.50-4.90)	<b>5.60</b> (4.60-7.30)	438
Non-Hispanic blacks	11-12	<b>2.12</b> (1.88-2.38)	<b>2.00</b> (1.80-2.40)	<b>4.10</b> (3.40-4.60)	<b>7.10</b> (5.70-8.10)	<b>11.4</b> (8.10-14.3)	665
	13-14	<b>1.83</b> (1.62-2.07)	<b>1.90</b> (1.50-2.20)	<b>3.60</b> (3.20-4.10)	<b>6.80</b> (5.70-7.80)	<b>9.80</b> (7.70-12.9)	609
Non-Hispanic whites	11-12	<b>1.46</b> (1.34-1.58)	<b>1.30</b> (1.20-1.50)	<b>2.90</b> (2.50-3.20)	<b>5.40</b> (4.60-6.60)	<b>8.90</b> (6.90-13.4)	813
	13-14	<b>1.22</b> (1.13-1.31)	<b>1.30</b> (1.10-1.40)	<b>2.40</b> (2.20-2.70)	<b>4.40</b> (3.90-5.90)	<b>7.40</b> (6.40-8.30)	988
All Hispanics	11-12	<b>1.48</b> (1.25-1.74)	<b>1.40</b> (1.20-1.70)	<b>2.80</b> (2.20-3.40)	<b>5.70</b> (4.20-7.30)	<b>9.10</b> (6.50-14.1)	571
	13-14	<b>1.31</b> (1.18-1.46)	<b>1.30</b> (1.10-1.50)	<b>2.60</b> (2.20-2.80)	<b>4.10</b> (3.70-4.70)	<b>6.10</b> (4.90-7.50)	690
Asians	11-12	<b>1.03</b> (.863-1.23)	<b>.900</b> (.800-1.10)	<b>1.80</b> (1.50-2.20)	<b>4.00</b> (2.40-6.40)	<b>7.30</b> (3.90-11.9)	352
	13-14	<b>.782</b> (.646-.948)	<b>.800</b> (.700-.900)	<b>1.40</b> (1.00-1.80)	<b>2.40</b> (1.80-3.30)	<b>3.60</b> (2.40-12.1)	289

Limit of detection (LOD, see Data Analysis section) for Survey years 11-12 and 13-14 are 0.4 and 0.2, respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/BisphenolA\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/BisphenolA_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/BisphenolA\\_FactSheet.html](http://www.cdc.gov/biomonitoring/BisphenolA_FactSheet.html)



## Urinary Bisphenol A (creatinine corrected) (2003 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	<b>2.58</b> (2.36-2.82)	<b>2.50</b> (2.31-2.80)	<b>4.29</b> (3.88-4.75)	<b>7.67</b> (6.62-8.66)	<b>11.2</b> (9.78-12.4)	2514
	05-06	<b>1.86</b> (1.79-1.92)	<b>1.71</b> (1.64-1.79)	<b>3.01</b> (2.86-3.20)	<b>5.73</b> (5.29-6.36)	<b>9.70</b> (8.31-10.9)	2548
	07-08	<b>2.10</b> (1.95-2.25)	<b>1.95</b> (1.84-2.03)	<b>3.45</b> (3.02-3.83)	<b>6.09</b> (5.10-7.45)	<b>10.0</b> (7.48-13.2)	2604
	09-10	<b>1.91</b> (1.79-2.04)	<b>1.76</b> (1.67-1.84)	<b>3.06</b> (2.80-3.33)	<b>5.33</b> (4.68-6.06)	<b>8.03</b> (6.94-10.0)	2749
<b>Age group</b>							
6-11 years	03-04	<b>4.32</b> (3.63-5.14)	<b>4.29</b> (3.63-5.23)	<b>7.14</b> (5.83-9.56)	<b>12.2</b> (9.84-14.8)	<b>15.7</b> (12.2-23.2)	314
	05-06	<b>3.14</b> (2.79-3.54)	<b>2.80</b> (2.55-3.06)	<b>5.04</b> (4.46-5.71)	<b>15.6</b> (8.15-22.4)	<b>24.6</b> (19.9-48.5)	356
	07-08	<b>3.05</b> (2.73-3.41)	<b>2.69</b> (2.38-3.12)	<b>5.06</b> (4.33-5.60)	<b>11.9</b> (6.30-17.4)	<b>20.8</b> (12.7-26.3)	389
	09-10	<b>2.36</b> (2.09-2.65)	<b>2.18</b> (2.00-2.53)	<b>3.70</b> (3.14-4.29)	<b>5.97</b> (4.57-9.15)	<b>9.57</b> (6.52-13.7)	415
12-19 years	03-04	<b>2.80</b> (2.52-3.11)	<b>2.74</b> (2.35-3.22)	<b>4.74</b> (4.21-5.09)	<b>7.79</b> (6.41-8.87)	<b>11.8</b> (8.05-14.2)	713
	05-06	<b>1.80</b> (1.67-1.95)	<b>1.65</b> (1.50-1.76)	<b>2.73</b> (2.41-2.98)	<b>5.71</b> (4.07-7.50)	<b>8.52</b> (6.94-12.2)	702
	07-08	<b>1.90</b> (1.72-2.10)	<b>1.69</b> (1.50-2.00)	<b>2.94</b> (2.38-3.60)	<b>5.10</b> (4.17-6.82)	<b>7.72</b> (5.32-13.9)	401
	09-10	<b>1.70</b> (1.47-1.95)	<b>1.60</b> (1.34-1.88)	<b>2.63</b> (2.11-3.58)	<b>4.47</b> (3.76-6.19)	<b>6.71</b> (4.40-17.8)	420
20 years and older	03-04	<b>2.39</b> (2.17-2.64)	<b>2.36</b> (2.15-2.59)	<b>3.93</b> (3.44-4.33)	<b>6.64</b> (5.97-7.74)	<b>10.0</b> (9.01-11.4)	1487
	05-06	<b>1.75</b> (1.67-1.84)	<b>1.64</b> (1.56-1.75)	<b>2.84</b> (2.67-3.08)	<b>5.38</b> (4.89-5.87)	<b>8.54</b> (7.58-9.77)	1490
	07-08	<b>2.04</b> (1.90-2.20)	<b>1.92</b> (1.79-2.03)	<b>3.36</b> (2.91-3.78)	<b>6.02</b> (4.88-7.48)	<b>9.32</b> (7.48-12.1)	1814
	09-10	<b>1.90</b> (1.76-2.05)	<b>1.76</b> (1.66-1.84)	<b>3.04</b> (2.76-3.24)	<b>5.33</b> (4.67-6.11)	<b>8.00</b> (6.97-10.0)	1914
<b>Gender</b>							
Males	03-04	<b>2.38</b> (2.15-2.63)	<b>2.31</b> (2.08-2.70)	<b>4.19</b> (3.81-4.64)	<b>7.10</b> (6.41-8.28)	<b>9.94</b> (9.06-11.7)	1228
	05-06	<b>1.68</b> (1.57-1.80)	<b>1.56</b> (1.45-1.64)	<b>2.73</b> (2.43-3.14)	<b>5.27</b> (4.64-6.04)	<b>8.40</b> (6.81-11.4)	1270
	07-08	<b>1.85</b> (1.71-2.01)	<b>1.77</b> (1.57-1.91)	<b>2.97</b> (2.59-3.33)	<b>5.41</b> (4.47-7.51)	<b>9.52</b> (6.29-13.4)	1294
	09-10	<b>1.74</b> (1.62-1.87)	<b>1.60</b> (1.48-1.72)	<b>2.76</b> (2.53-2.96)	<b>5.00</b> (4.16-5.86)	<b>7.50</b> (6.22-9.00)	1399
Females	03-04	<b>2.78</b> (2.50-3.08)	<b>2.68</b> (2.40-2.94)	<b>4.41</b> (3.81-5.15)	<b>7.93</b> (6.48-10.2)	<b>12.4</b> (9.29-18.2)	1286
	05-06	<b>2.04</b> (1.95-2.14)	<b>1.85</b> (1.76-2.02)	<b>3.21</b> (2.98-3.39)	<b>6.47</b> (5.51-7.50)	<b>9.86</b> (8.62-11.8)	1278
	07-08	<b>2.36</b> (2.17-2.57)	<b>2.14</b> (1.98-2.33)	<b>3.77</b> (3.43-4.31)	<b>6.67</b> (5.41-7.83)	<b>10.5</b> (7.45-15.2)	1310
	09-10	<b>2.09</b> (1.92-2.27)	<b>1.93</b> (1.80-2.15)	<b>3.33</b> (2.94-3.84)	<b>5.49</b> (4.87-6.74)	<b>8.80</b> (6.47-12.5)	1350
<b>Race/ethnicity</b>							
Mexican Americans	03-04	<b>2.34</b> (2.02-2.71)	<b>2.38</b> (2.00-2.65)	<b>3.85</b> (3.24-4.55)	<b>7.09</b> (5.00-9.04)	<b>10.9</b> (8.50-14.3)	612
	05-06	<b>1.84</b> (1.66-2.04)	<b>1.62</b> (1.45-1.84)	<b>2.99</b> (2.56-3.60)	<b>6.00</b> (4.51-8.00)	<b>10.3</b> (6.84-14.9)	637
	07-08	<b>2.04</b> (1.86-2.24)	<b>1.88</b> (1.72-2.11)	<b>3.33</b> (2.96-3.95)	<b>5.68</b> (5.05-6.59)	<b>8.90</b> (6.30-11.8)	531
	09-10	<b>1.91</b> (1.71-2.13)	<b>1.76</b> (1.67-1.87)	<b>3.13</b> (2.63-3.57)	<b>5.51</b> (4.72-6.97)	<b>8.71</b> (5.86-14.4)	566
Non-Hispanic blacks	03-04	<b>2.92</b> (2.58-3.32)	<b>2.95</b> (2.51-3.27)	<b>4.90</b> (4.07-6.13)	<b>8.64</b> (7.53-9.63)	<b>11.9</b> (10.2-13.3)	651
	05-06	<b>1.76</b> (1.62-1.90)	<b>1.68</b> (1.53-1.92)	<b>2.82</b> (2.67-3.04)	<b>4.56</b> (3.85-5.43)	<b>6.81</b> (5.00-9.27)	678
	07-08	<b>2.06</b> (1.91-2.23)	<b>2.03</b> (1.83-2.25)	<b>3.24</b> (2.86-3.78)	<b>5.71</b> (5.15-6.54)	<b>8.59</b> (6.54-10.9)	597
	09-10	<b>1.82</b> (1.65-2.01)	<b>1.70</b> (1.56-1.89)	<b>2.90</b> (2.39-3.17)	<b>4.94</b> (4.02-6.03)	<b>6.74</b> (5.95-8.09)	516
Non-Hispanic whites	03-04	<b>2.58</b> (2.37-2.81)	<b>2.55</b> (2.32-2.80)	<b>4.30</b> (3.93-4.67)	<b>7.58</b> (6.32-8.87)	<b>11.0</b> (9.34-12.4)	1091
	05-06	<b>1.85</b> (1.75-1.96)	<b>1.70</b> (1.60-1.82)	<b>3.08</b> (2.78-3.31)	<b>5.80</b> (5.13-6.72)	<b>9.77</b> (7.87-11.5)	1038
	07-08	<b>2.15</b> (1.97-2.35)	<b>1.97</b> (1.84-2.11)	<b>3.50</b> (3.04-3.95)	<b>6.44</b> (5.04-8.00)	<b>10.9</b> (7.47-14.5)	1077
	09-10	<b>1.94</b> (1.79-2.10)	<b>1.78</b> (1.67-1.92)	<b>3.16</b> (2.80-3.59)	<b>5.45</b> (4.67-6.94)	<b>8.55</b> (6.73-10.0)	1206

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/BisphenolA\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/BisphenolA_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/BisphenolA\\_FactSheet.html](http://www.cdc.gov/biomonitoring/BisphenolA_FactSheet.html)

## Urinary Bisphenol A (creatinine corrected) (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
Total	11-12	<b>1.72</b> (1.61-1.84)	<b>1.58</b> (1.46-1.71)	<b>2.86</b> (2.62-3.01)	<b>4.62</b> (4.12-5.65)	<b>8.24</b> (6.47-11.0)	2487
	13-14	<b>1.28</b> (1.18-1.39)	<b>1.21</b> (1.11-1.32)	<b>2.12</b> (1.92-2.33)	<b>3.88</b> (3.46-4.24)	<b>5.09</b> (4.65-5.96)	2684
<b>Age group</b>							
6-11 years	11-12	<b>2.27</b> (1.97-2.62)	<b>2.00</b> (1.78-2.16)	<b>3.33</b> (2.93-3.75)	<b>7.94</b> (4.71-12.4)	<b>14.0</b> (6.45-47.5)	395
	13-14	<b>1.81</b> (1.68-1.96)	<b>1.80</b> (1.52-2.03)	<b>3.10</b> (2.63-3.46)	<b>4.48</b> (4.00-4.96)	<b>7.03</b> (5.00-9.92)	409
12-19 years	11-12	<b>1.64</b> (1.44-1.87)	<b>1.48</b> (1.13-1.98)	<b>2.88</b> (2.21-3.23)	<b>4.50</b> (3.37-8.16)	<b>8.74</b> (3.57-18.4)	388
	13-14	<b>1.04</b> (.887-1.21)	<b>.932</b> (.809-1.19)	<b>1.71</b> (1.33-2.03)	<b>2.69</b> (2.28-3.33)	<b>3.99</b> (3.29-4.67)	462
20 years and older	11-12	<b>1.68</b> (1.57-1.80)	<b>1.55</b> (1.43-1.68)	<b>2.75</b> (2.54-3.00)	<b>4.55</b> (4.00-5.39)	<b>7.73</b> (5.73-10.0)	1704
	13-14	<b>1.27</b> (1.16-1.39)	<b>1.21</b> (1.11-1.30)	<b>2.09</b> (1.90-2.31)	<b>3.88</b> (3.33-4.37)	<b>5.09</b> (4.58-5.97)	1813
<b>Gender</b>							
Males	11-12	<b>1.54</b> (1.40-1.69)	<b>1.37</b> (1.20-1.59)	<b>2.55</b> (2.21-2.94)	<b>4.38</b> (3.75-6.00)	<b>8.24</b> (6.01-11.0)	1258
	13-14	<b>1.20</b> (1.11-1.31)	<b>1.12</b> (.988-1.25)	<b>1.95</b> (1.78-2.24)	<b>3.75</b> (3.25-4.29)	<b>4.91</b> (4.42-7.02)	1284
Females	11-12	<b>1.91</b> (1.76-2.08)	<b>1.75</b> (1.57-1.97)	<b>2.93</b> (2.73-3.24)	<b>4.94</b> (4.27-6.24)	<b>8.13</b> (6.00-11.1)	1229
	13-14	<b>1.36</b> (1.23-1.51)	<b>1.28</b> (1.17-1.43)	<b>2.25</b> (2.03-2.48)	<b>3.94</b> (3.27-4.48)	<b>5.18</b> (4.50-6.07)	1400
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>1.64</b> (1.49-1.80)	<b>1.46</b> (1.32-1.64)	<b>2.70</b> (2.34-3.01)	<b>4.50</b> (3.45-7.00)	<b>7.37</b> (4.76-11.4)	316
	13-14	<b>1.30</b> (1.16-1.45)	<b>1.27</b> (1.05-1.57)	<b>2.25</b> (1.97-2.50)	<b>3.57</b> (3.04-3.98)	<b>4.25</b> (3.93-4.83)	438
Non-Hispanic blacks	11-12	<b>1.65</b> (1.48-1.84)	<b>1.50</b> (1.30-1.71)	<b>2.63</b> (2.11-3.17)	<b>4.82</b> (3.82-6.24)	<b>7.23</b> (5.98-10.7)	665
	13-14	<b>1.35</b> (1.25-1.46)	<b>1.32</b> (1.13-1.46)	<b>2.17</b> (1.96-2.35)	<b>3.89</b> (3.24-4.27)	<b>5.00</b> (4.40-6.01)	609
Non-Hispanic whites	11-12	<b>1.77</b> (1.64-1.92)	<b>1.64</b> (1.49-1.78)	<b>2.90</b> (2.65-3.08)	<b>4.60</b> (4.05-6.00)	<b>9.00</b> (6.11-12.3)	811
	13-14	<b>1.28</b> (1.14-1.44)	<b>1.21</b> (1.06-1.38)	<b>2.13</b> (1.85-2.42)	<b>3.94</b> (3.33-4.56)	<b>5.60</b> (4.65-6.53)	987
All Hispanics	11-12	<b>1.66</b> (1.44-1.90)	<b>1.47</b> (1.28-1.70)	<b>2.80</b> (2.39-3.14)	<b>4.82</b> (3.67-7.00)	<b>7.69</b> (5.76-9.62)	571
	13-14	<b>1.30</b> (1.19-1.43)	<b>1.25</b> (1.09-1.42)	<b>2.20</b> (1.92-2.47)	<b>3.61</b> (3.13-3.98)	<b>4.54</b> (4.03-4.89)	690
Asians	11-12	<b>1.38</b> (1.25-1.52)	<b>1.32</b> (1.16-1.40)	<b>2.11</b> (1.84-2.50)	<b>4.04</b> (2.80-6.25)	<b>7.42</b> (4.38-12.1)	352
	13-14	<b>.990</b> (.847-1.16)	<b>.918</b> (.778-1.05)	<b>1.62</b> (1.39-1.97)	<b>2.71</b> (2.09-4.00)	<b>4.44</b> (2.71-10.0)	288

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/BisphenolA\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/BisphenolA_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/BisphenolA\\_FactSheet.html](http://www.cdc.gov/biomonitoring/BisphenolA_FactSheet.html)

## Urinary 4-*tert*-Octylphenol (2005 – 2010)‡

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	*	< LOD	< LOD	< LOD	.200 (<LOD-.300)	2548
	07-08	*	< LOD	< LOD	< LOD	.300 (.200-.300)	2604
	09-10	*	< LOD	< LOD	.200 (<LOD-.300)	.300 (.300-.400)	2749
<b>Age group</b>							
6-11 years	05-06	*	< LOD	< LOD	< LOD	.300 (.200-.300)	356
	07-08	*	< LOD	< LOD	.200 (<LOD-.300)	.300 (.200-.400)	389
	09-10	*	< LOD	< LOD	.300 (<LOD-.400)	.400 (.300-.600)	415
12-19 years	05-06	*	< LOD	< LOD	< LOD	.200 (<LOD-.400)	702
	07-08	*	< LOD	< LOD	< LOD	.300 (<LOD-.400)	401
	09-10	*	< LOD	< LOD	.300 (.200-.300)	.300 (.300-.400)	420
20 years and older	05-06	*	< LOD	< LOD	< LOD	.200 (<LOD-.300)	1490
	07-08	*	< LOD	< LOD	< LOD	.300 (.200-.400)	1814
	09-10	*	< LOD	< LOD	< LOD	.300 (.200-.400)	1914
<b>Gender</b>							
Males	05-06	*	< LOD	< LOD	< LOD	.200 (<LOD-.300)	1270
	07-08	*	< LOD	< LOD	< LOD	.300 (.200-.400)	1294
	09-10	*	< LOD	< LOD	.200 (<LOD-.300)	.300 (.300-.400)	1399
Females	05-06	*	< LOD	< LOD	< LOD	< LOD	1278
	07-08	*	< LOD	< LOD	< LOD	.300 (.200-.300)	1310
	09-10	*	< LOD	< LOD	.200 (<LOD-.300)	.300 (.200-.400)	1350
<b>Race/ethnicity</b>							
Mexican Americans	05-06	*	< LOD	< LOD	< LOD	.300 (<LOD-.800)	637
	07-08	*	< LOD	< LOD	< LOD	.300 (.200-.300)	531
	09-10	*	< LOD	< LOD	< LOD	.300 (<LOD-.500)	566
Non-Hispanic blacks	05-06	*	< LOD	< LOD	< LOD	.200 (<LOD-.400)	678
	07-08	*	< LOD	< LOD	.200 (<LOD-.300)	.300 (.200-.500)	597
	09-10	*	< LOD	< LOD	.300 (.200-.400)	.500 (.400-.600)	516
Non-Hispanic whites	05-06	*	< LOD	< LOD	< LOD	.200 (<LOD-.300)	1038
	07-08	*	< LOD	< LOD	< LOD	.200 (.200-.300)	1077
	09-10	*	< LOD	< LOD	.200 (<LOD-.300)	.300 (.300-.400)	1206

Limit of detection (LOD, see Data Analysis section) for Survey years 05-06, 07-08, and 09-10 are 0.2, 0.2, and 0.2 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡The 2003-2004 data were removed due to potential for contamination that may have occurred during sampling. Not measured after Survey years 2009-2010.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Octylphenol\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Octylphenol_BiomonitoringSummary.html)



## Urinary 4-*tert*-Octylphenol (creatinine corrected) (2005 – 2010)‡

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	*	< LOD	< LOD	< LOD	.560 (<LOD-.620)	2548
	07-08	*	< LOD	< LOD	< LOD	.670 (.560-.880)	2604
	09-10	*	< LOD	< LOD	.470 (<LOD-.500)	.640 (.580-.680)	2749
<b>Age group</b>							
6-11 years	05-06	*	< LOD	< LOD	< LOD	.410 (.350-.610)	356
	07-08	*	< LOD	< LOD	.440 (<LOD-.540)	.600 (.420-.930)	389
	09-10	*	< LOD	< LOD	.560 (<LOD-.670)	.740 (.640-.830)	415
12-19 years	05-06	*	< LOD	< LOD	< LOD	.450 (<LOD-.560)	702
	07-08	*	< LOD	< LOD	< LOD	.420 (<LOD-.540)	401
	09-10	*	< LOD	< LOD	.360 (.270-.440)	.450 (.340-.560)	420
20 years and older	05-06	*	< LOD	< LOD	< LOD	.580 (<LOD-.670)	1490
	07-08	*	< LOD	< LOD	< LOD	.700 (.580-.930)	1814
	09-10	*	< LOD	< LOD	< LOD	.640 (.580-.700)	1914
<b>Gender</b>							
Males	05-06	*	< LOD	< LOD	< LOD	.390 (<LOD-.440)	1270
	07-08	*	< LOD	< LOD	< LOD	.510 (.390-.600)	1294
	09-10	*	< LOD	< LOD	.380 (<LOD-.420)	.480 (.450-.610)	1399
Females	05-06	*	< LOD	< LOD	< LOD	< LOD	1278
	07-08	*	< LOD	< LOD	< LOD	.880 (.670-1.08)	1310
	09-10	*	< LOD	< LOD	.540 (<LOD-.580)	.700 (.640-.880)	1350
<b>Race/ethnicity</b>							
Mexican Americans	05-06	*	< LOD	< LOD	< LOD	.480 (<LOD-.740)	637
	07-08	*	< LOD	< LOD	< LOD	.520 (.440-.610)	531
	09-10	*	< LOD	< LOD	< LOD	.560 (<LOD-.750)	566
Non-Hispanic blacks	05-06	*	< LOD	< LOD	< LOD	.320 (<LOD-.400)	678
	07-08	*	< LOD	< LOD	.320 (<LOD-.410)	.460 (.340-.610)	597
	09-10	*	< LOD	< LOD	.300 (.250-.330)	.440 (.320-.560)	516
Non-Hispanic whites	05-06	*	< LOD	< LOD	< LOD	.610 (<LOD-.670)	1038
	07-08	*	< LOD	< LOD	< LOD	.700 (.560-.930)	1077
	09-10	*	< LOD	< LOD	.500 (<LOD-.560)	.670 (.580-.740)	1206

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡The 2003-2004 data were removed due to potential for contamination that may have occurred during sampling. Not measured after Survey years 2009-2010.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Octylphenol\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Octylphenol_BiomonitoringSummary.html)

## Urinary Triclocarban (2013 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Total</b>	13-14	*	< LOD	.200 (.200-.200)	2.20 (1.20-4.10)	13.4 (8.00-24.5)	2686
<b>Age group</b>							
6-11 years	13-14	*	< LOD	< LOD	.300 (.200-.500)	.900 (.400-5.50)	409
12-19 years	13-14	*	< LOD	.200 (.100-.200)	.900 (.400-1.90)	2.60 (1.40-9.40)	462
20 years and older	13-14	*	< LOD	.200 (.200-.300)	3.40 (1.80-7.00)	17.9 (10.0-30.8)	1815
<b>Gender</b>							
Males	13-14	*	< LOD	.200 (.200-.400)	3.50 (1.60-9.90)	31.9 (13.9-47.6)	1285
Females	13-14	*	< LOD	.200 (.100-.200)	1.70 (.600-3.50)	7.50 (3.50-12.9)	1401
<b>Race/ethnicity</b>							
Mexican Americans	13-14	*	< LOD	.100 (<LOD-.200)	.600 (.200-3.30)	3.30 (.400-16.3)	438
Non-Hispanic blacks	13-14	.397 (.295-.536)	.200 (.100-.300)	1.10 (.700-2.00)	11.3 (6.00-17.9)	27.0 (11.7-67.9)	609
Non-Hispanic whites	13-14	*	< LOD	.200 (.100-.200)	2.00 (.800-4.50)	14.8 (7.10-32.5)	988
All Hispanics	13-14	*	< LOD	.100 (<LOD-.200)	.600 (.300-2.10)	4.40 (1.10-9.40)	690
Asians	13-14	*	< LOD	.100 (<LOD-.100)	.500 (.200-1.40)	2.20 (.800-7.80)	289

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.1.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

## Urinary Triclocarban (creatinine corrected) (2013 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Total</b>	13-14	*	< LOD	.275 (.248-.306)	1.96 (1.00-4.17)	14.6 (8.93-21.3)	2684
<b>Age group</b>							
6-11 years	13-14	*	< LOD	< LOD	.413 (.323-.725)	.778 (.389-7.77)	409
12-19 years	13-14	*	< LOD	.200 (.146-.248)	.559 (.380-.888)	1.97 (.769-8.70)	462
20 years and older	13-14	*	< LOD	.292 (.261-.333)	3.20 (1.67-7.07)	17.6 (10.7-22.9)	1813
<b>Gender</b>							
Males	13-14	*	< LOD	.250 (.185-.306)	3.00 (1.07-9.86)	21.3 (13.7-28.3)	1284
Females	13-14	*	< LOD	.292 (.250-.357)	1.65 (.700-4.17)	9.33 (4.17-14.9)	1400
<b>Race/ethnicity</b>							
Mexican Americans	13-14	*	< LOD	.200 (<LOD-.292)	.559 (.292-1.35)	1.35 (.444-21.5)	438
Non-Hispanic blacks	13-14	.293 (.220-.391)	.172 (.127-.235)	.741 (.513-1.11)	7.90 (2.41-19.3)	23.9 (10.8-28.9)	609
Non-Hispanic whites	13-14	*	< LOD	.278 (.233-.333)	2.06 (.800-7.12)	15.4 (9.87-22.6)	987
All Hispanics	13-14	*	< LOD	.192 (<LOD-.233)	.617 (.351-1.35)	4.48 (1.24-10.6)	690
Asians	13-14	*	< LOD	.217 (<LOD-.250)	.625 (.379-1.67)	3.06 (.769-12.1)	288

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

## Urinary Triclosan (2003 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	13.0 (11.6-14.6)	9.20 (7.90-10.9)	47.4 (38.2-58.4)	249 (188-304)	461 (383-522)	2517
	05-06	18.5 (16.1-21.3)	15.1 (11.8-18.5)	76.2 (57.9-97.6)	334 (279-402)	655 (573-739)	2548
	07-08	15.3 (13.5-17.4)	12.1 (10.2-13.8)	57.2 (46.1-65.9)	225 (176-288)	494 (371-615)	2604
	09-10	14.5 (12.6-16.6)	10.7 (8.80-12.6)	51.2 (39.4-67.7)	238 (200-284)	483 (398-569)	2749
<b>Age group</b>							
6-11 years	03-04	8.16 (6.20-10.8)	6.00 (4.00-8.50)	20.7 (14.3-31.6)	123 (36.4-163)	157 (113-380)	314
	05-06	12.8 (9.89-16.7)	10.3 (8.30-17.2)	35.4 (23.9-65.8)	97.6 (67.4-181)	246 (99.5-462)	356
	07-08	11.8 (7.57-18.2)	9.80 (6.70-13.9)	27.7 (14.8-52.2)	98.5 (40.5-364)	296 (67.4-826)	389
	09-10	10.9 (9.35-12.8)	9.90 (7.10-11.9)	28.3 (22.1-35.5)	95.5 (71.5-117)	200 (114-474)	415
12-19 years	03-04	14.5 (11.0-19.1)	10.3 (8.20-13.1)	39.0 (26.5-86.4)	304 (134-566)	655 (310-890)	715
	05-06	18.8 (14.9-23.8)	15.4 (11.0-21.0)	67.5 (45.3-100)	330 (174-461)	566 (389-707)	702
	07-08	18.2 (13.8-23.8)	13.8 (9.40-20.1)	63.2 (38.7-110)	296 (144-395)	401 (308-853)	401
	09-10	11.7 (9.89-13.8)	8.80 (7.30-10.9)	30.2 (24.3-40.6)	165 (56.7-289)	301 (220-431)	420
20 years and older	03-04	13.6 (12.0-15.3)	9.60 (8.20-11.5)	51.7 (39.6-65.7)	261 (198-317)	472 (406-522)	1488
	05-06	19.3 (16.4-22.6)	15.5 (11.8-19.4)	84.3 (61.0-114)	366 (289-462)	738 (583-864)	1490
	07-08	15.4 (13.7-17.3)	12.3 (10.1-14.4)	60.1 (48.5-69.0)	225 (185-286)	504 (378-573)	1814
	09-10	15.5 (12.9-18.5)	11.1 (8.60-14.2)	61.8 (41.8-86.0)	262 (214-327)	544 (415-621)	1914
<b>Gender</b>							
Males	03-04	16.2 (13.4-19.6)	11.7 (9.30-14.8)	84.9 (50.6-111)	317 (231-433)	574 (461-716)	1229
	05-06	21.3 (17.6-25.7)	17.6 (11.9-23.2)	103 (69.9-143)	446 (366-488)	738 (601-873)	1270
	07-08	15.2 (12.9-17.9)	12.3 (9.50-15.3)	60.6 (45.8-72.8)	236 (159-338)	467 (367-636)	1294
	09-10	14.8 (12.7-17.4)	10.9 (8.60-13.3)	55.1 (40.4-77.5)	243 (214-295)	455 (327-600)	1399
Females	03-04	10.6 (9.29-12.1)	7.60 (6.10-9.10)	33.2 (27.1-39.4)	144 (96.5-250)	380 (258-430)	1288
	05-06	16.2 (13.9-18.8)	12.6 (10.1-15.6)	58.7 (41.5-81.9)	226 (169-304)	513 (310-773)	1278
	07-08	15.5 (12.6-18.9)	12.0 (9.90-14.1)	52.1 (37.1-74.4)	210 (133-367)	504 (285-648)	1310
	09-10	14.2 (12.0-16.8)	10.5 (8.70-12.6)	50.0 (34.4-63.8)	235 (149-302)	488 (332-661)	1350
<b>Race/ethnicity</b>							
Mexican Americans	03-04	14.6 (10.6-20.1)	8.80 (5.40-17.5)	65.4 (32.8-127)	357 (225-456)	597 (372-992)	613
	05-06	26.7 (21.2-33.7)	18.7 (13.5-25.5)	196 (99.4-269)	668 (475-759)	866 (750-1180)	637
	07-08	17.1 (12.9-22.6)	11.8 (8.40-17.8)	67.4 (42.5-106)	358 (208-474)	556 (363-856)	531
	09-10	14.9 (12.2-18.3)	10.2 (8.20-12.8)	54.7 (33.3-86.5)	345 (260-494)	691 (443-1180)	566
Non-Hispanic blacks	03-04	14.4 (11.4-18.2)	11.1 (8.70-16.1)	37.6 (30.2-58.0)	203 (87.5-341)	450 (254-750)	652
	05-06	17.3 (13.3-22.4)	14.0 (10.4-19.0)	59.2 (37.7-98.3)	258 (138-460)	541 (273-1190)	678
	07-08	13.7 (11.7-16.1)	11.3 (8.80-13.9)	41.4 (28.9-49.6)	150 (93.5-265)	480 (190-757)	597
	09-10	12.8 (10.8-15.0)	9.30 (7.70-11.7)	34.3 (24.0-44.6)	168 (88.4-263)	451 (202-959)	516
Non-Hispanic whites	03-04	12.9 (11.2-14.9)	9.20 (7.40-11.0)	49.2 (37.8-63.4)	245 (163-334)	461 (383-527)	1092
	05-06	17.5 (14.9-20.6)	15.1 (10.9-19.0)	74.3 (54.1-90.3)	288 (231-366)	569 (462-693)	1038
	07-08	15.0 (12.6-17.7)	12.3 (9.80-14.5)	59.6 (41.9-73.4)	197 (147-266)	408 (296-537)	1077
	09-10	14.0 (11.8-16.7)	10.5 (8.30-12.9)	51.7 (33.1-79.2)	216 (174-266)	431 (301-565)	1206

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08 and 09-10 are 2.3, 2.3, 2.3, and 2.3 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Triclosan\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Triclosan_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Triclosan\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Triclosan_FactSheet.html)

## Urinary Triclosan (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>11.8</b> (10.6-13.1)	<b>7.10</b> (6.10-7.90)	<b>41.6</b> (30.2-59.5)	<b>267</b> (207-332)	<b>553</b> (429-722)	2489
	13-14	<b>9.78</b> (9.01-10.6)	<b>6.30</b> (5.70-7.20)	<b>33.9</b> (29.1-39.1)	<b>172</b> (138-208)	<b>379</b> (324-431)	2686
<b>Age group</b>							
6-11 years	11-12	<b>7.18</b> (5.73-9.01)	<b>5.00</b> (3.40-7.30)	<b>17.2</b> (10.4-21.8)	<b>77.6</b> (28.9-184)	<b>184</b> (78.7-393)	396
	13-14	<b>8.24</b> (6.70-10.1)	<b>6.10</b> (4.80-8.00)	<b>22.9</b> (15.3-33.5)	<b>73.8</b> (52.7-96.0)	<b>124</b> (91.2-204)	409
12-19 years	11-12	<b>10.1</b> (7.70-13.3)	<b>5.80</b> (4.70-7.50)	<b>25.5</b> (15.1-38.9)	<b>156</b> (73.5-286)	<b>489</b> (171-1550)	388
	13-14	<b>7.96</b> (6.81-9.31)	<b>6.00</b> (4.80-7.40)	<b>19.7</b> (15.4-25.3)	<b>85.7</b> (37.2-183)	<b>224</b> (122-325)	462
20 years and older	11-12	<b>12.7</b> (11.2-14.4)	<b>7.60</b> (6.40-8.50)	<b>57.4</b> (37.0-75.8)	<b>298</b> (243-388)	<b>594</b> (437-845)	1705
	13-14	<b>10.3</b> (9.32-11.3)	<b>6.40</b> (5.60-7.50)	<b>39.3</b> (32.4-48.5)	<b>203</b> (147-270)	<b>420</b> (350-529)	1815
<b>Gender</b>							
Males	11-12	<b>11.6</b> (10.1-13.1)	<b>6.40</b> (5.30-7.50)	<b>41.6</b> (28.1-58.7)	<b>320</b> (211-388)	<b>566</b> (392-722)	1259
	13-14	<b>9.95</b> (8.75-11.3)	<b>6.40</b> (5.20-8.50)	<b>34.7</b> (29.3-40.6)	<b>172</b> (126-215)	<b>372</b> (297-479)	1285
Females	11-12	<b>12.0</b> (10.2-14.0)	<b>7.60</b> (6.20-8.60)	<b>42.2</b> (25.7-75.8)	<b>242</b> (188-286)	<b>545</b> (380-855)	1230
	13-14	<b>9.63</b> (8.41-11.0)	<b>6.20</b> (5.60-7.10)	<b>31.7</b> (24.9-42.5)	<b>173</b> (112-240)	<b>384</b> (302-528)	1401
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>12.6</b> (8.98-17.8)	<b>7.20</b> (4.70-11.7)	<b>47.6</b> (21.9-82.7)	<b>411</b> (151-628)	<b>628</b> (393-1250)	316
	13-14	<b>8.65</b> (5.55-13.5)	<b>5.20</b> (2.60-12.2)	<b>31.9</b> (15.4-68.0)	<b>191</b> (79.5-346)	<b>488</b> (180-822)	438
Non-Hispanic blacks	11-12	<b>10.5</b> (9.08-12.2)	<b>6.70</b> (5.70-8.40)	<b>29.9</b> (22.4-40.0)	<b>169</b> (106-278)	<b>475</b> (278-718)	665
	13-14	<b>8.34</b> (7.54-9.23)	<b>5.50</b> (4.40-6.60)	<b>24.9</b> (18.9-32.6)	<b>145</b> (68.6-209)	<b>304</b> (204-509)	609
Non-Hispanic whites	11-12	<b>11.7</b> (10.0-13.7)	<b>7.00</b> (5.60-8.00)	<b>44.6</b> (24.4-75.8)	<b>248</b> (184-392)	<b>552</b> (365-759)	813
	13-14	<b>10.0</b> (8.95-11.3)	<b>6.40</b> (5.60-8.00)	<b>34.7</b> (29.2-43.1)	<b>148</b> (122-210)	<b>350</b> (253-438)	988
All Hispanics	11-12	<b>13.4</b> (11.6-15.5)	<b>7.50</b> (6.40-9.30)	<b>48.3</b> (33.2-75.5)	<b>411</b> (264-518)	<b>861</b> (536-1040)	571
	13-14	<b>9.14</b> (6.95-12.0)	<b>6.00</b> (3.70-9.50)	<b>29.6</b> (17.9-44.3)	<b>208</b> (131-325)	<b>583</b> (325-737)	690
Asians	11-12	<b>11.7</b> (7.75-17.8)	<b>7.30</b> (3.80-15.1)	<b>42.9</b> (18.6-125)	<b>274</b> (117-433)	<b>453</b> (235-636)	352
	13-14	<b>11.5</b> (9.24-14.3)	<b>6.20</b> (4.30-9.10)	<b>71.5</b> (25.2-121)	<b>294</b> (212-428)	<b>594</b> (384-740)	289

Limit of detection (LOD, see Data Analysis section) for Survey years 11-12 and 13-14 are 2.3 and 1.7, respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Triclosan\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Triclosan_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Triclosan\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Triclosan_FactSheet.html)

## Urinary Triclosan (creatinine corrected) (2003 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	12.7 (11.5-14.1)	9.48 (8.22-10.4)	43.9 (33.8-60.6)	212 (172-241)	368 (294-463)	2514
	05-06	18.0 (16.0-20.3)	13.0 (11.5-16.1)	73.2 (57.3-91.6)	304 (240-364)	532 (434-674)	2548
	07-08	15.5 (13.7-17.5)	12.4 (10.6-14.2)	50.4 (40.2-59.8)	233 (171-300)	443 (330-559)	2604
	09-10	15.1 (13.2-17.4)	10.9 (9.41-12.4)	49.4 (37.0-67.3)	256 (191-322)	454 (352-557)	2749
<b>Age group</b>							
6-11 years	03-04	9.93 (7.43-13.3)	7.55 (4.72-13.4)	25.1 (15.3-35.6)	116 (39.9-236)	236 (115-336)	314
	05-06	14.1 (10.8-18.5)	13.5 (7.97-18.5)	38.6 (26.0-54.1)	108 (62.4-169)	241 (108-598)	356
	07-08	14.5 (9.47-22.1)	13.0 (8.00-17.5)	33.1 (17.5-72.4)	132 (52.7-331)	331 (131-599)	389
	09-10	14.2 (12.4-16.4)	12.0 (8.84-15.0)	37.1 (27.0-47.3)	129 (89.1-155)	300 (148-469)	415
12-19 years	03-04	10.9 (8.32-14.2)	7.45 (5.48-10.7)	31.8 (21.9-61.1)	193 (90.7-318)	356 (169-580)	713
	05-06	14.0 (11.0-17.8)	11.1 (8.68-13.6)	51.0 (33.0-73.4)	193 (125-306)	385 (203-739)	702
	07-08	14.1 (11.0-18.1)	11.0 (7.87-14.4)	50.2 (27.1-78.8)	206 (95.3-293)	378 (238-571)	401
	09-10	9.38 (7.86-11.2)	7.71 (5.71-9.21)	23.2 (17.3-29.3)	153 (63.0-201)	247 (166-379)	420
20 years and older	03-04	13.4 (12.0-15.1)	10.0 (8.89-11.4)	50.0 (36.0-73.8)	224 (186-272)	385 (308-506)	1487
	05-06	19.3 (16.9-22.0)	13.7 (11.6-17.0)	86.1 (64.0-109)	343 (262-411)	581 (440-718)	1490
	07-08	15.8 (14.0-17.8)	12.6 (10.7-14.5)	52.3 (43.8-64.6)	244 (186-309)	484 (336-568)	1814
	09-10	16.4 (13.7-19.6)	11.5 (9.63-14.8)	57.1 (38.4-80.2)	279 (202-364)	504 (372-601)	1914
<b>Gender</b>							
Males	03-04	13.2 (11.3-15.6)	9.21 (6.86-12.1)	73.1 (45.8-85.9)	237 (175-294)	384 (294-506)	1228
	05-06	17.1 (14.1-20.7)	12.4 (10.0-18.5)	82.6 (58.2-109)	308 (232-368)	472 (355-721)	1270
	07-08	12.8 (10.9-15.0)	10.0 (8.12-13.0)	45.7 (32.1-57.3)	191 (132-241)	330 (253-456)	1294
	09-10	13.3 (11.3-15.7)	9.21 (7.40-11.7)	43.9 (33.5-67.4)	230 (178-276)	345 (276-429)	1399
Females	03-04	12.2 (10.6-14.2)	9.54 (8.45-10.4)	32.3 (26.2-46.6)	182 (138-217)	336 (225-480)	1286
	05-06	19.0 (16.1-22.6)	13.8 (11.7-16.7)	64.0 (47.6-89.8)	301 (209-434)	619 (418-898)	1278
	07-08	18.5 (15.6-22.0)	14.4 (12.4-16.8)	55.3 (38.5-77.0)	300 (182-435)	571 (359-729)	1310
	09-10	17.1 (14.6-20.1)	12.3 (10.7-14.8)	50.6 (37.0-71.3)	300 (187-422)	556 (422-668)	1350
<b>Race/ethnicity</b>							
Mexican Americans	03-04	13.3 (9.38-18.8)	9.18 (5.45-13.9)	66.7 (28.8-112)	292 (151-432)	453 (263-1150)	612
	05-06	24.1 (19.3-29.9)	17.6 (13.3-22.8)	154 (96.4-242)	440 (379-601)	736 (601-818)	637
	07-08	16.6 (12.2-22.6)	12.6 (8.51-16.5)	60.1 (39.6-80.3)	325 (182-475)	637 (368-828)	531
	09-10	14.8 (12.1-18.2)	9.38 (7.63-12.4)	45.4 (32.2-110)	352 (244-458)	578 (402-737)	566
Non-Hispanic blacks	03-04	9.94 (7.92-12.5)	7.74 (5.50-10.0)	30.2 (25.6-37.3)	132 (78.0-213)	260 (127-513)	651
	05-06	12.2 (9.47-15.6)	9.50 (7.64-11.8)	41.0 (23.3-77.4)	179 (106-243)	352 (203-674)	678
	07-08	10.6 (8.91-12.7)	8.34 (6.47-10.1)	28.6 (22.3-36.7)	120 (71.0-203)	266 (151-407)	597
	09-10	9.23 (7.62-11.2)	6.62 (5.63-8.18)	22.7 (16.9-29.1)	136 (63.6-240)	356 (180-689)	516
Non-Hispanic whites	03-04	13.3 (11.6-15.1)	9.82 (8.11-11.5)	47.0 (34.3-67.7)	213 (160-272)	358 (276-480)	1091
	05-06	18.4 (16.0-21.2)	13.5 (11.6-17.0)	73.4 (56.8-97.0)	282 (231-343)	472 (367-699)	1038
	07-08	15.6 (13.1-18.7)	13.0 (10.7-14.8)	50.4 (35.9-65.9)	222 (129-303)	418 (262-586)	1077
	09-10	15.8 (13.1-19.0)	11.4 (9.41-14.8)	52.0 (37.0-71.3)	242 (159-323)	410 (317-547)	1206

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Triclosan\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Triclosan_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Triclosan\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Triclosan_FactSheet.html)

## Urinary Triclosan (creatinine corrected) (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
Total	11-12	<b>13.4</b> (11.8-15.1)	<b>8.39</b> (6.79-10.0)	<b>49.3</b> (37.4-57.5)	<b>309</b> (229-404)	<b>642</b> (508-788)	2487
	13-14	<b>9.83</b> (9.00-10.7)	<b>6.90</b> (6.27-7.65)	<b>29.9</b> (25.1-34.4)	<b>173</b> (138-207)	<b>358</b> (292-425)	2684
<b>Age group</b>							
6-11 years	11-12	<b>10.3</b> (8.18-12.9)	<b>6.70</b> (5.62-9.06)	<b>22.4</b> (16.3-31.7)	<b>103</b> (54.5-153)	<b>235</b> (113-333)	395
	13-14	<b>10.4</b> (8.61-12.6)	<b>8.97</b> (6.62-11.5)	<b>23.4</b> (18.4-36.1)	<b>78.1</b> (57.0-125)	<b>184</b> (81.2-268)	409
12-19 years	11-12	<b>9.84</b> (7.85-12.4)	<b>5.83</b> (4.95-7.23)	<b>26.3</b> (19.0-37.8)	<b>182</b> (65.0-399)	<b>421</b> (182-647)	388
	13-14	<b>6.46</b> (5.24-7.96)	<b>5.11</b> (4.39-5.93)	<b>15.7</b> (10.0-21.8)	<b>53.6</b> (33.2-105)	<b>153</b> (102-289)	462
20 years and older	11-12	<b>14.4</b> (12.4-16.7)	<b>9.06</b> (7.41-11.2)	<b>54.3</b> (43.9-75.0)	<b>364</b> (246-514)	<b>660</b> (536-817)	1704
	13-14	<b>10.4</b> (9.44-11.4)	<b>7.17</b> (6.32-8.26)	<b>34.4</b> (29.3-41.6)	<b>202</b> (162-234)	<b>408</b> (296-531)	1813
<b>Gender</b>							
Males	11-12	<b>10.8</b> (9.49-12.2)	<b>6.40</b> (5.24-8.53)	<b>37.4</b> (26.8-49.4)	<b>226</b> (153-309)	<b>536</b> (311-656)	1258
	13-14	<b>8.36</b> (7.44-9.41)	<b>5.74</b> (4.80-6.67)	<b>26.7</b> (22.6-31.8)	<b>143</b> (111-195)	<b>296</b> (216-426)	1284
Females	11-12	<b>16.5</b> (13.8-19.6)	<b>10.8</b> (8.44-12.7)	<b>53.3</b> (44.2-75.0)	<b>381</b> (273-539)	<b>746</b> (614-900)	1229
	13-14	<b>11.5</b> (10.0-13.1)	<b>8.08</b> (6.70-9.23)	<b>34.4</b> (25.1-42.2)	<b>205</b> (150-253)	<b>419</b> (294-573)	1400
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>14.2</b> (10.4-19.5)	<b>8.29</b> (6.10-12.4)	<b>62.5</b> (31.8-111)	<b>399</b> (163-536)	<b>536</b> (271-900)	316
	13-14	<b>8.82</b> (5.50-14.1)	<b>6.08</b> (3.08-13.4)	<b>25.5</b> (15.9-61.3)	<b>147</b> (68.8-340)	<b>425</b> (142-659)	438
Non-Hispanic blacks	11-12	<b>8.18</b> (7.09-9.44)	<b>5.52</b> (4.66-6.27)	<b>21.5</b> (16.7-29.9)	<b>130</b> (74.3-222)	<b>365</b> (229-461)	665
	13-14	<b>6.16</b> (5.30-7.15)	<b>4.27</b> (3.52-4.93)	<b>16.7</b> (12.7-21.3)	<b>107</b> (66.1-125)	<b>218</b> (116-284)	609
Non-Hispanic whites	11-12	<b>14.2</b> (12.1-16.7)	<b>8.95</b> (6.79-11.7)	<b>51.9</b> (39.1-69.1)	<b>311</b> (180-569)	<b>675</b> (508-817)	811
	13-14	<b>10.6</b> (9.78-11.5)	<b>7.78</b> (6.67-9.09)	<b>33.0</b> (26.4-40.2)	<b>178</b> (128-215)	<b>339</b> (247-420)	987
All Hispanics	11-12	<b>15.0</b> (13.0-17.3)	<b>8.58</b> (6.52-11.4)	<b>70.8</b> (40.8-98.6)	<b>449</b> (320-514)	<b>647</b> (506-913)	571
	13-14	<b>9.07</b> (6.64-12.4)	<b>6.08</b> (3.75-11.0)	<b>24.7</b> (17.0-55.6)	<b>197</b> (114-322)	<b>462</b> (322-619)	690
Asians	11-12	<b>15.7</b> (10.2-24.2)	<b>10.5</b> (6.05-17.4)	<b>51.8</b> (23.6-142)	<b>333</b> (127-609)	<b>575</b> (381-719)	352
	13-14	<b>14.6</b> (11.5-18.6)	<b>8.00</b> (5.74-13.3)	<b>100</b> (39.3-151)	<b>406</b> (247-528)	<b>659</b> (419-917)	288

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Triclosan\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Triclosan_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Triclosan\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Triclosan_FactSheet.html)



## Urinary Butyl paraben (2005 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	*	< LOD	1.30 (.800-1.80)	6.60 (4.80-10.7)	19.6 (16.4-26.7)	2548
	07-08	*	< LOD	1.10 (.900-1.50)	9.00 (6.20-11.4)	20.9 (15.2-30.1)	2604
	09-10	*	< LOD	.600 (.500-.800)	5.10 (3.40-8.10)	17.1 (10.5-29.4)	2749
<b>Age group</b>							
6-11 years	05-06	*	< LOD	.400 (.200-.600)	1.90 (.800-5.80)	7.50 (1.70-18.5)	356
	07-08	*	< LOD	.300 (.200-.500)	1.30 (.900-1.70)	3.80 (1.00-11.4)	389
	09-10	*	< LOD	.300 (<LOD-.400)	.900 (.500-1.70)	2.20 (1.30-5.10)	415
12-19 years	05-06	*	.200 (<LOD-.400)	.900 (.600-1.80)	9.60 (4.10-16.1)	24.6 (14.5-33.4)	702
	07-08	*	< LOD	.800 (.600-1.40)	6.20 (2.50-11.5)	15.8 (6.20-33.2)	401
	09-10	*	< LOD	.500 (.400-.900)	5.70 (1.40-15.7)	18.6 (5.70-39.0)	420
20 years and older	05-06	*	< LOD	1.70 (1.00-2.20)	6.80 (4.80-11.7)	20.5 (15.8-28.3)	1490
	07-08	*	< LOD	1.50 (1.00-1.90)	9.80 (6.70-13.4)	24.6 (16.5-32.0)	1814
	09-10	*	< LOD	.700 (.500-1.00)	6.00 (3.70-10.0)	18.7 (11.9-35.1)	1914
<b>Gender</b>							
Males	05-06	*	< LOD	.300 (<LOD-.300)	1.10 (.600-2.00)	3.20 (1.90-5.50)	1270
	07-08	*	< LOD	.200 (.200-.300)	1.00 (.700-1.50)	3.60 (2.00-7.20)	1294
	09-10	*	< LOD	< LOD	.800 (.500-1.20)	2.70 (1.50-12.0)	1399
Females	05-06	.904 (.760-1.07)	.500 (.400-.700)	3.70 (2.90-4.80)	17.4 (11.7-20.8)	34.9 (28.2-41.1)	1278
	07-08	.926 (.825-1.04)	.500 (.400-.700)	3.90 (3.00-4.70)	17.9 (12.1-20.5)	34.8 (25.2-52.1)	1310
	09-10	*	.300 (.200-.400)	1.80 (1.30-2.30)	11.3 (6.60-18.8)	31.8 (17.7-49.4)	1350
<b>Race/ethnicity</b>							
Mexican Americans	05-06	*	.200 (<LOD-.300)	1.10 (.700-2.30)	11.3 (6.40-15.6)	27.3 (16.5-35.9)	637
	07-08	*	< LOD	.900 (.500-1.30)	6.80 (3.50-13.2)	22.7 (13.2-30.7)	531
	09-10	*	< LOD	.900 (.400-1.30)	8.30 (4.50-13.8)	18.8 (13.8-35.1)	566
Non-Hispanic blacks	05-06	*	.300 (.200-.400)	2.10 (1.00-3.50)	9.10 (4.40-25.0)	31.8 (10.1-82.6)	678
	07-08	*	.200 (<LOD-.300)	1.10 (.700-1.70)	7.10 (4.20-9.90)	20.0 (8.90-31.3)	597
	09-10	*	< LOD	.500 (.300-.900)	3.10 (1.40-7.30)	9.00 (5.60-16.7)	516
Non-Hispanic whites	05-06	*	< LOD	1.00 (.700-1.80)	5.80 (4.00-9.00)	17.7 (11.7-25.9)	1038
	07-08	*	< LOD	1.20 (.800-1.60)	9.10 (5.00-13.3)	19.6 (12.1-32.0)	1077
	09-10	*	< LOD	.700 (.500-.900)	4.90 (2.70-9.20)	17.7 (9.20-34.5)	1206

Limit of detection (LOD, see Data Analysis section) for Survey years 05-06, 07-08, and 09-10 are 0.2, 0.2, and 0.2 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Parabens\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Parabens_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Parabens\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Parabens_FactSheet.html)



## Urinary Butyl paraben (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	.300 (.200-.400)	2.50 (1.60-3.40)	7.70 (4.50-11.4)	2489
	13-14	*	< LOD	.200 (.100-.200)	1.30 (.800-1.70)	4.40 (2.70-6.10)	2686
<b>Age group</b>							
6-11 years	11-12	*	< LOD	< LOD	.700 (.300-1.00)	1.50 (1.00-1.90)	396
	13-14	*	< LOD	< LOD	.300 (.200-.500)	.600 (.300-1.30)	409
12-19 years	11-12	*	< LOD	.300 (<LOD-.400)	.900 (.500-1.60)	1.90 (1.10-7.10)	388
	13-14	*	< LOD	.200 (.100-.200)	1.20 (.500-1.90)	5.90 (1.70-26.7)	462
20 years and older	11-12	*	< LOD	.400 (.300-.500)	3.30 (2.20-5.50)	8.90 (5.50-13.9)	1705
	13-14	*	< LOD	.200 (.100-.300)	1.50 (.900-2.20)	4.90 (2.70-7.40)	1815
<b>Gender</b>							
Males	11-12	*	< LOD	< LOD	.400 (.200-.500)	1.30 (.500-2.40)	1259
	13-14	*	< LOD	< LOD	.200 (.100-.200)	.400 (.300-.700)	1285
Females	11-12	*	< LOD	.900 (.600-1.40)	5.90 (3.40-10.4)	13.4 (9.30-24.5)	1230
	13-14	*	< LOD	.500 (.400-.800)	2.90 (1.90-4.90)	8.40 (4.90-15.3)	1401
<b>Race/ethnicity</b>							
Mexican Americans	11-12	*	< LOD	.300 (<LOD-.400)	1.80 (1.40-5.90)	10.0 (3.20-13.7)	316
	13-14	*	< LOD	.200 (.100-.300)	1.60 (.500-4.40)	7.10 (2.10-21.2)	438
Non-Hispanic blacks	11-12	*	< LOD	.200 (<LOD-.300)	1.60 (1.00-2.50)	4.70 (2.50-8.10)	665
	13-14	*	< LOD	.100 (<LOD-.200)	.800 (.500-1.70)	3.20 (1.70-5.50)	609
Non-Hispanic whites	11-12	*	< LOD	.300 (.200-.500)	2.60 (1.50-4.60)	8.00 (4.10-13.0)	813
	13-14	*	< LOD	.200 (.100-.200)	1.20 (.700-1.70)	3.20 (1.80-5.60)	988
All Hispanics	11-12	*	< LOD	.300 (<LOD-.400)	2.60 (1.30-7.00)	10.2 (3.40-21.5)	571
	13-14	*	< LOD	.200 (.100-.300)	1.90 (.700-4.30)	9.00 (3.20-20.7)	690
Asians	11-12	*	< LOD	.400 (<LOD-1.10)	3.10 (1.40-7.70)	12.0 (4.80-20.5)	352
	13-14	*	< LOD	.200 (<LOD-.500)	2.90 (1.10-10.0)	18.4 (5.60-26.1)	289

Limit of detection (LOD, see Data Analysis section) for Survey years 11-12 and 13-14 are 0.2 and 0.1, respectively.  
 < LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.  
 \* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Parabens\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Parabens_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Parabens\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Parabens_FactSheet.html)

## Urinary Butyl paraben (creatinine corrected) (2005 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	*	< LOD	1.16 (.910-1.62)	7.82 (6.26-11.2)	21.2 (16.8-27.3)	2548
	07-08	*	< LOD	1.16 (.880-1.59)	9.83 (6.51-13.5)	23.1 (18.1-30.4)	2604
	09-10	*	< LOD	.710 (.610-.930)	5.58 (3.55-10.0)	18.0 (10.2-27.6)	2749
<b>Age group</b>							
6-11 years	05-06	*	< LOD	.440 (.370-.660)	1.65 (1.00-5.29)	7.92 (1.64-30.5)	356
	07-08	*	< LOD	.540 (.410-.720)	1.24 (.920-2.80)	5.91 (.930-76.0)	389
	09-10	*	< LOD	.530 (<LOD-.630)	1.36 (.740-1.89)	2.74 (1.56-6.58)	415
12-19 years	05-06	*	.190 (<LOD-.250)	.690 (.490-1.20)	6.67 (3.60-11.2)	18.7 (9.52-28.9)	702
	07-08	*	< LOD	.670 (.450-.930)	3.70 (1.80-7.41)	9.64 (6.00-18.7)	401
	09-10	*	< LOD	.550 (.420-.790)	3.75 (1.21-11.9)	13.8 (3.75-23.7)	420
20 years and older	05-06	*	< LOD	1.49 (1.06-1.96)	9.07 (6.55-14.8)	25.5 (17.9-30.4)	1490
	07-08	*	< LOD	1.52 (1.04-2.21)	12.4 (8.35-15.1)	27.5 (21.2-36.8)	1814
	09-10	*	< LOD	.830 (.640-1.19)	7.06 (3.79-11.9)	22.0 (13.1-31.2)	1914
<b>Gender</b>							
Males	05-06	*	< LOD	.290 (<LOD-.350)	.830 (.570-1.16)	2.28 (1.43-2.91)	1270
	07-08	*	< LOD	.290 (.260-.340)	.830 (.620-1.36)	2.40 (1.56-4.85)	1294
	09-10	*	< LOD	< LOD	.700 (.560-1.09)	2.50 (1.18-5.87)	1399
Females	05-06	1.06 (.914-1.24)	.750 (.600-.860)	4.44 (3.01-6.26)	19.8 (13.5-25.7)	34.7 (26.9-42.7)	1278
	07-08	1.11 (.984-1.25)	.670 (.550-.920)	4.44 (3.02-6.12)	20.6 (14.6-25.9)	39.4 (28.1-77.7)	1310
	09-10	*	.450 (.420-.520)	2.17 (1.67-3.10)	13.5 (8.75-22.5)	28.2 (18.4-45.7)	1350
<b>Race/ethnicity</b>							
Mexican Americans	05-06	*	.240 (<LOD-.290)	1.20 (.760-1.68)	9.15 (5.36-15.2)	20.3 (15.8-29.2)	637
	07-08	*	< LOD	.810 (.610-1.07)	8.57 (3.28-12.0)	23.0 (12.7-29.5)	531
	09-10	*	< LOD	.930 (.570-1.76)	8.01 (4.77-10.5)	17.0 (10.5-27.1)	566
Non-Hispanic blacks	05-06	*	.220 (.180-.270)	1.46 (.750-2.64)	8.18 (3.65-17.9)	21.0 (10.9-51.3)	678
	07-08	*	.220 (<LOD-.280)	.900 (.570-1.27)	5.21 (3.13-6.18)	12.1 (6.14-21.4)	597
	09-10	*	< LOD	.390 (.270-.590)	2.63 (.890-4.71)	7.00 (3.26-11.9)	516
Non-Hispanic whites	05-06	*	< LOD	1.12 (.850-1.65)	6.93 (5.21-9.91)	20.9 (15.4-27.3)	1038
	07-08	*	< LOD	1.18 (.810-2.09)	10.7 (6.32-14.8)	26.8 (15.1-40.4)	1077
	09-10	*	< LOD	.780 (.620-1.13)	6.34 (3.44-12.6)	20.8 (9.12-33.2)	1206

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Parabens\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Parabens_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Parabens\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Parabens_FactSheet.html)

## Urinary Butyl paraben (creatinine corrected) (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	.560 (.476-.667)	3.50 (2.00-4.55)	10.0 (6.26-13.5)	2487
	13-14	*	< LOD	.250 (.202-.318)	1.54 (.952-2.22)	4.39 (3.25-6.96)	2684
<b>Age group</b>							
6-11 years	11-12	*	< LOD	< LOD	.825 (.737-1.12)	1.56 (.825-2.44)	395
	13-14	*	< LOD	< LOD	.411 (.326-.538)	.714 (.467-.984)	409
12-19 years	11-12	*	< LOD	.378 (<LOD-.588)	1.35 (.588-2.21)	2.21 (1.50-7.45)	388
	13-14	*	< LOD	.194 (.159-.233)	1.02 (.484-1.88)	4.00 (1.74-12.1)	462
20 years and older	11-12	*	< LOD	.609 (.500-.789)	4.02 (2.58-6.28)	12.2 (7.04-17.9)	1704
	13-14	*	< LOD	.269 (.208-.382)	1.74 (1.15-2.63)	5.42 (3.42-8.95)	1813
<b>Gender</b>							
Males	11-12	*	< LOD	< LOD	.583 (.424-.824)	1.35 (.778-2.25)	1258
	13-14	*	< LOD	< LOD	.225 (.179-.280)	.417 (.304-.583)	1284
Females	11-12	*	< LOD	1.56 (1.08-2.00)	8.19 (5.33-12.1)	17.6 (11.8-30.8)	1229
	13-14	*	< LOD	.690 (.411-1.11)	3.42 (2.41-4.87)	10.2 (6.22-13.4)	1400
<b>Race/ethnicity</b>							
Mexican Americans	11-12	*	< LOD	.533 (<LOD-.660)	3.48 (1.30-4.33)	7.45 (3.50-19.2)	316
	13-14	*	< LOD	.247 (.189-.350)	1.71 (.811-5.00)	10.6 (1.87-25.4)	438
Non-Hispanic blacks	11-12	*	< LOD	.298 (<LOD-.378)	1.43 (.875-1.93)	3.47 (1.93-6.72)	665
	13-14	*	< LOD	.146 (<LOD-.189)	.583 (.368-1.16)	2.86 (1.19-3.25)	609
Non-Hispanic whites	11-12	*	< LOD	.606 (.500-.778)	3.78 (2.08-5.63)	11.5 (5.39-15.7)	811
	13-14	*	< LOD	.259 (.200-.368)	1.54 (.778-2.33)	4.03 (2.50-6.09)	987
All Hispanics	11-12	*	< LOD	.526 (<LOD-.700)	3.50 (1.53-6.88)	13.7 (6.54-19.2)	571
	13-14	*	< LOD	.250 (.219-.309)	1.73 (.896-3.92)	10.3 (3.56-14.3)	690
Asians	11-12	*	< LOD	.824 (<LOD-1.30)	6.28 (2.03-12.3)	14.9 (7.89-18.8)	352
	13-14	*	< LOD	.440 (<LOD-.606)	3.46 (1.43-13.0)	23.6 (5.45-38.4)	288

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Parabens\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Parabens_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Parabens\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Parabens_FactSheet.html)

## Urinary Ethyl paraben (2005 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	*	< LOD	4.80 (3.40-6.00)	26.2 (19.4-31.9)	57.2 (40.3-83.4)	2548
	07-08	*	< LOD	5.40 (3.80-6.90)	29.3 (21.9-42.4)	72.1 (54.6-91.8)	2604
	09-10	*	1.10 (<LOD-1.20)	6.60 (4.90-8.30)	37.6 (24.4-51.3)	82.6 (60.3-119)	2749
<b>Age group</b>							
6-11 years	05-06	*	< LOD	< LOD	2.60 (1.70-4.70)	9.90 (2.80-30.7)	356
	07-08	*	< LOD	1.70 (1.10-2.60)	4.60 (2.30-36.7)	35.6 (2.60-282)	389
	09-10	*	< LOD	1.50 (1.20-1.80)	3.70 (2.50-5.30)	11.5 (4.50-18.4)	415
12-19 years	05-06	*	< LOD	2.30 (1.30-3.20)	11.3 (7.90-24.1)	38.0 (17.7-122)	702
	07-08	*	< LOD	3.00 (2.30-4.90)	23.0 (7.30-60.3)	60.3 (12.5-159)	401
	09-10	*	< LOD	3.50 (2.10-5.90)	33.8 (19.4-49.6)	83.2 (34.5-284)	420
20 years and older	05-06	*	< LOD	5.90 (4.60-8.10)	30.4 (22.3-38.6)	69.5 (48.1-89.5)	1490
	07-08	*	1.10 (<LOD-1.40)	6.20 (4.60-9.20)	34.7 (22.8-50.4)	77.4 (51.4-120)	1814
	09-10	*	1.30 (1.10-1.50)	8.40 (6.00-10.6)	45.0 (29.1-60.3)	91.4 (62.6-129)	1914
<b>Gender</b>							
Males	05-06	*	< LOD	1.90 (1.20-3.00)	8.90 (5.80-13.7)	25.2 (15.7-29.2)	1270
	07-08	*	< LOD	2.40 (1.50-3.00)	11.2 (6.60-15.3)	28.3 (15.3-42.8)	1294
	09-10	*	< LOD	2.20 (1.90-2.70)	10.4 (7.40-19.1)	36.4 (19.1-61.3)	1399
Females	05-06	*	1.30 (<LOD-2.20)	10.0 (7.50-13.2)	42.7 (32.3-62.8)	98.7 (74.7-147)	1278
	07-08	*	1.80 (1.40-2.50)	10.1 (6.90-16.5)	62.0 (38.2-80.8)	123 (78.5-259)	1310
	09-10	3.84 (3.35-4.41)	2.00 (1.60-2.40)	15.4 (12.5-18.4)	62.4 (45.7-78.7)	138 (92.2-211)	1350
<b>Race/ethnicity</b>							
Mexican Americans	05-06	*	< LOD	3.70 (1.90-6.10)	24.0 (11.6-37.7)	55.6 (40.3-120)	637
	07-08	*	< LOD	4.10 (2.90-5.90)	23.6 (12.8-30.1)	48.3 (31.0-65.2)	531
	09-10	*	< LOD	4.30 (2.60-7.70)	31.0 (21.5-46.3)	65.5 (46.3-92.2)	566
Non-Hispanic blacks	05-06	*	1.00 (<LOD-1.50)	5.70 (3.70-9.80)	31.3 (20.4-52.1)	92.3 (41.5-166)	678
	07-08	*	1.00 (<LOD-1.50)	7.90 (3.90-15.8)	39.9 (24.0-63.4)	97.2 (58.3-256)	597
	09-10	3.62 (3.11-4.22)	1.90 (1.60-2.40)	11.1 (8.10-17.5)	58.6 (33.8-93.7)	166 (66.0-297)	516
Non-Hispanic whites	05-06	*	< LOD	4.80 (3.10-6.10)	24.0 (15.5-32.3)	54.7 (36.4-86.8)	1038
	07-08	*	1.00 (<LOD-1.30)	5.20 (3.50-7.10)	27.2 (18.0-40.8)	67.1 (42.8-98.1)	1077
	09-10	*	1.10 (<LOD-1.20)	6.50 (4.50-8.50)	37.5 (22.7-52.7)	78.7 (49.7-138)	1206

Limit of detection (LOD, see Data Analysis section) for Survey years 05-06, 07-08, and 09-10 are 1.0, 1.0, and 1.0 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Parabens\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Parabens_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Parabens\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Parabens_FactSheet.html)

## Urinary Ethyl paraben (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	<b>5.10</b> (4.00-7.10)	<b>33.6</b> (24.6-42.9)	<b>68.8</b> (52.1-106)	2489
	13-14	*	< LOD	<b>5.30</b> (4.50-6.50)	<b>33.5</b> (25.5-46.4)	<b>77.0</b> (66.4-97.9)	2686
<b>Age group</b>							
6-11 years	11-12	*	< LOD	< LOD	<b>3.40</b> (1.70-6.90)	<b>6.90</b> (3.40-17.4)	396
	13-14	*	< LOD	<b>1.30</b> (1.00-1.70)	<b>5.60</b> (2.90-8.40)	<b>10.7</b> (6.60-17.3)	409
12-19 years	11-12	*	< LOD	<b>2.00</b> (1.10-3.10)	<b>9.60</b> (5.50-14.0)	<b>21.5</b> (9.60-69.2)	388
	13-14	*	< LOD	<b>2.40</b> (1.60-3.40)	<b>15.6</b> (6.60-29.3)	<b>48.7</b> (19.4-83.4)	462
20 years and older	11-12	*	< LOD	<b>7.20</b> (5.50-10.0)	<b>41.1</b> (33.4-51.0)	<b>86.5</b> (58.0-140)	1705
	13-14	*	<b>1.10</b> (<LOD-1.30)	<b>6.90</b> (5.50-8.60)	<b>43.3</b> (32.2-53.4)	<b>84.8</b> (70.5-114)	1815
<b>Gender</b>							
Males	11-12	*	< LOD	<b>2.20</b> (1.60-2.90)	<b>10.0</b> (6.10-18.9)	<b>31.2</b> (18.9-39.8)	1259
	13-14	*	< LOD	<b>2.40</b> (1.80-3.10)	<b>8.50</b> (6.00-14.4)	<b>34.0</b> (15.6-62.8)	1285
Females	11-12	*	<b>1.60</b> (1.10-2.60)	<b>12.9</b> (9.40-17.5)	<b>58.2</b> (45.4-68.8)	<b>145</b> (86.5-153)	1230
	13-14	*	<b>1.60</b> (1.20-2.30)	<b>12.5</b> (8.60-17.8)	<b>58.7</b> (46.4-72.9)	<b>110</b> (81.5-149)	1401
<b>Race/ethnicity</b>							
Mexican Americans	11-12	*	< LOD	<b>4.40</b> (2.40-6.40)	<b>22.0</b> (12.9-35.5)	<b>45.4</b> (22.4-171)	316
	13-14	*	< LOD	<b>4.20</b> (2.60-7.70)	<b>32.6</b> (16.7-53.4)	<b>70.6</b> (52.5-123)	438
Non-Hispanic blacks	11-12	*	<b>1.50</b> (1.10-2.00)	<b>8.00</b> (5.80-12.8)	<b>55.4</b> (33.4-79.7)	<b>106</b> (82.8-139)	665
	13-14	*	<b>1.40</b> (1.10-1.90)	<b>6.80</b> (4.90-9.20)	<b>48.8</b> (29.9-77.0)	<b>115</b> (77.0-230)	609
Non-Hispanic whites	11-12	*	< LOD	<b>4.60</b> (3.50-9.10)	<b>33.6</b> (21.6-45.4)	<b>62.6</b> (42.9-132)	813
	13-14	*	< LOD	<b>5.20</b> (3.90-6.50)	<b>29.2</b> (17.8-46.4)	<b>68.5</b> (48.7-86.6)	988
All Hispanics	11-12	*	< LOD	<b>4.50</b> (3.00-5.80)	<b>24.4</b> (15.2-34.6)	<b>55.9</b> (27.1-115)	571
	13-14	*	< LOD	<b>5.50</b> (3.70-8.70)	<b>35.5</b> (23.9-53.4)	<b>90.4</b> (62.5-123)	690
Asians	11-12	*	< LOD	<b>4.90</b> (3.40-8.30)	<b>39.4</b> (16.0-59.1)	<b>92.4</b> (43.4-186)	352
	13-14	*	< LOD	<b>6.00</b> (2.70-11.3)	<b>52.1</b> (27.4-75.0)	<b>99.9</b> (65.5-174)	289

Limit of detection (LOD, see Data Analysis section) for Survey years 11-12 and 13-14 are 1.0 and 1.0, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Parabens\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Parabens_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Parabens\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Parabens_FactSheet.html)

## Urinary Ethyl paraben (creatinine corrected) (2005 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	*	< LOD	<b>4.61</b> (3.39-6.30)	<b>27.1</b> (19.1-34.0)	<b>66.5</b> (46.5-84.2)	2548
	07-08	*	< LOD	<b>5.56</b> (4.31-7.56)	<b>32.7</b> (22.5-50.2)	<b>80.0</b> (53.2-117)	2604
	09-10	*	<b>1.65</b> (<LOD-1.82)	<b>6.11</b> (4.90-7.96)	<b>36.6</b> (28.0-47.2)	<b>94.6</b> (67.3-127)	2749
<b>Age group</b>							
6-11 years	05-06	*	< LOD	< LOD	<b>4.18</b> (1.91-10.2)	<b>13.5</b> (4.18-29.0)	356
	07-08	*	< LOD	<b>2.54</b> (1.82-3.30)	<b>6.13</b> (3.26-34.3)	<b>34.3</b> (3.30-207)	389
	09-10	*	< LOD	<b>2.37</b> (1.97-3.09)	<b>5.00</b> (3.74-6.67)	<b>10.1</b> (6.11-27.3)	415
12-19 years	05-06	*	< LOD	<b>1.94</b> (1.29-2.65)	<b>10.9</b> (3.57-20.2)	<b>32.0</b> (14.1-57.8)	702
	07-08	*	< LOD	<b>2.93</b> (1.93-3.97)	<b>12.9</b> (4.60-37.9)	<b>37.9</b> (8.79-110)	401
	09-10	*	< LOD	<b>3.11</b> (2.22-5.94)	<b>26.2</b> (13.0-33.9)	<b>52.4</b> (28.8-177)	420
20 years and older	05-06	*	< LOD	<b>6.36</b> (4.63-7.92)	<b>32.4</b> (23.7-46.0)	<b>76.8</b> (57.3-97.9)	1490
	07-08	*	<b>1.58</b> (<LOD-1.97)	<b>6.97</b> (4.94-10.9)	<b>38.5</b> (24.8-61.9)	<b>94.1</b> (53.6-146)	1814
	09-10	*	<b>1.82</b> (1.61-2.13)	<b>8.08</b> (5.92-10.7)	<b>43.7</b> (33.1-56.0)	<b>106</b> (78.1-137)	1914
<b>Gender</b>							
Males	05-06	*	< LOD	<b>1.82</b> (1.48-2.15)	<b>6.38</b> (3.55-9.95)	<b>15.5</b> (10.2-22.3)	1270
	07-08	*	< LOD	<b>2.14</b> (1.67-3.03)	<b>8.61</b> (5.54-12.4)	<b>21.7</b> (11.7-32.7)	1294
	09-10	*	< LOD	<b>2.45</b> (2.22-2.92)	<b>8.63</b> (6.14-13.7)	<b>28.8</b> (14.4-43.2)	1399
Females	05-06	*	<b>2.09</b> (<LOD-2.60)	<b>12.7</b> (8.45-16.2)	<b>57.3</b> (40.7-75.2)	<b>107</b> (82.9-141)	1278
	07-08	*	<b>2.63</b> (2.09-3.55)	<b>13.9</b> (9.09-22.5)	<b>66.1</b> (40.9-95.1)	<b>130</b> (78.8-203)	1310
	09-10	<b>4.63</b> (4.13-5.19)	<b>2.90</b> (2.47-3.43)	<b>16.8</b> (13.7-22.0)	<b>71.9</b> (53.4-98.8)	<b>173</b> (121-227)	1350
<b>Race/ethnicity</b>							
Mexican Americans	05-06	*	< LOD	<b>3.49</b> (2.09-5.23)	<b>23.6</b> (11.8-33.2)	<b>68.5</b> (32.1-107)	637
	07-08	*	< LOD	<b>4.44</b> (2.86-5.81)	<b>22.5</b> (15.9-27.2)	<b>47.7</b> (26.7-74.2)	531
	09-10	*	< LOD	<b>4.40</b> (3.09-6.31)	<b>30.0</b> (16.0-36.9)	<b>59.1</b> (36.9-87.2)	566
Non-Hispanic blacks	05-06	*	<b>.970</b> (<LOD-1.14)	<b>4.48</b> (2.90-6.07)	<b>22.0</b> (14.1-36.8)	<b>47.5</b> (33.7-106)	678
	07-08	*	<b>1.18</b> (<LOD-1.47)	<b>6.37</b> (3.20-10.9)	<b>38.8</b> (16.5-53.1)	<b>90.7</b> (42.6-172)	597
	09-10	<b>2.62</b> (2.14-3.21)	<b>1.57</b> (1.20-2.05)	<b>7.35</b> (5.15-9.97)	<b>44.9</b> (22.0-75.0)	<b>98.8</b> (60.0-162)	516
Non-Hispanic whites	05-06	*	< LOD	<b>4.73</b> (3.38-6.58)	<b>27.5</b> (16.2-38.4)	<b>70.6</b> (46.0-91.2)	1038
	07-08	*	<b>1.48</b> (<LOD-1.82)	<b>5.71</b> (3.74-8.97)	<b>32.3</b> (20.0-53.6)	<b>75.7</b> (40.5-121)	1077
	09-10	*	<b>1.79</b> (<LOD-2.03)	<b>6.63</b> (4.84-9.18)	<b>37.7</b> (27.7-53.4)	<b>114</b> (62.8-164)	1206

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Parabens\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Parabens_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Parabens\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Parabens_FactSheet.html)

## Urinary Ethyl paraben (creatinine corrected) (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	6.57 (5.32-8.80)	39.5 (28.4-50.6)	87.7 (63.6-121)	2487
	13-14	*	< LOD	5.41 (4.31-6.33)	36.6 (26.5-47.5)	99.3 (69.5-129)	2684
<b>Age group</b>							
6-11 years	11-12	*	< LOD	< LOD	5.92 (3.74-7.50)	7.95 (6.51-17.8)	395
	13-14	*	< LOD	2.45 (2.03-2.96)	6.30 (3.94-9.44)	12.4 (7.02-26.6)	409
12-19 years	11-12	*	< LOD	2.53 (1.81-3.83)	11.1 (6.70-14.5)	20.5 (11.9-44.1)	388
	13-14	*	< LOD	2.24 (1.83-2.81)	11.8 (4.44-15.7)	36.1 (13.2-73.2)	462
20 years and older	11-12	*	< LOD	9.17 (6.69-12.5)	46.4 (34.7-64.8)	110 (71.5-146)	1704
	13-14	*	1.57 (<LOD-1.84)	6.97 (5.76-8.73)	47.0 (35.1-63.1)	113 (76.0-169)	1813
<b>Gender</b>							
Males	11-12	*	< LOD	2.45 (2.07-2.94)	8.76 (5.32-14.2)	23.2 (13.2-33.1)	1258
	13-14	*	< LOD	2.17 (1.78-2.63)	7.89 (5.23-12.5)	26.6 (13.8-41.0)	1284
Females	11-12	*	2.96 (2.37-4.08)	18.9 (12.5-27.6)	81.9 (55.6-121)	146 (115-181)	1229
	13-14	*	2.54 (2.09-3.05)	14.5 (10.3-20.8)	73.2 (51.8-104)	167 (104-221)	1400
<b>Race/ethnicity</b>							
Mexican Americans	11-12	*	< LOD	4.73 (3.29-8.92)	25.4 (14.2-33.9)	45.4 (32.6-121)	316
	13-14	*	< LOD	4.85 (3.13-8.28)	33.9 (16.4-60.9)	75.8 (30.0-319)	438
Non-Hispanic blacks	11-12	*	1.39 (1.06-1.75)	6.98 (4.74-8.92)	40.2 (24.8-55.3)	79.3 (61.1-135)	665
	13-14	*	1.20 (1.05-1.39)	5.13 (3.53-7.24)	30.6 (18.4-38.8)	77.2 (38.8-129)	609
Non-Hispanic whites	11-12	*	< LOD	7.20 (4.88-10.4)	40.1 (26.4-63.5)	93.8 (58.4-131)	811
	13-14	*	< LOD	5.25 (3.95-6.33)	36.6 (22.0-51.9)	87.1 (51.9-162)	987
All Hispanics	11-12	*	< LOD	5.03 (3.74-7.13)	31.6 (13.2-54.0)	60.2 (43.6-121)	571
	13-14	*	< LOD	6.55 (3.94-8.72)	35.1 (26.6-56.1)	103 (56.1-135)	690
Asians	11-12	*	< LOD	7.21 (4.46-13.6)	48.9 (26.3-78.9)	100 (50.4-149)	352
	13-14	*	< LOD	7.52 (3.33-14.6)	65.9 (36.9-105)	116 (80.6-191)	288

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Parabens\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Parabens_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Parabens\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Parabens_FactSheet.html)



## Urinary Methyl paraben (2005 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	<b>56.4</b> (46.9-67.9)	<b>63.5</b> (47.9-74.5)	<b>216</b> (168-282)	<b>560</b> (432-777)	<b>974</b> (827-1110)	2548
	07-08	<b>60.1</b> (49.6-72.8)	<b>59.8</b> (47.5-73.3)	<b>204</b> (171-253)	<b>544</b> (444-675)	<b>902</b> (746-1100)	2604
	09-10	<b>57.1</b> (51.0-63.9)	<b>55.1</b> (46.7-62.6)	<b>213</b> (179-259)	<b>621</b> (546-716)	<b>1010</b> (919-1170)	2749
<b>Age group</b>							
6-11 years	05-06	<b>33.5</b> (25.6-43.8)	<b>25.0</b> (19.4-35.3)	<b>86.7</b> (61.5-153)	<b>289</b> (238-868)	<b>1560</b> (389-2090)	356
	07-08	<b>35.2</b> (25.0-49.6)	<b>30.1</b> (19.6-38.5)	<b>94.0</b> (46.6-214)	<b>340</b> (218-527)	<b>651</b> (430-995)	389
	09-10	<b>33.9</b> (27.4-41.9)	<b>26.5</b> (20.4-33.3)	<b>79.4</b> (59.0-126)	<b>415</b> (163-849)	<b>873</b> (477-1230)	415
12-19 years	05-06	<b>53.8</b> (43.9-66.0)	<b>53.5</b> (39.4-65.7)	<b>192</b> (163-264)	<b>491</b> (380-720)	<b>901</b> (571-1210)	702
	07-08	<b>64.9</b> (50.3-83.8)	<b>66.3</b> (48.0-96.7)	<b>221</b> (180-276)	<b>521</b> (424-789)	<b>971</b> (574-1390)	401
	09-10	<b>53.9</b> (40.9-70.9)	<b>56.5</b> (39.4-75.6)	<b>176</b> (122-291)	<b>716</b> (399-934)	<b>984</b> (805-1210)	420
20 years and older	05-06	<b>60.3</b> (48.7-74.7)	<b>70.0</b> (57.1-85.3)	<b>225</b> (177-322)	<b>602</b> (439-814)	<b>974</b> (827-1110)	1490
	07-08	<b>63.0</b> (51.8-76.7)	<b>64.0</b> (51.4-79.8)	<b>210</b> (172-267)	<b>558</b> (447-678)	<b>916</b> (743-1190)	1814
	09-10	<b>61.0</b> (53.5-69.6)	<b>59.1</b> (50.6-72.6)	<b>239</b> (188-276)	<b>625</b> (566-711)	<b>1010</b> (909-1270)	1914
<b>Gender</b>							
Males	05-06	<b>29.8</b> (24.8-35.8)	<b>23.7</b> (19.5-29.4)	<b>97.6</b> (78.1-121)	<b>299</b> (229-355)	<b>491</b> (385-743)	1270
	07-08	<b>33.6</b> (27.3-41.3)	<b>27.4</b> (20.8-39.9)	<b>93.5</b> (71.0-137)	<b>312</b> (260-407)	<b>598</b> (460-734)	1294
	09-10	<b>31.7</b> (27.6-36.4)	<b>25.3</b> (20.6-30.6)	<b>94.0</b> (76.8-122)	<b>366</b> (275-482)	<b>727</b> (569-919)	1399
Females	05-06	<b>104</b> (80.8-135)	<b>137</b> (93.0-168)	<b>356</b> (279-427)	<b>842</b> (660-974)	<b>1110</b> (956-1330)	1278
	07-08	<b>105</b> (90.2-123)	<b>116</b> (95.2-139)	<b>315</b> (248-424)	<b>683</b> (558-901)	<b>1140</b> (917-1420)	1310
	09-10	<b>100</b> (87.9-114)	<b>106</b> (90.9-125)	<b>349</b> (271-405)	<b>812</b> (696-931)	<b>1230</b> (1010-1550)	1350
<b>Race/ethnicity</b>							
Mexican Americans	05-06	<b>78.2</b> (61.0-100)	<b>86.3</b> (64.7-121)	<b>301</b> (233-349)	<b>742</b> (474-896)	<b>1100</b> (896-1170)	637
	07-08	<b>80.5</b> (66.0-98.2)	<b>87.0</b> (63.4-117)	<b>283</b> (222-348)	<b>630</b> (533-791)	<b>1030</b> (773-1240)	531
	09-10	<b>82.9</b> (68.6-100)	<b>85.5</b> (73.0-99.8)	<b>293</b> (231-385)	<b>821</b> (536-1120)	<b>1580</b> (855-2360)	566
Non-Hispanic blacks	05-06	<b>174</b> (133-229)	<b>216</b> (150-306)	<b>616</b> (465-789)	<b>1180</b> (1010-1480)	<b>1690</b> (1210-2880)	678
	07-08	<b>152</b> (135-171)	<b>159</b> (135-194)	<b>483</b> (421-552)	<b>1080</b> (938-1350)	<b>1720</b> (1210-2700)	597
	09-10	<b>191</b> (171-213)	<b>223</b> (170-288)	<b>678</b> (533-849)	<b>1470</b> (1220-2010)	<b>2340</b> (1650-2750)	516
Non-Hispanic whites	05-06	<b>43.8</b> (36.7-52.3)	<b>44.3</b> (36.7-58.2)	<b>165</b> (132-209)	<b>412</b> (320-520)	<b>806</b> (485-974)	1038
	07-08	<b>48.9</b> (39.9-59.9)	<b>47.6</b> (37.8-62.0)	<b>158</b> (129-198)	<b>430</b> (301-557)	<b>671</b> (524-921)	1077
	09-10	<b>43.5</b> (39.4-48.1)	<b>41.3</b> (33.5-47.7)	<b>150</b> (127-176)	<b>463</b> (361-557)	<b>757</b> (619-888)	1206

Limit of detection (LOD, see Data Analysis section) for Survey years 05-06, 07-08, and 09-10 are 1.0, 1.0, and 1.0 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Parabens\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Parabens_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Parabens\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Parabens_FactSheet.html)



## Urinary Methyl paraben (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>40.3</b> (35.4-46.0)	<b>39.0</b> (32.4-47.8)	<b>172</b> (149-198)	<b>471</b> (401-593)	<b>841</b> (692-975)	2489
	13-14	<b>48.1</b> (43.0-53.8)	<b>41.7</b> (34.5-50.4)	<b>167</b> (151-186)	<b>445</b> (404-509)	<b>819</b> (663-918)	2686
<b>Age group</b>							
6-11 years	11-12	<b>18.5</b> (15.7-21.9)	<b>13.8</b> (11.2-17.7)	<b>58.6</b> (43.8-78.2)	<b>217</b> (155-363)	<b>549</b> (329-983)	396
	13-14	<b>28.6</b> (21.4-38.1)	<b>22.7</b> (17.8-30.3)	<b>62.1</b> (43.5-100)	<b>260</b> (150-408)	<b>542</b> (290-878)	409
12-19 years	11-12	<b>26.3</b> (19.0-36.5)	<b>17.0</b> (9.80-31.2)	<b>121</b> (62.4-219)	<b>538</b> (376-667)	<b>772</b> (609-996)	388
	13-14	<b>40.5</b> (32.7-50.1)	<b>32.0</b> (25.2-41.7)	<b>147</b> (89.6-193)	<b>452</b> (309-725)	<b>942</b> (612-1220)	462
20 years and older	11-12	<b>46.8</b> (41.3-53.1)	<b>48.9</b> (37.8-61.0)	<b>188</b> (158-231)	<b>477</b> (409-611)	<b>870</b> (676-1070)	1705
	13-14	<b>52.2</b> (46.0-59.3)	<b>46.8</b> (37.8-57.3)	<b>179</b> (163-201)	<b>457</b> (417-525)	<b>823</b> (663-918)	1815
<b>Gender</b>							
Males	11-12	<b>23.2</b> (19.2-28.1)	<b>17.3</b> (12.5-23.4)	<b>81.9</b> (65.7-119)	<b>312</b> (224-396)	<b>575</b> (401-822)	1259
	13-14	<b>31.1</b> (26.8-36.2)	<b>24.4</b> (20.1-29.8)	<b>77.2</b> (67.2-94.6)	<b>273</b> (230-328)	<b>561</b> (408-740)	1285
Females	11-12	<b>68.6</b> (59.0-79.9)	<b>76.9</b> (67.5-89.2)	<b>248</b> (201-309)	<b>637</b> (493-819)	<b>972</b> (772-1190)	1230
	13-14	<b>72.8</b> (63.6-83.4)	<b>73.9</b> (61.0-94.1)	<b>248</b> (217-276)	<b>583</b> (490-680)	<b>904</b> (801-1070)	1401
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>43.9</b> (31.5-61.2)	<b>44.9</b> (26.2-68.1)	<b>192</b> (111-302)	<b>529</b> (328-912)	<b>1080</b> (471-1740)	316
	13-14	<b>62.1</b> (49.2-78.4)	<b>57.4</b> (45.1-84.0)	<b>230</b> (154-341)	<b>518</b> (361-725)	<b>915</b> (535-1530)	438
Non-Hispanic blacks	11-12	<b>123</b> (100-152)	<b>155</b> (115-199)	<b>450</b> (341-579)	<b>934</b> (819-1110)	<b>1390</b> (1020-1990)	665
	13-14	<b>111</b> (96.1-129)	<b>110</b> (86.4-143)	<b>375</b> (313-482)	<b>927</b> (709-1180)	<b>1430</b> (1020-2040)	609
Non-Hispanic whites	11-12	<b>31.0</b> (26.9-35.8)	<b>30.0</b> (23.4-36.4)	<b>130</b> (96.8-160)	<b>372</b> (269-453)	<b>603</b> (453-772)	813
	13-14	<b>37.9</b> (32.8-43.7)	<b>32.5</b> (28.3-39.0)	<b>123</b> (94.3-153)	<b>328</b> (267-391)	<b>573</b> (422-711)	988
All Hispanics	11-12	<b>50.1</b> (40.5-62.1)	<b>46.0</b> (39.5-59.4)	<b>203</b> (130-301)	<b>666</b> (406-1080)	<b>1170</b> (766-2100)	571
	13-14	<b>61.9</b> (52.2-73.3)	<b>60.0</b> (49.0-73.5)	<b>221</b> (161-291)	<b>539</b> (417-702)	<b>842</b> (639-1070)	690
Asians	11-12	<b>36.1</b> (29.2-44.5)	<b>37.1</b> (24.6-57.4)	<b>140</b> (97.9-175)	<b>395</b> (259-509)	<b>692</b> (461-1030)	352
	13-14	<b>45.0</b> (37.9-53.5)	<b>38.9</b> (30.5-53.0)	<b>168</b> (118-197)	<b>384</b> (271-475)	<b>663</b> (393-914)	289

Limit of detection (LOD, see Data Analysis section) for Survey years 11-12 and 13-14 are 1.0 and 1.0, respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Parabens\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Parabens_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Parabens\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Parabens_FactSheet.html)

## Urinary Methyl paraben (creatinine corrected) (2005 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
Total	05-06	<b>55.0</b> (46.8-64.6)	<b>58.8</b> (47.0-73.4)	<b>221</b> (170-264)	<b>527</b> (426-685)	<b>902</b> (753-995)	2548
	07-08	<b>60.6</b> (49.8-73.8)	<b>61.0</b> (45.3-83.2)	<b>228</b> (188-288)	<b>538</b> (439-645)	<b>820</b> (694-1000)	2604
	09-10	<b>59.6</b> (53.5-66.3)	<b>57.7</b> (52.3-68.5)	<b>232</b> (195-262)	<b>544</b> (468-632)	<b>887</b> (734-1020)	2749
<b>Age group</b>							
6-11 years	05-06	<b>36.8</b> (27.9-48.7)	<b>26.9</b> (21.0-36.6)	<b>108</b> (55.9-164)	<b>259</b> (195-753)	<b>1540</b> (313-2510)	356
	07-08	<b>43.4</b> (31.3-60.2)	<b>33.1</b> (21.8-55.0)	<b>118</b> (62.3-197)	<b>424</b> (218-668)	<b>817</b> (558-1020)	389
	09-10	<b>44.2</b> (35.7-54.6)	<b>32.3</b> (26.5-42.9)	<b>110</b> (67.6-158)	<b>483</b> (258-722)	<b>849</b> (535-1080)	415
12-19 years	05-06	<b>40.1</b> (33.7-47.8)	<b>41.7</b> (31.5-56.3)	<b>160</b> (129-178)	<b>362</b> (280-428)	<b>549</b> (434-656)	702
	07-08	<b>50.5</b> (40.1-63.7)	<b>52.8</b> (36.6-78.1)	<b>167</b> (111-245)	<b>336</b> (292-395)	<b>475</b> (376-623)	401
	09-10	<b>43.3</b> (33.5-55.9)	<b>43.5</b> (27.5-68.6)	<b>168</b> (123-221)	<b>399</b> (292-558)	<b>632</b> (425-890)	420
20 years and older	05-06	<b>60.5</b> (50.5-72.5)	<b>69.6</b> (51.5-90.9)	<b>251</b> (189-320)	<b>602</b> (462-729)	<b>930</b> (788-1010)	1490
	07-08	<b>64.7</b> (52.9-79.2)	<b>69.7</b> (51.1-92.5)	<b>256</b> (209-316)	<b>576</b> (450-710)	<b>865</b> (697-1130)	1814
	09-10	<b>64.6</b> (57.0-73.3)	<b>71.2</b> (56.6-84.7)	<b>251</b> (217-287)	<b>566</b> (495-673)	<b>924</b> (753-1060)	1914
<b>Gender</b>							
Males	05-06	<b>23.9</b> (20.6-27.8)	<b>21.1</b> (17.4-25.3)	<b>72.1</b> (58.0-89.5)	<b>209</b> (160-260)	<b>368</b> (262-498)	1270
	07-08	<b>28.3</b> (22.8-35.0)	<b>23.5</b> (17.2-33.2)	<b>80.7</b> (56.9-111)	<b>257</b> (181-318)	<b>444</b> (386-558)	1294
	09-10	<b>28.4</b> (25.1-32.2)	<b>23.3</b> (19.3-26.9)	<b>77.7</b> (59.6-105)	<b>260</b> (212-370)	<b>516</b> (412-633)	1399
Females	05-06	<b>123</b> (99.3-152)	<b>147</b> (111-196)	<b>377</b> (319-445)	<b>788</b> (676-910)	<b>1050</b> (937-1290)	1278
	07-08	<b>126</b> (109-145)	<b>160</b> (134-182)	<b>374</b> (325-422)	<b>734</b> (576-879)	<b>1040</b> (835-1260)	1310
	09-10	<b>121</b> (107-137)	<b>146</b> (125-162)	<b>359</b> (307-426)	<b>745</b> (606-890)	<b>1080</b> (924-1390)	1350
<b>Race/ethnicity</b>							
Mexican Americans	05-06	<b>70.3</b> (57.1-86.7)	<b>85.8</b> (67.2-106)	<b>249</b> (191-303)	<b>515</b> (431-656)	<b>870</b> (656-1080)	637
	07-08	<b>78.5</b> (63.6-97.0)	<b>96.2</b> (59.4-127)	<b>293</b> (245-370)	<b>627</b> (541-728)	<b>831</b> (729-963)	531
	09-10	<b>82.3</b> (71.1-95.2)	<b>95.2</b> (76.0-113)	<b>284</b> (237-337)	<b>623</b> (459-899)	<b>1130</b> (657-2120)	566
Non-Hispanic blacks	05-06	<b>122</b> (93.0-161)	<b>161</b> (98.2-225)	<b>377</b> (334-462)	<b>792</b> (581-1100)	<b>1220</b> (916-1590)	678
	07-08	<b>118</b> (105-133)	<b>134</b> (111-155)	<b>356</b> (311-403)	<b>757</b> (573-882)	<b>1030</b> (847-1290)	597
	09-10	<b>138</b> (118-163)	<b>165</b> (127-203)	<b>403</b> (356-498)	<b>928</b> (729-1120)	<b>1350</b> (1080-1680)	516
Non-Hispanic whites	05-06	<b>46.1</b> (39.0-54.4)	<b>45.6</b> (34.5-59.7)	<b>170</b> (142-234)	<b>447</b> (339-706)	<b>814</b> (640-995)	1038
	07-08	<b>51.0</b> (40.5-64.2)	<b>46.7</b> (35.8-66.3)	<b>191</b> (154-230)	<b>481</b> (383-614)	<b>747</b> (574-966)	1077
	09-10	<b>48.9</b> (44.5-53.7)	<b>45.9</b> (39.5-51.9)	<b>184</b> (154-215)	<b>468</b> (388-560)	<b>734</b> (631-924)	1206

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Parabens\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Parabens_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Parabens\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Parabens_FactSheet.html)

## Urinary Methyl paraben (creatinine corrected) (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>46.0</b> (41.3-51.3)	<b>47.9</b> (36.9-61.7)	<b>203</b> (179-228)	<b>494</b> (399-571)	<b>797</b> (632-993)	2487
	13-14	<b>48.2</b> (43.1-53.9)	<b>41.8</b> (35.5-49.1)	<b>180</b> (145-205)	<b>410</b> (379-460)	<b>653</b> (585-697)	2684
<b>Age group</b>							
6-11 years	11-12	<b>26.4</b> (22.8-30.7)	<b>19.4</b> (14.6-23.8)	<b>69.9</b> (53.0-113)	<b>282</b> (182-458)	<b>644</b> (354-1220)	395
	13-14	<b>36.1</b> (28.0-46.5)	<b>28.2</b> (20.9-36.5)	<b>72.7</b> (50.9-122)	<b>263</b> (160-564)	<b>588</b> (341-881)	409
12-19 years	11-12	<b>25.7</b> (19.3-34.2)	<b>17.1</b> (11.8-33.4)	<b>100</b> (53.2-175)	<b>335</b> (213-545)	<b>609</b> (450-773)	388
	13-14	<b>32.9</b> (27.7-39.0)	<b>24.3</b> (18.1-33.8)	<b>99.5</b> (75.3-145)	<b>339</b> (234-412)	<b>495</b> (377-655)	462
20 years and older	11-12	<b>53.4</b> (47.7-59.8)	<b>64.9</b> (53.2-75.2)	<b>228</b> (199-250)	<b>523</b> (429-623)	<b>815</b> (669-1110)	1704
	13-14	<b>52.6</b> (46.6-59.4)	<b>47.5</b> (38.7-58.5)	<b>199</b> (170-229)	<b>429</b> (390-476)	<b>666</b> (591-781)	1813
<b>Gender</b>							
Males	11-12	<b>21.8</b> (18.3-26.0)	<b>16.2</b> (12.5-21.1)	<b>74.1</b> (57.1-93.3)	<b>250</b> (181-321)	<b>450</b> (327-560)	1258
	13-14	<b>26.1</b> (22.9-29.8)	<b>18.4</b> (16.6-22.2)	<b>61.3</b> (52.1-74.0)	<b>215</b> (172-284)	<b>411</b> (323-479)	1284
Females	11-12	<b>94.5</b> (83.1-108)	<b>119</b> (101-136)	<b>309</b> (259-356)	<b>682</b> (571-805)	<b>1090</b> (797-1300)	1229
	13-14	<b>86.5</b> (74.1-101)	<b>90.5</b> (72.2-125)	<b>266</b> (237-307)	<b>564</b> (506-614)	<b>828</b> (665-998)	1400
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>49.5</b> (37.0-66.2)	<b>50.5</b> (32.5-79.7)	<b>200</b> (133-298)	<b>496</b> (316-982)	<b>1090</b> (484-2160)	316
	13-14	<b>63.3</b> (46.8-85.5)	<b>67.9</b> (45.6-96.0)	<b>229</b> (146-317)	<b>570</b> (360-764)	<b>883</b> (578-1130)	438
Non-Hispanic blacks	11-12	<b>96.1</b> (79.4-116)	<b>117</b> (88.0-157)	<b>341</b> (274-382)	<b>696</b> (626-842)	<b>1090</b> (879-1190)	665
	13-14	<b>82.0</b> (75.2-89.5)	<b>84.6</b> (65.8-100)	<b>251</b> (211-289)	<b>584</b> (521-672)	<b>924</b> (655-1120)	609
Non-Hispanic whites	11-12	<b>37.8</b> (33.1-43.2)	<b>33.4</b> (25.7-47.6)	<b>177</b> (141-208)	<b>425</b> (321-556)	<b>719</b> (544-833)	811
	13-14	<b>39.9</b> (34.5-46.2)	<b>31.8</b> (26.4-38.7)	<b>139</b> (104-182)	<b>357</b> (294-404)	<b>560</b> (444-640)	987
All Hispanics	11-12	<b>56.1</b> (46.3-68.0)	<b>57.1</b> (47.2-75.2)	<b>217</b> (160-332)	<b>577</b> (456-813)	<b>1090</b> (662-1490)	571
	13-14	<b>61.4</b> (49.8-75.7)	<b>60.8</b> (51.7-74.6)	<b>227</b> (179-270)	<b>542</b> (390-637)	<b>774</b> (570-1070)	690
Asians	11-12	<b>48.3</b> (39.5-59.2)	<b>54.9</b> (31.6-79.8)	<b>198</b> (167-238)	<b>473</b> (344-600)	<b>840</b> (528-1170)	352
	13-14	<b>56.9</b> (45.2-71.6)	<b>59.1</b> (35.7-82.0)	<b>202</b> (160-275)	<b>469</b> (365-608)	<b>761</b> (475-911)	288

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Parabens\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Parabens_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Parabens\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Parabens_FactSheet.html)

## Urinary *n*-Propyl paraben (2005 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	<b>7.91</b> (6.41-9.77)	<b>8.70</b> (5.90-12.4)	<b>48.9</b> (36.6-64.8)	<b>160</b> (129-200)	<b>299</b> (237-354)	2548
	07-08	<b>7.59</b> (6.22-9.26)	<b>7.60</b> (5.70-10.6)	<b>44.1</b> (34.1-55.6)	<b>144</b> (115-196)	<b>268</b> (231-290)	2604
	09-10	<b>6.97</b> (5.96-8.16)	<b>6.40</b> (5.10-8.00)	<b>44.3</b> (38.6-50.3)	<b>153</b> (133-183)	<b>297</b> (233-334)	2749
<b>Age group</b>							
6-11 years	05-06	<b>3.41</b> (2.43-4.77)	<b>2.50</b> (1.60-4.30)	<b>11.1</b> (7.10-21.0)	<b>47.5</b> (30.0-91.9)	<b>125</b> (55.8-383)	356
	07-08	<b>3.61</b> (2.39-5.44)	<b>3.50</b> (1.90-6.00)	<b>13.7</b> (7.60-22.8)	<b>49.1</b> (21.7-99.6)	<b>99.6</b> (80.4-120)	389
	09-10	<b>3.28</b> (2.58-4.17)	<b>2.70</b> (2.00-4.00)	<b>10.2</b> (7.00-14.0)	<b>42.9</b> (28.2-61.6)	<b>114</b> (56.8-239)	415
12-19 years	05-06	<b>8.16</b> (5.70-11.7)	<b>8.40</b> (5.00-13.9)	<b>46.4</b> (24.1-68.5)	<b>165</b> (96.7-222)	<b>310</b> (201-361)	702
	07-08	<b>8.85</b> (6.73-11.6)	<b>7.90</b> (5.30-12.0)	<b>49.2</b> (31.1-62.2)	<b>193</b> (100-234)	<b>271</b> (195-314)	401
	09-10	<b>7.01</b> (5.13-9.58)	<b>7.90</b> (4.40-11.0)	<b>39.7</b> (24.8-57.8)	<b>153</b> (78.1-299)	<b>367</b> (136-694)	420
20 years and older	05-06	<b>8.67</b> (6.83-11.0)	<b>11.2</b> (7.70-14.4)	<b>55.6</b> (41.2-75.6)	<b>172</b> (130-233)	<b>302</b> (237-367)	1490
	07-08	<b>8.04</b> (6.56-9.84)	<b>8.40</b> (6.10-11.9)	<b>48.8</b> (38.3-61.1)	<b>152</b> (118-202)	<b>272</b> (232-312)	1814
	09-10	<b>7.58</b> (6.28-9.15)	<b>7.50</b> (5.30-9.90)	<b>48.9</b> (42.6-58.0)	<b>166</b> (139-199)	<b>298</b> (251-334)	1914
<b>Gender</b>							
Males	05-06	<b>2.96</b> (2.33-3.77)	<b>2.30</b> (1.60-3.10)	<b>13.8</b> (9.00-18.0)	<b>51.7</b> (39.7-70.9)	<b>125</b> (77.2-185)	1270
	07-08	<b>3.02</b> (2.47-3.71)	<b>2.30</b> (1.70-3.30)	<b>12.6</b> (8.40-17.4)	<b>56.4</b> (38.9-89.5)	<b>140</b> (98.1-209)	1294
	09-10	<b>2.77</b> (2.26-3.40)	<b>2.00</b> (1.40-2.60)	<b>11.4</b> (7.70-15.4)	<b>57.3</b> (44.6-67.8)	<b>134</b> (86.1-184)	1399
Females	05-06	<b>20.4</b> (16.0-25.9)	<b>29.1</b> (21.6-37.5)	<b>93.0</b> (75.7-129)	<b>254</b> (193-318)	<b>357</b> (318-395)	1278
	07-08	<b>18.4</b> (15.7-21.5)	<b>23.3</b> (20.5-26.1)	<b>76.3</b> (62.9-100)	<b>210</b> (164-269)	<b>312</b> (271-363)	1310
	09-10	<b>16.9</b> (14.6-19.4)	<b>20.2</b> (17.0-25.9)	<b>83.3</b> (70.0-92.4)	<b>227</b> (171-295)	<b>361</b> (297-502)	1350
<b>Race/ethnicity</b>							
Mexican Americans	05-06	<b>10.6</b> (8.08-13.8)	<b>12.1</b> (7.00-17.5)	<b>65.9</b> (43.5-93.3)	<b>247</b> (174-293)	<b>389</b> (293-453)	637
	07-08	<b>7.82</b> (5.98-10.2)	<b>7.00</b> (4.20-12.9)	<b>52.1</b> (36.9-64.1)	<b>146</b> (105-201)	<b>217</b> (161-401)	531
	09-10	<b>8.94</b> (7.25-11.0)	<b>8.70</b> (5.70-13.3)	<b>58.9</b> (45.7-68.5)	<b>182</b> (117-299)	<b>451</b> (269-911)	566
Non-Hispanic blacks	05-06	<b>26.8</b> (21.5-33.3)	<b>34.7</b> (28.3-44.2)	<b>125</b> (89.5-165)	<b>331</b> (236-411)	<b>531</b> (367-730)	678
	07-08	<b>21.3</b> (18.4-24.7)	<b>28.6</b> (21.8-34.8)	<b>85.4</b> (70.8-96.9)	<b>222</b> (176-282)	<b>410</b> (277-506)	597
	09-10	<b>26.1</b> (21.8-31.3)	<b>29.9</b> (23.4-39.5)	<b>129</b> (87.4-167)	<b>322</b> (229-503)	<b>572</b> (369-654)	516
Non-Hispanic whites	05-06	<b>6.21</b> (5.02-7.68)	<b>6.00</b> (4.60-9.10)	<b>35.7</b> (28.4-49.6)	<b>130</b> (92.1-157)	<b>229</b> (156-318)	1038
	07-08	<b>6.49</b> (5.05-8.33)	<b>6.10</b> (4.50-9.20)	<b>36.8</b> (26.9-47.5)	<b>129</b> (91.3-196)	<b>251</b> (190-290)	1077
	09-10	<b>5.34</b> (4.55-6.27)	<b>4.40</b> (3.60-5.70)	<b>35.6</b> (26.1-44.3)	<b>128</b> (92.4-141)	<b>235</b> (170-300)	1206

Limit of detection (LOD, see Data Analysis section) for Survey years 05-06, 07-08, and 09-10 are 0.2, 0.2, and 0.2 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Parabens\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Parabens_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Parabens\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Parabens_FactSheet.html)

## Urinary *n*-Propyl paraben (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>5.39</b> (4.69-6.19)	<b>4.70</b> (3.80-5.90)	<b>28.5</b> (24.5-34.1)	<b>126</b> (94.0-142)	<b>200</b> (163-278)	2489
	13-14	<b>5.74</b> (5.06-6.50)	<b>4.80</b> (3.90-5.70)	<b>33.7</b> (27.1-41.1)	<b>120</b> (106-130)	<b>224</b> (193-284)	2686
<b>Age group</b>							
6-11 years	11-12	<b>2.20</b> (1.81-2.68)	<b>1.40</b> (1.20-1.80)	<b>6.40</b> (4.80-11.8)	<b>28.1</b> (17.9-53.4)	<b>77.7</b> (41.3-185)	396
	13-14	<b>2.96</b> (2.20-3.99)	<b>2.40</b> (1.80-2.80)	<b>7.60</b> (5.90-15.4)	<b>44.7</b> (28.5-75.6)	<b>113</b> (45.3-213)	409
12-19 years	11-12	<b>3.69</b> (2.77-4.92)	<b>2.80</b> (1.80-4.20)	<b>14.7</b> (9.50-23.4)	<b>81.8</b> (51.5-151)	<b>208</b> (122-357)	388
	13-14	<b>5.15</b> (3.89-6.83)	<b>3.10</b> (2.40-4.90)	<b>24.5</b> (12.5-54.0)	<b>119</b> (90.5-147)	<b>217</b> (139-299)	462
20 years and older	11-12	<b>6.29</b> (5.45-7.25)	<b>6.20</b> (4.80-8.50)	<b>35.4</b> (29.2-43.2)	<b>135</b> (98.1-151)	<b>213</b> (163-323)	1705
	13-14	<b>6.27</b> (5.51-7.12)	<b>5.70</b> (4.40-7.20)	<b>39.2</b> (31.3-43.2)	<b>126</b> (112-161)	<b>235</b> (202-304)	1815
<b>Gender</b>							
Males	11-12	<b>2.44</b> (1.99-2.98)	<b>1.70</b> (1.40-2.10)	<b>8.90</b> (6.70-12.0)	<b>46.5</b> (28.0-80.6)	<b>137</b> (65.8-258)	1259
	13-14	<b>2.61</b> (2.20-3.09)	<b>1.70</b> (1.30-2.20)	<b>9.20</b> (6.20-13.3)	<b>49.8</b> (37.1-65.8)	<b>128</b> (94.0-175)	1285
Females	11-12	<b>11.6</b> (10.0-13.4)	<b>13.8</b> (12.4-16.3)	<b>54.7</b> (48.6-67.2)	<b>151</b> (141-175)	<b>252</b> (183-323)	1230
	13-14	<b>12.2</b> (10.6-14.1)	<b>13.5</b> (10.3-18.2)	<b>57.0</b> (50.1-67.6)	<b>179</b> (143-203)	<b>329</b> (230-376)	1401
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>6.15</b> (3.98-9.52)	<b>6.50</b> (2.60-11.1)	<b>30.0</b> (22.7-57.5)	<b>181</b> (70.4-312)	<b>312</b> (146-1060)	316
	13-14	<b>7.76</b> (5.55-10.8)	<b>6.00</b> (3.60-14.0)	<b>45.0</b> (29.7-57.4)	<b>124</b> (80.7-184)	<b>195</b> (137-342)	438
Non-Hispanic blacks	11-12	<b>16.4</b> (14.1-19.1)	<b>18.0</b> (13.4-23.1)	<b>61.1</b> (49.9-82.9)	<b>183</b> (147-225)	<b>340</b> (221-477)	665
	13-14	<b>15.4</b> (13.1-18.0)	<b>15.7</b> (10.8-20.3)	<b>71.8</b> (58.2-86.4)	<b>249</b> (187-305)	<b>396</b> (344-430)	609
Non-Hispanic whites	11-12	<b>4.14</b> (3.57-4.79)	<b>3.30</b> (2.50-4.20)	<b>21.0</b> (15.3-30.8)	<b>94.6</b> (70.3-135)	<b>163</b> (137-202)	813
	13-14	<b>4.46</b> (3.78-5.27)	<b>3.40</b> (2.70-4.20)	<b>23.8</b> (17.4-32.2)	<b>98.3</b> (78.6-120)	<b>202</b> (130-241)	988
All Hispanics	11-12	<b>6.87</b> (5.42-8.71)	<b>6.70</b> (3.80-9.30)	<b>33.6</b> (26.1-50.4)	<b>181</b> (95.3-273)	<b>333</b> (236-556)	571
	13-14	<b>7.73</b> (6.26-9.56)	<b>6.20</b> (4.40-10.4)	<b>45.0</b> (35.7-54.1)	<b>127</b> (112-157)	<b>207</b> (165-324)	690
Asians	11-12	<b>5.07</b> (4.06-6.34)	<b>5.50</b> (3.40-7.70)	<b>27.0</b> (22.3-37.2)	<b>95.8</b> (63.6-143)	<b>169</b> (123-292)	352
	13-14	<b>4.42</b> (3.71-5.27)	<b>3.90</b> (2.20-8.10)	<b>28.8</b> (19.3-41.1)	<b>77.8</b> (60.6-120)	<b>158</b> (95.5-209)	289

Limit of detection (LOD, see Data Analysis section) for Survey years 11-12 and 13-14 are 0.2 and 0.1, respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Parabens\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Parabens_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Parabens\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Parabens_FactSheet.html)

## Urinary *n*-Propyl paraben (creatinine corrected) (2005 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
Total	05-06	<b>7.71</b> (6.40-9.30)	<b>8.27</b> (5.87-11.3)	<b>52.9</b> (41.6-66.1)	<b>161</b> (140-178)	<b>263</b> (226-288)	2548
	07-08	<b>7.65</b> (6.22-9.40)	<b>8.00</b> (5.34-11.6)	<b>50.0</b> (39.5-59.8)	<b>138</b> (115-168)	<b>235</b> (199-293)	2604
	09-10	<b>7.28</b> (6.30-8.41)	<b>6.67</b> (5.35-8.50)	<b>45.1</b> (37.3-53.5)	<b>155</b> (128-187)	<b>253</b> (223-300)	2749
<b>Age group</b>							
6-11 years	05-06	<b>3.75</b> (2.67-5.26)	<b>2.70</b> (1.89-4.43)	<b>11.5</b> (8.07-16.0)	<b>52.1</b> (22.9-100)	<b>121</b> (55.5-352)	356
	07-08	<b>4.45</b> (3.03-6.53)	<b>3.50</b> (1.79-6.85)	<b>16.5</b> (8.82-28.8)	<b>59.1</b> (28.6-94.4)	<b>98.4</b> (65.0-139)	389
	09-10	<b>4.27</b> (3.34-5.47)	<b>3.33</b> (2.41-4.62)	<b>12.0</b> (8.52-16.6)	<b>46.1</b> (27.5-108)	<b>143</b> (72.5-243)	415
12-19 years	05-06	<b>6.08</b> (4.36-8.49)	<b>5.44</b> (3.03-10.5)	<b>33.0</b> (20.7-48.7)	<b>116</b> (81.9-161)	<b>175</b> (140-239)	702
	07-08	<b>6.88</b> (5.30-8.94)	<b>5.68</b> (3.51-9.90)	<b>33.2</b> (26.7-46.5)	<b>103</b> (87.2-112)	<b>132</b> (105-235)	401
	09-10	<b>5.64</b> (4.17-7.62)	<b>5.19</b> (3.53-9.03)	<b>32.9</b> (20.4-42.4)	<b>107</b> (57.6-217)	<b>218</b> (101-397)	420
20 years and older	05-06	<b>8.70</b> (7.08-10.7)	<b>10.8</b> (7.39-15.2)	<b>63.2</b> (49.7-80.5)	<b>178</b> (152-198)	<b>270</b> (236-293)	1490
	07-08	<b>8.26</b> (6.70-10.2)	<b>9.91</b> (6.15-12.6)	<b>57.9</b> (47.3-69.1)	<b>161</b> (127-199)	<b>273</b> (212-312)	1814
	09-10	<b>8.03</b> (6.74-9.56)	<b>8.27</b> (6.10-10.8)	<b>55.5</b> (43.5-66.0)	<b>164</b> (136-200)	<b>270</b> (232-314)	1914
<b>Gender</b>							
Males	05-06	<b>2.38</b> (1.92-2.95)	<b>1.84</b> (1.42-2.46)	<b>9.52</b> (6.79-12.8)	<b>40.5</b> (31.1-51.5)	<b>90.8</b> (56.8-125)	1270
	07-08	<b>2.55</b> (2.06-3.15)	<b>1.74</b> (1.40-2.53)	<b>10.7</b> (5.99-15.4)	<b>44.7</b> (29.0-66.1)	<b>112</b> (77.4-144)	1294
	09-10	<b>2.48</b> (2.05-3.00)	<b>1.71</b> (1.35-2.25)	<b>8.85</b> (6.12-14.2)	<b>40.3</b> (33.8-57.6)	<b>105</b> (74.5-143)	1399
Females	05-06	<b>23.9</b> (19.9-28.8)	<b>34.9</b> (26.9-46.6)	<b>114</b> (101-132)	<b>235</b> (193-263)	<b>306</b> (277-342)	1278
	07-08	<b>22.0</b> (18.7-25.8)	<b>30.4</b> (25.2-36.3)	<b>93.3</b> (80.8-110)	<b>199</b> (161-245)	<b>302</b> (271-370)	1310
	09-10	<b>20.4</b> (17.8-23.3)	<b>25.7</b> (21.8-30.7)	<b>97.1</b> (81.8-115)	<b>223</b> (191-248)	<b>334</b> (295-389)	1350
<b>Race/ethnicity</b>							
Mexican Americans	05-06	<b>9.49</b> (7.29-12.4)	<b>11.0</b> (6.69-16.4)	<b>55.2</b> (44.9-79.6)	<b>186</b> (147-271)	<b>329</b> (194-441)	637
	07-08	<b>7.63</b> (5.72-10.2)	<b>6.60</b> (4.10-13.4)	<b>47.9</b> (39.5-66.7)	<b>162</b> (123-187)	<b>273</b> (187-304)	531
	09-10	<b>8.87</b> (7.42-10.6)	<b>7.97</b> (5.87-12.8)	<b>54.7</b> (42.3-73.8)	<b>184</b> (140-269)	<b>325</b> (221-575)	566
Non-Hispanic blacks	05-06	<b>18.8</b> (15.2-23.3)	<b>23.6</b> (19.0-30.8)	<b>83.7</b> (61.8-105)	<b>217</b> (169-255)	<b>318</b> (242-377)	678
	07-08	<b>16.6</b> (14.1-19.5)	<b>22.9</b> (18.0-27.2)	<b>64.2</b> (51.4-73.3)	<b>141</b> (117-172)	<b>254</b> (169-311)	597
	09-10	<b>18.9</b> (15.2-23.5)	<b>21.1</b> (18.2-27.7)	<b>80.9</b> (59.5-109)	<b>200</b> (151-249)	<b>301</b> (223-376)	516
Non-Hispanic whites	05-06	<b>6.53</b> (5.32-8.02)	<b>6.45</b> (3.96-9.11)	<b>47.4</b> (32.6-65.3)	<b>146</b> (119-184)	<b>241</b> (184-278)	1038
	07-08	<b>6.77</b> (5.14-8.93)	<b>5.81</b> (3.94-10.5)	<b>45.4</b> (32.2-61.4)	<b>132</b> (105-172)	<b>215</b> (169-295)	1077
	09-10	<b>6.00</b> (5.19-6.94)	<b>5.12</b> (4.05-6.25)	<b>37.8</b> (32.1-49.2)	<b>148</b> (115-183)	<b>242</b> (215-272)	1206

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Parabens\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Parabens_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Parabens\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Parabens_FactSheet.html)



## Urinary *n*-Propyl paraben (creatinine corrected) (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>6.16</b> (5.42-6.99)	<b>5.35</b> (3.97-7.07)	<b>36.7</b> (31.1-42.2)	<b>129</b> (105-162)	<b>215</b> (183-321)	2487
	13-14	<b>5.74</b> (5.10-6.46)	<b>4.75</b> (3.81-5.91)	<b>36.7</b> (30.3-41.9)	<b>124</b> (99.0-148)	<b>222</b> (186-253)	2684
<b>Age group</b>							
6-11 years	11-12	<b>3.18</b> (2.62-3.87)	<b>2.09</b> (1.58-3.16)	<b>9.11</b> (5.71-12.2)	<b>37.0</b> (19.8-53.1)	<b>116</b> (43.6-202)	395
	13-14	<b>3.74</b> (2.84-4.94)	<b>2.73</b> (1.75-4.00)	<b>10.9</b> (7.00-18.3)	<b>40.5</b> (24.4-98.6)	<b>153</b> (52.1-271)	409
12-19 years	11-12	<b>3.60</b> (2.75-4.70)	<b>2.46</b> (1.93-3.52)	<b>14.9</b> (9.36-24.9)	<b>69.8</b> (32.3-130)	<b>133</b> (75.6-202)	388
	13-14	<b>4.18</b> (3.24-5.39)	<b>2.82</b> (2.03-4.46)	<b>20.7</b> (9.86-39.0)	<b>76.0</b> (56.4-102)	<b>118</b> (94.2-197)	462
20 years and older	11-12	<b>7.17</b> (6.22-8.27)	<b>7.28</b> (5.23-9.77)	<b>45.7</b> (38.1-51.6)	<b>152</b> (117-183)	<b>258</b> (190-365)	1704
	13-14	<b>6.30</b> (5.61-7.08)	<b>5.71</b> (4.40-7.22)	<b>41.8</b> (35.9-47.8)	<b>138</b> (112-166)	<b>231</b> (199-259)	1813
<b>Gender</b>							
Males	11-12	<b>2.29</b> (1.90-2.75)	<b>1.38</b> (1.21-1.67)	<b>7.39</b> (6.02-9.39)	<b>46.2</b> (28.5-72.7)	<b>94.5</b> (57.3-190)	1258
	13-14	<b>2.19</b> (1.87-2.56)	<b>1.35</b> (1.17-1.59)	<b>7.42</b> (5.24-8.93)	<b>42.2</b> (32.3-52.2)	<b>110</b> (78.9-141)	1284
Females	11-12	<b>16.0</b> (13.9-18.4)	<b>20.9</b> (16.7-25.7)	<b>74.7</b> (62.3-88.7)	<b>185</b> (164-213)	<b>345</b> (239-426)	1229
	13-14	<b>14.4</b> (12.1-17.2)	<b>17.5</b> (13.2-22.3)	<b>65.9</b> (56.9-82.9)	<b>198</b> (152-226)	<b>281</b> (237-338)	1400
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>6.93</b> (4.57-10.5)	<b>7.19</b> (3.71-10.9)	<b>40.5</b> (24.4-75.9)	<b>159</b> (90.0-236)	<b>315</b> (159-536)	316
	13-14	<b>7.90</b> (5.27-11.9)	<b>6.75</b> (3.60-16.0)	<b>52.7</b> (30.9-67.2)	<b>134</b> (89.0-205)	<b>231</b> (158-284)	438
Non-Hispanic blacks	11-12	<b>12.8</b> (11.3-14.4)	<b>13.9</b> (11.3-18.0)	<b>54.5</b> (43.4-65.7)	<b>140</b> (105-185)	<b>207</b> (166-333)	665
	13-14	<b>11.4</b> (10.0-12.9)	<b>10.8</b> (7.87-13.9)	<b>56.0</b> (44.6-67.6)	<b>137</b> (108-186)	<b>233</b> (191-274)	609
Non-Hispanic whites	11-12	<b>5.06</b> (4.35-5.88)	<b>3.20</b> (2.50-5.06)	<b>31.1</b> (27.3-37.1)	<b>120</b> (88.2-164)	<b>213</b> (164-345)	811
	13-14	<b>4.69</b> (4.01-5.48)	<b>3.58</b> (2.66-4.63)	<b>29.2</b> (22.9-36.2)	<b>112</b> (81.6-158)	<b>212</b> (165-259)	987
All Hispanics	11-12	<b>7.70</b> (5.99-9.90)	<b>7.47</b> (5.00-10.1)	<b>51.5</b> (35.2-72.9)	<b>162</b> (119-196)	<b>318</b> (185-473)	571
	13-14	<b>7.67</b> (5.91-9.97)	<b>6.40</b> (4.71-10.3)	<b>46.5</b> (35.4-61.9)	<b>139</b> (109-205)	<b>240</b> (173-285)	690
Asians	11-12	<b>6.80</b> (5.47-8.45)	<b>6.90</b> (3.41-13.7)	<b>46.5</b> (35.6-59.5)	<b>136</b> (94.4-188)	<b>222</b> (168-304)	352
	13-14	<b>5.54</b> (4.23-7.26)	<b>5.22</b> (2.70-8.39)	<b>43.9</b> (31.4-57.0)	<b>104</b> (87.0-137)	<b>153</b> (113-250)	288

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Parabens\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Parabens_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Parabens\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Parabens_FactSheet.html)

## Urinary 2,4-Dichlorophenol (2003 – 2010)

Metabolite of other chlorophenols

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	<b>1.04</b> (.895-1.21)	<b>.900</b> (.800-1.10)	<b>2.70</b> (2.30-3.10)	<b>8.80</b> (6.60-11.9)	<b>21.3</b> (14.1-29.5)	2525
	05-06	<b>.945</b> (.791-1.13)	<b>.800</b> (.700-1.00)	<b>2.00</b> (1.60-2.40)	<b>4.90</b> (3.90-6.30)	<b>11.9</b> (7.00-20.4)	2548
	07-08	<b>.970</b> (.852-1.11)	<b>.800</b> (.700-.900)	<b>1.80</b> (1.50-2.30)	<b>5.10</b> (3.80-7.60)	<b>12.6</b> (9.00-18.1)	2604
	09-10	<b>.803</b> (.729-.885)	<b>.700</b> (.700-.800)	<b>1.50</b> (1.40-1.70)	<b>4.00</b> (3.30-5.00)	<b>8.80</b> (6.40-15.7)	2749
<b>Age group</b>							
6-11 years	03-04	<b>1.01</b> (.796-1.28)	<b>.800</b> (.600-1.20)	<b>2.30</b> (1.70-3.20)	<b>7.70</b> (3.80-20.1)	<b>23.5</b> (9.40-31.0)	314
	05-06	<b>1.01</b> (.879-1.15)	<b>.800</b> (.800-1.10)	<b>2.00</b> (1.60-2.30)	<b>4.90</b> (3.30-6.60)	<b>9.80</b> (6.30-17.6)	356
	07-08	<b>1.04</b> (.778-1.39)	<b>.900</b> (.700-1.20)	<b>1.80</b> (1.20-2.80)	<b>5.90</b> (2.90-10.1)	<b>11.4</b> (6.60-20.7)	389
	09-10	<b>.975</b> (.768-1.24)	<b>.700</b> (.600-.900)	<b>1.80</b> (1.40-2.30)	<b>5.00</b> (3.20-8.40)	<b>14.2</b> (4.40-90.9)	415
12-19 years	03-04	<b>1.27</b> (.971-1.67)	<b>1.10</b> (.800-1.50)	<b>3.40</b> (2.50-5.00)	<b>13.6</b> (6.10-25.5)	<b>31.5</b> (14.5-85.0)	722
	05-06	<b>1.18</b> (.997-1.39)	<b>1.00</b> (.900-1.20)	<b>2.50</b> (2.00-3.10)	<b>5.50</b> (4.00-8.30)	<b>13.9</b> (7.10-33.6)	702
	07-08	<b>1.19</b> (.989-1.44)	<b>1.10</b> (.800-1.40)	<b>2.60</b> (2.00-3.00)	<b>5.60</b> (3.10-10.8)	<b>11.6</b> (5.70-36.5)	401
	09-10	<b>.967</b> (.794-1.18)	<b>.800</b> (.700-.900)	<b>1.60</b> (1.40-2.70)	<b>5.80</b> (3.70-10.1)	<b>14.4</b> (7.10-24.8)	420
20 years and older	03-04	<b>1.01</b> (.874-1.17)	<b>.900</b> (.700-1.10)	<b>2.60</b> (2.20-3.00)	<b>8.50</b> (6.60-10.4)	<b>19.4</b> (12.2-27.0)	1489
	05-06	<b>.907</b> (.737-1.12)	<b>.800</b> (.600-1.00)	<b>2.00</b> (1.50-2.40)	<b>4.90</b> (3.70-6.40)	<b>11.1</b> (6.50-20.9)	1490
	07-08	<b>.932</b> (.820-1.06)	<b>.800</b> (.700-.900)	<b>1.70</b> (1.40-2.20)	<b>5.00</b> (3.80-7.60)	<b>13.2</b> (9.20-18.1)	1814
	09-10	<b>.764</b> (.699-.836)	<b>.700</b> (.600-.700)	<b>1.40</b> (1.30-1.60)	<b>3.60</b> (3.10-4.50)	<b>8.00</b> (5.60-13.9)	1914
<b>Gender</b>							
Males	03-04	<b>1.22</b> (1.02-1.45)	<b>1.10</b> (.800-1.50)	<b>3.00</b> (2.50-3.50)	<b>9.40</b> (6.80-13.9)	<b>22.7</b> (13.6-40.9)	1231
	05-06	<b>1.16</b> (.973-1.37)	<b>1.00</b> (.900-1.20)	<b>2.40</b> (2.00-2.80)	<b>5.50</b> (4.40-7.90)	<b>12.9</b> (7.30-25.3)	1270
	07-08	<b>1.06</b> (.943-1.19)	<b>.900</b> (.800-1.00)	<b>1.90</b> (1.60-2.20)	<b>5.40</b> (3.90-8.20)	<b>13.6</b> (10.1-18.1)	1294
	09-10	<b>.879</b> (.789-.979)	<b>.800</b> (.700-.800)	<b>1.60</b> (1.40-1.80)	<b>4.00</b> (3.20-5.70)	<b>10.4</b> (5.20-18.4)	1399
Females	03-04	<b>.896</b> (.754-1.07)	<b>.800</b> (.600-.900)	<b>2.30</b> (2.00-2.70)	<b>8.10</b> (5.70-11.1)	<b>19.8</b> (12.0-27.5)	1294
	05-06	<b>.779</b> (.637-.954)	<b>.700</b> (.500-.800)	<b>1.50</b> (1.30-2.10)	<b>4.30</b> (2.80-6.20)	<b>9.40</b> (5.40-19.6)	1278
	07-08	<b>.893</b> (.750-1.06)	<b>.700</b> (.600-.800)	<b>1.80</b> (1.20-2.50)	<b>4.70</b> (3.10-8.00)	<b>11.9</b> (7.60-18.6)	1310
	09-10	<b>.737</b> (.659-.824)	<b>.600</b> (.600-.700)	<b>1.40</b> (1.30-1.70)	<b>4.00</b> (3.00-5.50)	<b>7.80</b> (5.80-15.8)	1350
<b>Race/ethnicity</b>							
Mexican Americans	03-04	<b>1.94</b> (1.46-2.56)	<b>1.70</b> (1.20-2.10)	<b>4.50</b> (2.80-9.30)	<b>26.9</b> (12.7-52.1)	<b>66.0</b> (47.5-84.2)	617
	05-06	<b>1.97</b> (1.49-2.59)	<b>1.60</b> (1.20-2.10)	<b>5.00</b> (3.30-6.60)	<b>20.9</b> (8.80-39.7)	<b>46.5</b> (21.9-79.5)	637
	07-08	<b>1.59</b> (.969-2.60)	<b>1.20</b> (.600-2.60)	<b>4.20</b> (2.10-9.50)	<b>13.4</b> (7.90-29.6)	<b>38.0</b> (16.4-74.0)	531
	09-10	<b>1.25</b> (.860-1.81)	<b>.900</b> (.700-1.30)	<b>2.70</b> (1.60-4.30)	<b>11.3</b> (4.30-26.3)	<b>29.1</b> (7.60-76.3)	566
Non-Hispanic blacks	03-04	<b>2.42</b> (1.92-3.06)	<b>2.20</b> (1.70-2.70)	<b>7.40</b> (4.00-9.60)	<b>20.8</b> (11.2-38.3)	<b>49.2</b> (24.0-69.7)	636
	05-06	<b>2.45</b> (1.93-3.12)	<b>2.10</b> (1.70-2.40)	<b>5.20</b> (3.90-7.40)	<b>20.3</b> (10.6-36.9)	<b>42.6</b> (21.3-129)	678
	07-08	<b>1.73</b> (1.49-2.01)	<b>1.40</b> (1.10-1.60)	<b>3.70</b> (2.90-4.90)	<b>17.8</b> (9.70-25.8)	<b>37.7</b> (24.6-56.8)	597
	09-10	<b>1.54</b> (1.06-2.23)	<b>1.20</b> (.800-2.00)	<b>3.10</b> (2.10-4.80)	<b>12.4</b> (4.30-46.4)	<b>35.2</b> (7.80-107)	516
Non-Hispanic whites	03-04	<b>.837</b> (.698-1.00)	<b>.700</b> (.600-.900)	<b>2.10</b> (1.70-2.60)	<b>6.20</b> (4.00-8.80)	<b>13.4</b> (8.60-22.0)	1077
	05-06	<b>.734</b> (.610-.883)	<b>.700</b> (.500-.900)	<b>1.40</b> (1.20-1.80)	<b>3.10</b> (2.70-3.90)	<b>5.30</b> (4.30-7.90)	1038
	07-08	<b>.817</b> (.732-.911)	<b>.700</b> (.600-.800)	<b>1.50</b> (1.20-1.80)	<b>3.10</b> (2.60-4.40)	<b>6.40</b> (4.60-8.80)	1077
	09-10	<b>.651</b> (.594-.712)	<b>.600</b> (.500-.700)	<b>1.30</b> (1.10-1.40)	<b>2.80</b> (2.20-3.50)	<b>5.60</b> (3.80-7.40)	1206

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08 and 09-10 are 0.17, 0.2, 0.2, and 0.2 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/24D\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/24D_BiomonitoringSummary.html)



## Urinary 2,4-Dichlorophenol (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>.695</b> (.619-.781)	<b>.600</b> (.600-.700)	<b>1.30</b> (1.10-1.60)	<b>3.50</b> (2.80-4.40)	<b>9.00</b> (5.60-13.0)	2489
	13-14	<b>.669</b> (.603-.743)	<b>.600</b> (.500-.700)	<b>1.30</b> (1.20-1.40)	<b>3.00</b> (2.70-3.50)	<b>6.40</b> (4.80-11.5)	2686
<b>Age group</b>							
6-11 years	11-12	<b>.672</b> (.558-.810)	<b>.600</b> (.400-.700)	<b>1.10</b> (1.00-1.40)	<b>3.60</b> (1.90-5.50)	<b>11.3</b> (4.10-23.2)	396
	13-14	<b>.773</b> (.646-.925)	<b>.700</b> (.600-.900)	<b>1.20</b> (1.10-1.60)	<b>2.90</b> (2.10-4.80)	<b>8.90</b> (3.30-21.8)	409
12-19 years	11-12	<b>.711</b> (.591-.857)	<b>.600</b> (.500-.800)	<b>1.30</b> (1.00-1.50)	<b>3.30</b> (2.10-5.80)	<b>9.00</b> (4.10-13.0)	388
	13-14	<b>.668</b> (.576-.775)	<b>.600</b> (.500-.700)	<b>1.10</b> (.900-1.40)	<b>2.40</b> (1.70-4.40)	<b>7.30</b> (3.10-13.8)	462
20 years and older	11-12	<b>.695</b> (.613-.789)	<b>.600</b> (.500-.700)	<b>1.30</b> (1.10-1.60)	<b>3.50</b> (2.80-4.60)	<b>9.00</b> (5.20-13.1)	1705
	13-14	<b>.659</b> (.593-.732)	<b>.600</b> (.500-.700)	<b>1.30</b> (1.20-1.40)	<b>3.10</b> (2.70-3.50)	<b>6.20</b> (4.90-10.8)	1815
<b>Gender</b>							
Males	11-12	<b>.717</b> (.641-.802)	<b>.600</b> (.600-.700)	<b>1.30</b> (1.10-1.60)	<b>3.20</b> (2.20-4.40)	<b>7.10</b> (4.60-10.6)	1259
	13-14	<b>.708</b> (.637-.786)	<b>.600</b> (.600-.700)	<b>1.30</b> (1.10-1.60)	<b>2.90</b> (2.60-3.30)	<b>6.20</b> (4.10-11.3)	1285
Females	11-12	<b>.675</b> (.581-.784)	<b>.600</b> (.500-.700)	<b>1.20</b> (1.00-1.60)	<b>3.80</b> (2.80-6.00)	<b>11.1</b> (4.90-24.3)	1230
	13-14	<b>.635</b> (.553-.729)	<b>.600</b> (.500-.700)	<b>1.20</b> (1.10-1.40)	<b>3.10</b> (2.50-4.10)	<b>7.60</b> (4.40-12.3)	1401
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>.895</b> (.720-1.11)	<b>.800</b> (.600-1.00)	<b>1.80</b> (1.30-2.60)	<b>6.60</b> (3.50-10.5)	<b>14.5</b> (7.40-27.0)	316
	13-14	<b>.807</b> (.609-1.07)	<b>.600</b> (.400-1.00)	<b>1.70</b> (1.10-2.90)	<b>4.00</b> (3.00-12.2)	<b>14.6</b> (3.90-49.9)	438
Non-Hispanic blacks	11-12	<b>1.23</b> (.965-1.57)	<b>.900</b> (.800-1.20)	<b>2.20</b> (1.60-3.30)	<b>6.90</b> (4.20-14.8)	<b>25.0</b> (8.40-53.6)	665
	13-14	<b>1.11</b> (.791-1.54)	<b>.800</b> (.700-1.10)	<b>2.00</b> (1.40-3.30)	<b>8.20</b> (3.00-28.2)	<b>23.5</b> (6.50-81.9)	609
Non-Hispanic whites	11-12	<b>.577</b> (.514-.647)	<b>.500</b> (.500-.600)	<b>1.00</b> (.900-1.20)	<b>2.50</b> (1.70-3.70)	<b>4.90</b> (3.30-9.40)	813
	13-14	<b>.588</b> (.525-.659)	<b>.500</b> (.500-.600)	<b>1.10</b> (1.00-1.30)	<b>2.60</b> (2.30-2.90)	<b>4.60</b> (3.10-5.50)	988
All Hispanics	11-12	<b>.981</b> (.760-1.27)	<b>.800</b> (.600-1.00)	<b>2.10</b> (1.30-3.10)	<b>6.10</b> (3.90-13.0)	<b>15.9</b> (7.00-42.0)	571
	13-14	<b>.786</b> (.641-.965)	<b>.600</b> (.500-.800)	<b>1.60</b> (1.20-2.10)	<b>3.50</b> (3.10-7.80)	<b>12.4</b> (4.20-26.1)	690
Asians	11-12	<b>.621</b> (.478-.807)	<b>.500</b> (.400-.700)	<b>1.10</b> (.800-1.60)	<b>3.60</b> (1.70-7.10)	<b>11.1</b> (3.50-17.7)	352
	13-14	<b>.567</b> (.435-.738)	<b>.500</b> (.300-.700)	<b>1.20</b> (.800-1.60)	<b>2.70</b> (1.70-5.80)	<b>7.30</b> (2.50-58.9)	289

Limit of detection (LOD, see Data Analysis section) for Survey years 11-12 and 13-14 are 0.2 and 0.1, respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/24D\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/24D_BiomonitoringSummary.html)

## Urinary 2,4-Dichlorophenol (creatinine corrected) (2003 – 2010)

Metabolite of other chlorophenols

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	<b>1.02</b> (.873-1.18)	<b>.880</b> (.770-1.00)	<b>2.19</b> (1.84-2.73)	<b>7.39</b> (5.00-9.83)	<b>15.4</b> (11.1-20.9)	2522
	05-06	<b>.922</b> (.798-1.06)	<b>.750</b> (.660-.880)	<b>1.58</b> (1.33-1.86)	<b>4.00</b> (3.00-5.71)	<b>8.90</b> (5.98-16.6)	2548
	07-08	<b>.978</b> (.867-1.10)	<b>.790</b> (.700-.880)	<b>1.63</b> (1.36-1.89)	<b>4.00</b> (3.14-5.63)	<b>11.7</b> (6.82-18.9)	2604
	09-10	<b>.838</b> (.757-.929)	<b>.680</b> (.630-.740)	<b>1.33</b> (1.18-1.58)	<b>3.48</b> (2.77-4.55)	<b>8.17</b> (5.44-14.3)	2749
<b>Age group</b>							
6-11 years	03-04	<b>1.23</b> (.965-1.56)	<b>1.03</b> (.750-1.45)	<b>2.39</b> (1.82-3.36)	<b>9.29</b> (3.98-16.5)	<b>20.9</b> (12.9-38.1)	314
	05-06	<b>1.11</b> (.950-1.29)	<b>.970</b> (.800-1.08)	<b>1.74</b> (1.38-2.19)	<b>4.38</b> (3.33-7.80)	<b>10.9</b> (5.12-23.3)	356
	07-08	<b>1.28</b> (1.00-1.63)	<b>1.06</b> (.750-1.40)	<b>2.06</b> (1.44-3.21)	<b>4.49</b> (3.13-9.27)	<b>11.2</b> (5.70-24.4)	389
	09-10	<b>1.27</b> (.986-1.64)	<b>.930</b> (.820-1.20)	<b>2.03</b> (1.54-2.94)	<b>5.89</b> (3.50-11.0)	<b>15.9</b> (5.71-121)	415
12-19 years	03-04	<b>.954</b> (.725-1.26)	<b>.790</b> (.660-1.00)	<b>2.08</b> (1.44-3.75)	<b>8.02</b> (4.72-12.5)	<b>14.8</b> (8.02-40.0)	720
	05-06	<b>.878</b> (.765-1.01)	<b>.700</b> (.600-.800)	<b>1.65</b> (1.22-1.93)	<b>3.92</b> (2.90-4.82)	<b>8.28</b> (4.82-15.9)	702
	07-08	<b>.927</b> (.776-1.11)	<b>.790</b> (.640-1.00)	<b>1.51</b> (1.14-2.22)	<b>3.81</b> (2.38-5.92)	<b>10.3</b> (4.28-21.8)	401
	09-10	<b>.778</b> (.656-.921)	<b>.580</b> (.510-.690)	<b>1.18</b> (.970-1.40)	<b>3.38</b> (2.11-6.27)	<b>7.38</b> (3.39-19.4)	420
20 years and older	03-04	<b>1.00</b> (.863-1.16)	<b>.870</b> (.770-1.00)	<b>2.17</b> (1.80-2.69)	<b>7.16</b> (4.88-9.01)	<b>15.0</b> (10.6-20.8)	1488
	05-06	<b>.909</b> (.774-1.07)	<b>.740</b> (.650-.870)	<b>1.55</b> (1.25-1.89)	<b>4.00</b> (2.84-6.19)	<b>8.80</b> (5.71-16.8)	1490
	07-08	<b>.958</b> (.847-1.08)	<b>.770</b> (.670-.880)	<b>1.60</b> (1.32-1.85)	<b>3.98</b> (3.14-5.59)	<b>12.1</b> (8.15-18.9)	1814
	09-10	<b>.810</b> (.735-.892)	<b>.670</b> (.620-.730)	<b>1.27</b> (1.11-1.56)	<b>3.33</b> (2.65-4.23)	<b>7.64</b> (5.16-12.3)	1914
<b>Gender</b>							
Males	03-04	<b>.995</b> (.850-1.17)	<b>.900</b> (.730-1.06)	<b>2.23</b> (1.82-2.82)	<b>6.84</b> (4.54-9.01)	<b>13.7</b> (9.29-21.8)	1230
	05-06	<b>.927</b> (.814-1.06)	<b>.770</b> (.670-.880)	<b>1.60</b> (1.36-1.86)	<b>4.12</b> (3.08-5.45)	<b>8.90</b> (5.19-16.6)	1270
	07-08	<b>.891</b> (.808-.984)	<b>.720</b> (.660-.790)	<b>1.44</b> (1.29-1.67)	<b>4.00</b> (2.97-5.30)	<b>9.96</b> (6.82-13.4)	1294
	09-10	<b>.788</b> (.706-.879)	<b>.620</b> (.580-.660)	<b>1.25</b> (1.06-1.48)	<b>3.66</b> (2.52-5.47)	<b>7.69</b> (4.84-16.9)	1399
Females	03-04	<b>1.03</b> (.845-1.27)	<b>.870</b> (.770-1.00)	<b>2.17</b> (1.73-2.73)	<b>8.00</b> (4.57-12.1)	<b>17.2</b> (11.1-23.7)	1292
	05-06	<b>.916</b> (.770-1.09)	<b>.740</b> (.640-.880)	<b>1.56</b> (1.19-1.96)	<b>3.91</b> (2.66-6.50)	<b>8.93</b> (5.53-23.7)	1278
	07-08	<b>1.07</b> (.910-1.26)	<b>.850</b> (.720-1.00)	<b>1.75</b> (1.43-2.29)	<b>4.07</b> (3.13-7.65)	<b>14.4</b> (6.50-26.8)	1310
	09-10	<b>.890</b> (.789-1.00)	<b>.740</b> (.660-.850)	<b>1.41</b> (1.24-1.67)	<b>3.39</b> (2.76-4.52)	<b>8.79</b> (5.16-14.8)	1350
<b>Race/ethnicity</b>							
Mexican Americans	03-04	<b>1.76</b> (1.30-2.38)	<b>1.33</b> (1.04-1.74)	<b>3.85</b> (2.29-8.81)	<b>23.8</b> (10.6-51.6)	<b>71.4</b> (30.8-88.8)	616
	05-06	<b>1.77</b> (1.38-2.27)	<b>1.25</b> (.990-1.73)	<b>3.79</b> (2.70-5.35)	<b>16.6</b> (6.75-31.8)	<b>38.1</b> (23.8-55.3)	637
	07-08	<b>1.55</b> (.925-2.60)	<b>1.18</b> (.630-2.28)	<b>3.33</b> (1.93-6.50)	<b>14.2</b> (5.65-30.6)	<b>33.1</b> (16.6-60.0)	531
	09-10	<b>1.24</b> (.860-1.78)	<b>.910</b> (.630-1.28)	<b>2.03</b> (1.43-3.90)	<b>11.0</b> (3.54-26.4)	<b>26.4</b> (10.2-93.5)	566
Non-Hispanic blacks	03-04	<b>1.66</b> (1.28-2.16)	<b>1.47</b> (1.06-1.96)	<b>4.14</b> (2.46-7.31)	<b>14.9</b> (7.93-20.1)	<b>22.9</b> (16.7-45.0)	635
	05-06	<b>1.72</b> (1.39-2.14)	<b>1.32</b> (1.11-1.56)	<b>3.28</b> (2.33-5.35)	<b>14.9</b> (7.40-28.1)	<b>37.0</b> (15.0-83.4)	678
	07-08	<b>1.34</b> (1.14-1.59)	<b>.990</b> (.800-1.17)	<b>2.36</b> (1.85-3.12)	<b>13.1</b> (5.70-23.3)	<b>33.8</b> (22.7-41.1)	597
	09-10	<b>1.11</b> (.739-1.67)	<b>.890</b> (.630-1.19)	<b>2.07</b> (1.25-3.87)	<b>8.37</b> (2.99-22.0)	<b>22.0</b> (7.05-83.1)	516
Non-Hispanic whites	03-04	<b>.864</b> (.721-1.03)	<b>.780</b> (.690-.890)	<b>1.86</b> (1.54-2.23)	<b>5.08</b> (3.58-8.00)	<b>10.8</b> (6.84-18.2)	1076
	05-06	<b>.772</b> (.660-.904)	<b>.670</b> (.580-.790)	<b>1.25</b> (1.07-1.56)	<b>2.78</b> (2.11-3.52)	<b>4.82</b> (3.33-8.62)	1038
	07-08	<b>.853</b> (.765-.950)	<b>.730</b> (.660-.810)	<b>1.36</b> (1.14-1.67)	<b>2.97</b> (2.53-3.33)	<b>5.16</b> (3.84-9.38)	1077
	09-10	<b>.731</b> (.674-.793)	<b>.630</b> (.580-.690)	<b>1.13</b> (1.01-1.25)	<b>2.76</b> (2.29-3.30)	<b>5.16</b> (3.79-6.46)	1206

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/24D\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/24D_BiomonitoringSummary.html)

## Urinary 2,4-Dichlorophenol (creatinine corrected) (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>.791</b> (.706-.886)	<b>.614</b> (.560-.690)	<b>1.29</b> (1.08-1.48)	<b>3.33</b> (2.67-4.57)	<b>8.10</b> (5.65-11.2)	2487
	13-14	<b>.668</b> (.611-.730)	<b>.556</b> (.510-.595)	<b>1.13</b> (1.03-1.29)	<b>2.73</b> (2.26-3.33)	<b>5.96</b> (4.41-8.38)	2684
<b>Age group</b>							
6-11 years	11-12	<b>.964</b> (.807-1.15)	<b>.741</b> (.620-.851)	<b>1.38</b> (1.07-1.61)	<b>3.51</b> (2.22-7.36)	<b>12.4</b> (5.13-34.9)	395
	13-14	<b>.977</b> (.833-1.14)	<b>.800</b> (.698-.909)	<b>1.52</b> (1.20-1.94)	<b>3.41</b> (2.22-6.60)	<b>9.68</b> (4.48-23.7)	409
12-19 years	11-12	<b>.693</b> (.582-.825)	<b>.545</b> (.465-.678)	<b>1.15</b> (.875-1.50)	<b>2.73</b> (1.96-4.00)	<b>4.82</b> (3.06-9.75)	388
	13-14	<b>.542</b> (.472-.623)	<b>.439</b> (.385-.519)	<b>.833</b> (.678-1.13)	<b>1.72</b> (1.31-3.08)	<b>4.10</b> (2.45-5.27)	462
20 years and older	11-12	<b>.790</b> (.694-.898)	<b>.610</b> (.556-.675)	<b>1.30</b> (1.07-1.54)	<b>3.33</b> (2.55-4.77)	<b>8.33</b> (5.75-11.3)	1704
	13-14	<b>.661</b> (.600-.728)	<b>.538</b> (.495-.588)	<b>1.14</b> (.991-1.31)	<b>2.77</b> (2.22-3.47)	<b>5.96</b> (4.39-8.53)	1813
<b>Gender</b>							
Males	11-12	<b>.670</b> (.594-.756)	<b>.538</b> (.462-.609)	<b>1.08</b> (.903-1.27)	<b>2.89</b> (2.10-3.46)	<b>5.65</b> (4.26-7.63)	1258
	13-14	<b>.595</b> (.550-.642)	<b>.496</b> (.455-.538)	<b>1.03</b> (.906-1.12)	<b>2.41</b> (2.11-2.77)	<b>4.39</b> (3.06-7.65)	1284
Females	11-12	<b>.928</b> (.816-1.06)	<b>.714</b> (.634-.833)	<b>1.45</b> (1.27-1.76)	<b>4.02</b> (3.06-6.37)	<b>11.2</b> (6.37-18.1)	1229
	13-14	<b>.747</b> (.667-.836)	<b>.616</b> (.560-.676)	<b>1.29</b> (1.11-1.43)	<b>3.29</b> (2.37-4.15)	<b>7.69</b> (4.69-12.6)	1400
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>1.01</b> (.856-1.19)	<b>.788</b> (.620-1.04)	<b>1.67</b> (1.50-2.14)	<b>5.94</b> (3.50-9.36)	<b>14.7</b> (6.16-33.3)	316
	13-14	<b>.823</b> (.614-1.10)	<b>.632</b> (.452-.864)	<b>1.43</b> (.938-2.29)	<b>6.25</b> (2.45-12.0)	<b>13.5</b> (6.32-37.3)	438
Non-Hispanic blacks	11-12	<b>.959</b> (.766-1.20)	<b>.737</b> (.588-.851)	<b>1.56</b> (1.18-2.34)	<b>5.26</b> (3.00-15.0)	<b>19.9</b> (6.61-40.7)	665
	13-14	<b>.815</b> (.617-1.08)	<b>.576</b> (.500-.704)	<b>1.40</b> (.952-2.30)	<b>5.32</b> (2.37-14.7)	<b>15.4</b> (4.69-51.3)	609
Non-Hispanic whites	11-12	<b>.700</b> (.609-.805)	<b>.563</b> (.519-.619)	<b>1.08</b> (.885-1.33)	<b>2.89</b> (1.79-3.78)	<b>5.75</b> (3.27-9.67)	811
	13-14	<b>.615</b> (.557-.679)	<b>.521</b> (.476-.570)	<b>1.05</b> (.906-1.24)	<b>2.22</b> (1.88-2.78)	<b>3.64</b> (3.01-5.71)	987
All Hispanics	11-12	<b>1.10</b> (.919-1.31)	<b>.870</b> (.700-1.12)	<b>2.00</b> (1.54-2.72)	<b>5.70</b> (3.96-9.26)	<b>14.7</b> (6.37-43.5)	571
	13-14	<b>.780</b> (.628-.970)	<b>.629</b> (.508-.774)	<b>1.30</b> (.980-1.98)	<b>4.48</b> (3.03-6.81)	<b>11.1</b> (6.16-23.8)	690
Asians	11-12	<b>.832</b> (.629-1.10)	<b>.667</b> (.513-.952)	<b>1.42</b> (1.01-2.12)	<b>3.50</b> (2.31-7.82)	<b>8.00</b> (3.50-17.0)	352
	13-14	<b>.720</b> (.540-.961)	<b>.588</b> (.469-.813)	<b>1.38</b> (1.06-1.71)	<b>3.51</b> (1.95-6.78)	<b>7.65</b> (2.54-54.1)	288

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/24D\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/24D_BiomonitoringSummary.html)

## Urinary 2,5-Dichlorophenol (2003 – 2010)

Metabolite of 1,4-Dichlorobenzene (Paradichlorobenzene) and other chlorophenols

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	<b>12.9</b> (10.1-16.3)	<b>10.5</b> (8.00-14.2)	<b>40.9</b> (29.8-54.7)	<b>190</b> (133-282)	<b>705</b> (342-1330)	2525
	05-06	<b>9.55</b> (6.67-13.7)	<b>8.10</b> (5.60-11.5)	<b>26.4</b> (19.0-36.6)	<b>111</b> (69.9-166)	<b>332</b> (175-794)	2548
	07-08	<b>9.04</b> (7.22-11.3)	<b>6.60</b> (5.50-8.30)	<b>25.7</b> (19.2-34.7)	<b>131</b> (90.2-222)	<b>473</b> (296-753)	2604
	09-10	<b>6.10</b> (4.94-7.53)	<b>4.70</b> (3.70-5.90)	<b>18.4</b> (13.3-26.0)	<b>101</b> (68.0-146)	<b>301</b> (168-618)	2749
<b>Age group</b> 6-11 years	03-04	<b>12.5</b> (8.22-18.9)	<b>9.10</b> (5.60-17.4)	<b>42.1</b> (21.7-83.9)	<b>161</b> (111-626)	<b>928</b> (249-1640)	314
	05-06	<b>10.5</b> (8.29-13.4)	<b>7.80</b> (5.90-10.6)	<b>28.1</b> (17.8-40.2)	<b>104</b> (55.4-226)	<b>336</b> (189-785)	356
	07-08	<b>9.31</b> (6.20-14.0)	<b>6.50</b> (4.60-10.9)	<b>23.3</b> (12.2-45.6)	<b>151</b> (61.1-306)	<b>464</b> (222-934)	389
	09-10	<b>7.19</b> (4.36-11.8)	<b>4.80</b> (2.70-9.90)	<b>30.4</b> (12.4-50.7)	<b>146</b> (63.7-368)	<b>503</b> (103-4940)	415
12-19 years	03-04	<b>16.9</b> (11.1-26.0)	<b>11.5</b> (8.20-20.6)	<b>49.9</b> (26.8-94.0)	<b>233</b> (94.5-1060)	<b>1080</b> (287-3970)	722
	05-06	<b>11.9</b> (8.47-16.8)	<b>9.60</b> (6.40-16.7)	<b>36.0</b> (22.3-54.4)	<b>127</b> (89.9-160)	<b>459</b> (160-894)	702
	07-08	<b>11.3</b> (8.78-14.5)	<b>7.40</b> (6.20-9.10)	<b>30.1</b> (18.5-52.6)	<b>193</b> (66.7-448)	<b>611</b> (254-1560)	401
	09-10	<b>8.01</b> (5.53-11.6)	<b>4.80</b> (3.50-8.80)	<b>24.9</b> (19.1-42.7)	<b>191</b> (61.2-368)	<b>526</b> (243-1140)	420
20 years and older	03-04	<b>12.3</b> (9.97-15.3)	<b>10.4</b> (8.00-14.0)	<b>40.5</b> (30.1-49.2)	<b>181</b> (141-250)	<b>583</b> (316-924)	1489
	05-06	<b>9.12</b> (6.15-13.5)	<b>7.80</b> (5.20-11.5)	<b>24.9</b> (17.3-35.3)	<b>110</b> (62.9-183)	<b>327</b> (159-852)	1490
	07-08	<b>8.71</b> (6.83-11.1)	<b>6.60</b> (5.10-8.70)	<b>24.6</b> (18.8-34.5)	<b>124</b> (95.9-186)	<b>452</b> (286-672)	1814
	09-10	<b>5.75</b> (4.77-6.92)	<b>4.60</b> (3.70-5.70)	<b>16.9</b> (12.7-23.1)	<b>88.4</b> (66.4-117)	<b>266</b> (156-450)	1914
<b>Gender</b> Males	03-04	<b>14.9</b> (11.8-18.8)	<b>12.5</b> (9.00-16.5)	<b>40.5</b> (30.7-54.5)	<b>152</b> (120-259)	<b>631</b> (259-1950)	1231
	05-06	<b>12.0</b> (8.55-16.7)	<b>9.90</b> (7.80-13.8)	<b>29.0</b> (21.8-40.5)	<b>114</b> (71.7-200)	<b>396</b> (175-916)	1270
	07-08	<b>10.9</b> (8.86-13.4)	<b>8.30</b> (6.30-9.90)	<b>29.4</b> (23.2-39.6)	<b>139</b> (100-248)	<b>546</b> (311-727)	1294
	09-10	<b>7.09</b> (5.68-8.85)	<b>5.30</b> (4.40-6.70)	<b>21.9</b> (15.2-33.5)	<b>103</b> (63.3-191)	<b>311</b> (133-736)	1399
Females	03-04	<b>11.2</b> (8.51-14.7)	<b>8.50</b> (6.30-12.0)	<b>42.8</b> (26.0-64.2)	<b>212</b> (141-364)	<b>732</b> (371-1100)	1294
	05-06	<b>7.69</b> (5.17-11.4)	<b>5.90</b> (3.90-9.40)	<b>21.1</b> (14.3-35.7)	<b>110</b> (60.5-183)	<b>317</b> (141-794)	1278
	07-08	<b>7.57</b> (5.70-10.1)	<b>5.50</b> (4.40-7.30)	<b>20.6</b> (13.9-31.8)	<b>118</b> (57.4-268)	<b>442</b> (213-838)	1310
	09-10	<b>5.28</b> (4.17-6.69)	<b>3.90</b> (3.00-5.10)	<b>16.7</b> (12.1-22.1)	<b>99.5</b> (58.2-156)	<b>287</b> (158-591)	1350
<b>Race/ethnicity</b> Mexican Americans	03-04	<b>30.1</b> (19.2-47.2)	<b>23.7</b> (14.7-39.8)	<b>103</b> (57.4-156)	<b>841</b> (282-2040)	<b>2370</b> (2040-3710)	617
	05-06	<b>32.2</b> (22.2-46.7)	<b>23.0</b> (14.9-37.1)	<b>120</b> (69.6-228)	<b>867</b> (298-1320)	<b>1630</b> (916-3650)	637
	07-08	<b>22.2</b> (9.88-49.8)	<b>16.4</b> (5.40-60.7)	<b>104</b> (35.2-364)	<b>566</b> (313-1710)	<b>1920</b> (672-3460)	531
	09-10	<b>13.0</b> (5.80-29.1)	<b>10.3</b> (3.30-26.2)	<b>53.6</b> (19.4-199)	<b>361</b> (124-900)	<b>998</b> (247-3700)	566
Non-Hispanic blacks	03-04	<b>54.0</b> (35.9-81.2)	<b>43.9</b> (26.2-65.6)	<b>159</b> (97.0-338)	<b>817</b> (342-2330)	<b>2330</b> (887-3730)	636
	05-06	<b>43.9</b> (33.2-58.1)	<b>33.2</b> (25.3-47.6)	<b>161</b> (79.9-255)	<b>722</b> (360-1370)	<b>1700</b> (886-6440)	678
	07-08	<b>27.4</b> (21.3-35.2)	<b>18.5</b> (13.2-26.7)	<b>102</b> (61.9-147)	<b>682</b> (364-943)	<b>1490</b> (933-1870)	597
	09-10	<b>23.0</b> (13.0-40.8)	<b>17.3</b> (8.00-42.7)	<b>82.7</b> (38.6-168)	<b>443</b> (119-2180)	<b>1240</b> (273-4940)	516
Non-Hispanic whites	03-04	<b>8.94</b> (7.15-11.2)	<b>7.80</b> (6.30-9.40)	<b>25.9</b> (19.3-36.6)	<b>115</b> (61.8-171)	<b>255</b> (148-522)	1077
	05-06	<b>6.19</b> (4.18-9.17)	<b>5.90</b> (3.80-9.20)	<b>15.7</b> (11.4-21.9)	<b>43.7</b> (31.2-73.1)	<b>105</b> (62.2-166)	1038
	07-08	<b>6.24</b> (5.04-7.74)	<b>5.10</b> (4.20-6.20)	<b>15.4</b> (12.2-19.9)	<b>49.8</b> (37.0-90.2)	<b>142</b> (103-294)	1077
	09-10	<b>4.10</b> (3.22-5.21)	<b>3.30</b> (2.60-4.40)	<b>10.9</b> (8.10-15.5)	<b>45.5</b> (29.0-82.7)	<b>124</b> (79.3-215)	1206

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08 and 09-10 are 0.12, 0.2, 0.2, and 0.2 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/25D\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/25D_BiomonitoringSummary.html)

## Urinary 2,5-Dichlorophenol (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>4.21</b> (3.15-5.62)	<b>3.10</b> (2.30-3.90)	<b>13.4</b> (9.40-18.9)	<b>69.9</b> (40.9-117)	<b>213</b> (121-404)	2489
	13-14	<b>2.78</b> (2.15-3.59)	<b>1.80</b> (1.40-2.50)	<b>7.50</b> (5.30-11.4)	<b>37.7</b> (23.8-58.0)	<b>148</b> (78.4-266)	2686
<b>Age group</b>							
6-11 years	11-12	<b>3.45</b> (2.11-5.64)	<b>2.30</b> (1.60-3.30)	<b>9.20</b> (4.40-21.2)	<b>69.1</b> (27.8-168)	<b>369</b> (99.9-986)	396
	13-14	<b>2.90</b> (1.98-4.24)	<b>2.00</b> (1.30-3.00)	<b>8.20</b> (4.30-14.9)	<b>29.6</b> (19.7-73.8)	<b>123</b> (38.0-438)	409
12-19 years	11-12	<b>4.15</b> (2.43-7.10)	<b>3.20</b> (1.60-8.00)	<b>14.0</b> (7.30-28.8)	<b>55.7</b> (28.6-209)	<b>236</b> (71.2-468)	388
	13-14	<b>2.72</b> (1.75-4.24)	<b>2.10</b> (1.30-3.30)	<b>6.00</b> (3.80-14.0)	<b>21.7</b> (10.6-77.7)	<b>77.7</b> (21.7-315)	462
20 years and older	11-12	<b>4.31</b> (3.21-5.78)	<b>3.20</b> (2.30-4.10)	<b>14.2</b> (9.40-19.2)	<b>71.4</b> (39.5-118)	<b>198</b> (118-408)	1705
	13-14	<b>2.78</b> (2.20-3.51)	<b>1.80</b> (1.40-2.40)	<b>7.80</b> (5.50-11.5)	<b>42.7</b> (25.2-61.2)	<b>169</b> (87.2-308)	1815
<b>Gender</b>							
Males	11-12	<b>4.42</b> (3.38-5.78)	<b>3.30</b> (2.40-4.50)	<b>13.2</b> (9.40-20.8)	<b>55.5</b> (37.1-106)	<b>194</b> (99.8-341)	1259
	13-14	<b>2.96</b> (2.31-3.80)	<b>2.00</b> (1.50-2.60)	<b>7.20</b> (5.20-11.5)	<b>36.1</b> (23.1-52.6)	<b>175</b> (77.6-250)	1285
Females	11-12	<b>4.01</b> (2.86-5.61)	<b>2.80</b> (2.00-3.70)	<b>13.9</b> (9.20-17.7)	<b>83.3</b> (42.4-124)	<b>352</b> (117-614)	1230
	13-14	<b>2.61</b> (1.96-3.48)	<b>1.70</b> (1.30-2.50)	<b>7.80</b> (5.20-11.9)	<b>38.3</b> (21.6-63.8)	<b>136</b> (63.2-376)	1401
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>5.92</b> (3.36-10.4)	<b>4.00</b> (2.20-8.40)	<b>21.2</b> (14.2-42.7)	<b>178</b> (58.4-341)	<b>362</b> (119-1130)	316
	13-14	<b>4.60</b> (2.78-7.61)	<b>2.70</b> (1.40-6.30)	<b>14.5</b> (6.70-29.2)	<b>90.5</b> (32.9-486)	<b>584</b> (85.3-1840)	438
Non-Hispanic blacks	11-12	<b>16.6</b> (10.4-26.2)	<b>13.4</b> (8.80-19.4)	<b>47.9</b> (24.9-100)	<b>227</b> (108-569)	<b>759</b> (341-2480)	665
	13-14	<b>9.58</b> (5.03-18.2)	<b>7.20</b> (3.90-14.2)	<b>27.6</b> (15.6-70.7)	<b>175</b> (51.4-874)	<b>843</b> (150-3710)	609
Non-Hispanic whites	11-12	<b>2.78</b> (2.13-3.63)	<b>2.00</b> (1.60-2.50)	<b>7.40</b> (5.40-9.70)	<b>34.4</b> (18.1-67.6)	<b>112</b> (52.1-178)	813
	13-14	<b>1.95</b> (1.54-2.46)	<b>1.40</b> (1.10-1.90)	<b>4.70</b> (3.30-6.50)	<b>19.0</b> (12.8-25.9)	<b>53.7</b> (25.2-131)	988
All Hispanics	11-12	<b>7.96</b> (4.50-14.1)	<b>6.30</b> (3.20-14.9)	<b>29.1</b> (16.0-66.7)	<b>196</b> (84.1-399)	<b>536</b> (194-1630)	571
	13-14	<b>4.26</b> (2.84-6.40)	<b>2.80</b> (1.50-5.00)	<b>11.8</b> (7.20-22.4)	<b>77.7</b> (42.7-236)	<b>420</b> (112-807)	690
Asians	11-12	<b>3.77</b> (2.17-6.53)	<b>2.40</b> (1.40-5.40)	<b>13.0</b> (5.40-43.4)	<b>86.8</b> (38.6-160)	<b>378</b> (86.8-810)	352
	13-14	<b>2.66</b> (1.64-4.32)	<b>1.70</b> (1.20-2.90)	<b>6.20</b> (3.30-18.5)	<b>50.3</b> (13.0-154)	<b>154</b> (38.7-2450)	289

Limit of detection (LOD, see Data Analysis section) for Survey years 11-12 and 13-14 are 0.2 and 0.1, respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/25D\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/25D_BiomonitoringSummary.html)



## Urinary 2,5-Dichlorophenol (creatinine corrected) (2003 – 2010)

Metabolite of 1,4-Dichlorobenzene (Paradichlorobenzene) and other chlorophenols

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	12.5 (10.1-15.6)	9.29 (7.25-12.5)	34.4 (26.8-45.4)	141 (100-251)	578 (313-851)	2522
	05-06	9.31 (6.70-12.9)	7.32 (5.33-10.2)	20.4 (14.8-30.5)	89.3 (54.9-176)	292 (176-640)	2548
	07-08	9.12 (7.35-11.3)	6.24 (5.00-7.77)	24.2 (17.2-30.3)	109 (70.8-175)	409 (234-745)	2604
	09-10	6.36 (5.07-7.99)	4.12 (3.31-5.16)	16.2 (11.7-22.8)	80.2 (59.5-127)	269 (144-505)	2749
<b>Age group</b>							
6-11 years	03-04	15.2 (9.93-23.1)	10.6 (5.87-26.7)	44.7 (28.9-80.0)	183 (95.3-617)	830 (330-2150)	314
	05-06	11.6 (8.90-15.1)	8.00 (5.95-12.6)	24.7 (16.8-37.8)	129 (55.8-242)	419 (151-709)	356
	07-08	11.5 (7.95-16.5)	7.70 (5.41-11.7)	29.5 (19.6-50.9)	131 (59.9-239)	420 (170-1110)	389
	09-10	9.36 (5.65-15.5)	6.25 (4.09-9.60)	33.9 (12.6-65.0)	177 (66.1-496)	536 (111-5950)	415
12-19 years	03-04	12.7 (8.50-18.9)	9.05 (6.17-13.3)	34.8 (18.6-67.0)	177 (67.0-516)	549 (187-2120)	720
	05-06	8.88 (6.34-12.4)	6.91 (4.15-11.1)	23.4 (17.7-30.0)	78.0 (58.5-112)	279 (112-659)	702
	07-08	8.79 (6.81-11.4)	5.56 (4.42-7.50)	20.9 (13.8-34.9)	130 (41.8-251)	353 (158-799)	401
	09-10	6.44 (4.40-9.42)	4.05 (2.34-8.69)	19.4 (11.6-37.7)	121 (49.3-218)	257 (119-1180)	420
20 years and older	03-04	12.2 (10.1-14.8)	9.13 (7.25-12.4)	32.7 (26.7-42.9)	140 (103-203)	552 (283-838)	1488
	05-06	9.15 (6.43-13.0)	7.29 (5.29-10.0)	19.6 (14.2-30.4)	90.7 (48.5-197)	274 (163-701)	1490
	07-08	8.94 (7.07-11.3)	6.15 (4.93-8.00)	24.3 (16.6-30.6)	101 (70.0-162)	422 (234-729)	1814
	09-10	6.09 (4.97-7.45)	3.97 (3.27-4.78)	14.7 (11.0-20.5)	72.5 (56.6-97.2)	261 (141-446)	1914
<b>Gender</b>							
Males	03-04	12.2 (9.73-15.3)	9.65 (7.23-12.7)	32.7 (25.3-39.1)	108 (79.0-183)	358 (161-1080)	1230
	05-06	9.60 (7.17-12.9)	8.11 (5.95-10.5)	20.5 (15.9-28.2)	74.9 (50.5-141)	249 (137-534)	1270
	07-08	9.17 (7.63-11.0)	6.24 (5.22-7.81)	25.5 (19.7-32.4)	110 (70.7-167)	353 (234-572)	1294
	09-10	6.36 (5.04-8.02)	4.21 (3.36-4.97)	16.7 (11.7-24.0)	83.2 (53.7-141)	280 (111-727)	1399
Females	03-04	12.9 (9.91-16.8)	8.95 (6.98-13.2)	37.1 (26.7-56.9)	209 (124-362)	660 (408-940)	1292
	05-06	9.04 (6.18-13.2)	6.60 (4.56-10.4)	20.4 (14.1-33.8)	104 (55.8-199)	309 (149-933)	1278
	07-08	9.07 (6.91-11.9)	6.08 (4.71-8.04)	22.4 (14.7-30.6)	107 (59.2-216)	509 (185-908)	1310
	09-10	6.37 (4.92-8.25)	4.10 (3.09-5.69)	15.6 (11.3-22.1)	77.1 (53.3-148)	267 (151-481)	1350
<b>Race/ethnicity</b>							
Mexican Americans	03-04	27.3 (17.4-42.9)	17.8 (9.86-36.3)	79.8 (45.8-138)	809 (196-2110)	2200 (1250-2480)	616
	05-06	29.0 (20.5-41.0)	18.6 (12.9-27.3)	99.4 (61.6-165)	675 (296-1400)	1680 (718-2720)	637
	07-08	21.6 (9.44-49.6)	16.4 (5.09-58.9)	83.9 (30.8-281)	572 (182-1490)	1490 (700-2220)	531
	09-10	12.9 (5.78-28.8)	9.12 (3.38-26.7)	45.0 (17.3-236)	460 (105-1000)	1000 (380-2800)	566
Non-Hispanic blacks	03-04	37.1 (24.3-56.7)	27.4 (17.5-47.7)	103 (63.8-216)	609 (248-1210)	1240 (627-2430)	635
	05-06	30.9 (23.6-40.3)	20.5 (17.3-29.1)	104 (57.7-180)	480 (294-1080)	1480 (515-3100)	678
	07-08	21.3 (16.2-27.9)	14.6 (10.2-19.7)	64.6 (48.0-101)	529 (217-884)	1130 (793-1560)	597
	09-10	16.7 (9.19-30.2)	12.5 (6.74-22.0)	58.9 (22.3-106)	349 (92.6-878)	878 (277-3890)	516
Non-Hispanic whites	03-04	9.24 (7.48-11.4)	7.14 (5.67-8.76)	24.8 (18.7-31.7)	79.7 (50.2-141)	216 (124-516)	1076
	05-06	6.52 (4.51-9.43)	5.60 (3.86-8.51)	14.1 (10.7-19.7)	40.2 (28.4-61.6)	110 (47.3-224)	1038
	07-08	6.52 (5.26-8.07)	4.89 (3.95-6.20)	14.4 (11.4-19.2)	53.2 (40.1-75.9)	131 (82.5-249)	1077
	09-10	4.60 (3.59-5.90)	3.27 (2.77-4.10)	10.4 (7.22-15.2)	41.3 (25.0-69.1)	130 (73.4-180)	1206

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/25D\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/25D_BiomonitoringSummary.html)

## Urinary 2,5-Dichlorophenol (creatinine corrected) (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>4.80</b> (3.65-6.32)	<b>3.19</b> (2.38-4.43)	<b>11.4</b> (7.97-17.9)	<b>66.4</b> (39.9-125)	<b>215</b> (145-342)	2487
	13-14	<b>2.77</b> (2.12-3.62)	<b>1.82</b> (1.43-2.40)	<b>6.80</b> (4.62-9.72)	<b>32.2</b> (21.9-45.5)	<b>108</b> (58.4-270)	2684
<b>Age group</b>							
6-11 years	11-12	<b>5.01</b> (3.10-8.09)	<b>3.02</b> (2.00-5.00)	<b>10.6</b> (5.53-21.7)	<b>98.1</b> (32.9-166)	<b>377</b> (125-1180)	395
	13-14	<b>3.66</b> (2.50-5.36)	<b>2.41</b> (1.62-3.54)	<b>9.73</b> (5.25-15.6)	<b>37.6</b> (16.9-110)	<b>172</b> (70.4-615)	409
12-19 years	11-12	<b>4.04</b> (2.51-6.52)	<b>2.41</b> (1.54-5.34)	<b>12.1</b> (5.67-27.6)	<b>47.9</b> (26.3-99.5)	<b>157</b> (55.1-324)	388
	13-14	<b>2.21</b> (1.44-3.40)	<b>1.53</b> (.915-2.52)	<b>5.16</b> (2.63-12.0)	<b>22.7</b> (12.2-38.9)	<b>54.2</b> (21.7-236)	462
20 years and older	11-12	<b>4.90</b> (3.67-6.56)	<b>3.33</b> (2.50-4.51)	<b>11.5</b> (8.04-18.0)	<b>70.3</b> (38.8-136)	<b>226</b> (145-342)	1704
	13-14	<b>2.78</b> (2.15-3.59)	<b>1.81</b> (1.44-2.29)	<b>6.67</b> (4.62-9.47)	<b>32.6</b> (21.1-51.0)	<b>126</b> (58.4-325)	1813
<b>Gender</b>							
Males	11-12	<b>4.15</b> (3.14-5.49)	<b>2.87</b> (2.14-4.13)	<b>9.73</b> (6.88-16.1)	<b>52.8</b> (31.4-106)	<b>157</b> (125-233)	1258
	13-14	<b>2.49</b> (1.93-3.22)	<b>1.69</b> (1.23-2.22)	<b>5.49</b> (4.18-8.11)	<b>27.4</b> (19.6-45.8)	<b>88.7</b> (58.4-160)	1284
Females	11-12	<b>5.53</b> (4.14-7.37)	<b>3.39</b> (2.57-5.00)	<b>13.1</b> (8.84-19.5)	<b>90.1</b> (45.2-147)	<b>331</b> (145-557)	1229
	13-14	<b>3.07</b> (2.30-4.09)	<b>1.96</b> (1.52-2.54)	<b>8.22</b> (5.07-11.9)	<b>33.8</b> (21.7-56.2)	<b>140</b> (50.4-374)	1400
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>6.67</b> (4.04-11.0)	<b>4.85</b> (2.25-8.69)	<b>22.4</b> (12.6-37.6)	<b>189</b> (49.2-249)	<b>383</b> (213-981)	316
	13-14	<b>4.68</b> (2.72-8.06)	<b>2.47</b> (1.36-5.71)	<b>14.5</b> (7.24-25.0)	<b>91.8</b> (26.9-559)	<b>559</b> (89.0-1330)	438
Non-Hispanic blacks	11-12	<b>12.9</b> (8.32-19.9)	<b>9.41</b> (6.35-15.1)	<b>34.5</b> (18.1-75.0)	<b>174</b> (83.7-567)	<b>744</b> (236-1790)	665
	13-14	<b>7.07</b> (3.87-12.9)	<b>5.62</b> (2.55-10.4)	<b>21.2</b> (10.0-54.1)	<b>128</b> (32.7-527)	<b>415</b> (103-2580)	609
Non-Hispanic whites	11-12	<b>3.40</b> (2.57-4.49)	<b>2.36</b> (1.76-3.19)	<b>6.96</b> (4.70-9.67)	<b>34.5</b> (16.4-80.1)	<b>126</b> (55.3-232)	811
	13-14	<b>2.03</b> (1.53-2.69)	<b>1.48</b> (1.13-1.91)	<b>4.15</b> (2.96-6.34)	<b>18.2</b> (10.6-32.5)	<b>45.8</b> (26.0-86.3)	987
All Hispanics	11-12	<b>8.92</b> (5.45-14.6)	<b>6.55</b> (3.50-13.8)	<b>28.8</b> (16.6-53.6)	<b>184</b> (97.2-266)	<b>383</b> (213-1240)	571
	13-14	<b>4.23</b> (2.77-6.47)	<b>2.50</b> (1.41-5.07)	<b>11.5</b> (6.84-18.7)	<b>84.6</b> (32.2-226)	<b>401</b> (135-993)	690
Asians	11-12	<b>5.05</b> (2.93-8.69)	<b>2.99</b> (1.74-7.04)	<b>15.3</b> (6.51-45.6)	<b>106</b> (58.7-177)	<b>236</b> (97.5-632)	352
	13-14	<b>3.40</b> (2.10-5.52)	<b>2.06</b> (1.33-3.26)	<b>8.99</b> (3.21-20.8)	<b>45.2</b> (17.3-158)	<b>207</b> (32.6-3020)	288

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/25D\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/25D_BiomonitoringSummary.html)

## Urinary *ortho*-Phenylphenol (2003 – 2010) ‡

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	.100 (<LOD-.200)	.300 (.200-.400)	.500 (.400-.700)	.800 (.600-1.10)	2525
	05-06	*	< LOD	< LOD	.300 (.200-.400)	.500 (.400-.800)	2548
	07-08	*	< LOD	< LOD	.100 (.100-.200)	.300 (.200-.400)	2604
	09-10	*	< LOD	< LOD	.300 (.300-.400)	.500 (.500-.600)	2749
<b>Age group</b>							
6-11 years	03-04	.180 (.158-.206)	.200 (.200-.200)	.300 (.300-.400)	.600 (.500-.800)	.800 (.500-1.30)	314
	05-06	*	< LOD	.100 (<LOD-.200)	.500 (.300-1.10)	1.30 (.700-1.90)	356
	07-08	*	< LOD	< LOD	.300 (.200-.500)	.600 (.300-1.00)	389
	09-10	*	< LOD	.200 (<LOD-.300)	.400 (.300-.700)	.600 (.400-1.20)	415
12-19 years	03-04	.175 (.149-.206)	.200 (.100-.200)	.400 (.300-.500)	.600 (.500-.800)	.900 (.700-1.30)	722
	05-06	*	< LOD	< LOD	.300 (.200-.500)	.600 (.500-.800)	702
	07-08	*	< LOD	< LOD	.100 (.100-.200)	.300 (.200-.600)	401
	09-10	*	< LOD	.200 (<LOD-.300)	.400 (.300-.500)	.600 (.500-.900)	420
20 years and older	03-04	*	.100 (<LOD-.100)	.300 (.200-.400)	.500 (.400-.700)	.800 (.600-1.10)	1489
	05-06	*	< LOD	< LOD	.300 (.100-.400)	.500 (.400-.800)	1490
	07-08	*	< LOD	< LOD	.100 (<LOD-.200)	.300 (.200-.400)	1814
	09-10	*	< LOD	< LOD	.300 (.300-.400)	.500 (.400-.500)	1914
<b>Gender</b>							
Males	03-04	*	.100 (<LOD-.200)	.400 (.300-.400)	.600 (.500-.700)	.800 (.600-1.00)	1231
	05-06	*	< LOD	< LOD	.300 (.200-.400)	.500 (.400-.900)	1270
	07-08	*	< LOD	< LOD	.100 (<LOD-.200)	.300 (.200-.500)	1294
	09-10	*	< LOD	< LOD	.300 (.300-.400)	.500 (.500-.700)	1399
Females	03-04	*	.100 (<LOD-.200)	.300 (.200-.400)	.500 (.400-.700)	.800 (.600-1.20)	1294
	05-06	*	< LOD	< LOD	.300 (.200-.400)	.500 (.400-.800)	1278
	07-08	*	< LOD	< LOD	.100 (<LOD-.200)	.300 (.200-.500)	1310
	09-10	*	< LOD	< LOD	.300 (.300-.400)	.500 (.400-.500)	1350
<b>Race/ethnicity</b>							
Mexican Americans	03-04	.191 (.150-.245)	.200 (.100-.300)	.400 (.300-.600)	.700 (.500-1.10)	1.10 (.600-1.60)	617
	05-06	*	< LOD	< LOD	.400 (.100-.900)	.800 (.400-3.20)	637
	07-08	*	< LOD	< LOD	.100 (<LOD-.300)	.400 (.200-1.10)	531
	09-10	*	< LOD	< LOD	.300 (.200-.400)	.400 (.300-.900)	566
Non-Hispanic blacks	03-04	*	.100 (<LOD-.200)	.400 (.300-.400)	.600 (.500-.800)	1.00 (.600-1.40)	636
	05-06	*	< LOD	< LOD	.400 (.300-.500)	.500 (.400-.700)	678
	07-08	*	< LOD	< LOD	.200 (<LOD-.300)	.400 (.200-.600)	597
	09-10	*	< LOD	.200 (<LOD-.300)	.400 (.300-.600)	.700 (.500-.800)	516
Non-Hispanic whites	03-04	*	.100 (<LOD-.100)	.300 (.200-.400)	.500 (.400-.700)	.800 (.600-1.00)	1077
	05-06	*	< LOD	< LOD	.300 (.100-.400)	.500 (.300-1.10)	1038
	07-08	*	< LOD	< LOD	.100 (<LOD-.200)	.300 (.200-.500)	1077
	09-10	*	< LOD	< LOD	.300 (.300-.400)	.500 (.400-.600)	1206

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08 and 09-10 are 0.1, 0.1, 0.1, and 0.2 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Not measured after Survey years 2009-2010.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Orthophenylphenol\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Orthophenylphenol_BiomonitoringSummary.html)



## Urinary *ortho*-Phenylphenol (creatinine corrected) (2003 – 2010) ‡

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	.150 (<LOD-.170)	.320 (.270-.380)	.670 (.500-.800)	.950 (.750-1.31)	2522
	05-06	*	< LOD	< LOD	.370 (.310-.410)	.600 (.470-.750)	2548
	07-08	*	< LOD	< LOD	.290 (.250-.330)	.470 (.400-.520)	2604
	09-10	*	< LOD	< LOD	.560 (.480-.640)	.820 (.700-.910)	2749
<b>Age group</b>							
6-11 years	03-04	.219 (.189-.255)	.230 (.170-.280)	.400 (.330-.540)	.760 (.530-.860)	.880 (.760-1.90)	314
	05-06	*	< LOD	.180 (<LOD-.240)	.590 (.430-.930)	1.94 (.710-2.94)	356
	07-08	*	< LOD	< LOD	.390 (.240-.660)	.660 (.390-1.31)	389
	09-10	*	< LOD	.410 (<LOD-.480)	.820 (.560-1.06)	1.22 (.850-1.56)	415
12-19 years	03-04	.131 (.110-.156)	.140 (.100-.160)	.270 (.230-.340)	.490 (.400-.690)	.790 (.550-1.30)	720
	05-06	*	< LOD	< LOD	.280 (.220-.320)	.410 (.330-.710)	702
	07-08	*	< LOD	< LOD	.190 (.170-.250)	.330 (.240-.470)	401
	09-10	*	< LOD	.250 (<LOD-.300)	.420 (.300-.550)	.550 (.390-1.20)	420
20 years and older	03-04	*	.140 (<LOD-.170)	.320 (.260-.370)	.670 (.500-.800)	1.00 (.740-1.38)	1488
	05-06	*	< LOD	< LOD	.370 (.300-.410)	.540 (.430-.710)	1490
	07-08	*	< LOD	< LOD	.300 (<LOD-.330)	.470 (.390-.520)	1814
	09-10	*	< LOD	< LOD	.560 (.480-.640)	.820 (.700-.880)	1914
<b>Gender</b>							
Males	03-04	*	.130 (<LOD-.150)	.290 (.240-.340)	.570 (.430-.740)	.880 (.720-1.06)	1230
	05-06	*	< LOD	< LOD	.280 (.200-.350)	.470 (.350-.670)	1270
	07-08	*	< LOD	< LOD	.220 (<LOD-.250)	.350 (.300-.440)	1294
	09-10	*	< LOD	< LOD	.440 (.360-.540)	.670 (.510-.850)	1399
Females	03-04	*	.170 (<LOD-.200)	.350 (.280-.440)	.700 (.500-.940)	1.07 (.730-1.57)	1292
	05-06	*	< LOD	< LOD	.430 (.370-.500)	.700 (.500-1.03)	1278
	07-08	*	< LOD	< LOD	.350 (<LOD-.440)	.500 (.440-.580)	1310
	09-10	*	< LOD	< LOD	.640 (.570-.700)	.930 (.780-1.17)	1350
<b>Race/ethnicity</b>							
Mexican Americans	03-04	.174 (.132-.229)	.170 (.120-.240)	.440 (.280-.590)	.770 (.560-1.09)	1.11 (.770-1.72)	616
	05-06	*	< LOD	< LOD	.370 (.210-.670)	.740 (.390-1.71)	637
	07-08	*	< LOD	< LOD	.250 (<LOD-.290)	.430 (.320-.910)	531
	09-10	*	< LOD	< LOD	.420 (.370-.560)	.680 (.560-.880)	566
Non-Hispanic blacks	03-04	*	.110 (<LOD-.130)	.250 (.200-.310)	.530 (.380-.650)	.770 (.600-1.02)	635
	05-06	*	< LOD	< LOD	.290 (.220-.370)	.440 (.380-.540)	678
	07-08	*	< LOD	< LOD	.210 (<LOD-.250)	.330 (.250-.640)	597
	09-10	*	< LOD	.220 (<LOD-.240)	.370 (.310-.450)	.570 (.440-.860)	516
Non-Hispanic whites	03-04	*	.150 (<LOD-.180)	.330 (.260-.390)	.690 (.470-.830)	1.00 (.740-1.38)	1076
	05-06	*	< LOD	< LOD	.390 (.320-.430)	.610 (.470-.880)	1038
	07-08	*	< LOD	< LOD	.300 (<LOD-.370)	.470 (.390-.580)	1077
	09-10	*	< LOD	< LOD	.610 (.520-.700)	.870 (.700-.940)	1206

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Not measured after Survey years 2009-2010.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Orthophenylphenol\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Orthophenylphenol_BiomonitoringSummary.html)

## Urinary Ethylene thiourea (2003 - 2008)

Metabolite of Several Dithiocarbamate Fungicides

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	.310 (<LOD-.560)	2169
	05-06	*	< LOD	< LOD	.600 (<LOD-1.08)	1.34 (.900-1.75)	2585
	07-08	*	< LOD	< LOD	< LOD	.430 (<LOD-.960)	2571
<b>Age group</b>							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	280
	05-06	*	< LOD	< LOD	.830 (<LOD-1.53)	1.55 (.960-3.11)	342
	07-08	*	< LOD	< LOD	< LOD	.610 (<LOD-1.17)	382
12-19 years	03-04	*	< LOD	< LOD	< LOD	.600 (<LOD-.920)	622
	05-06	*	< LOD	< LOD	.580 (<LOD-1.11)	1.34 (.660-2.23)	698
	07-08	*	< LOD	< LOD	< LOD	.440 (<LOD-.970)	387
20-59 years	03-04	*	< LOD	< LOD	< LOD	.310 (<LOD-.580)	827
	05-06	*	< LOD	< LOD	.750 (.500-1.18)	1.42 (1.05-1.75)	1072
	07-08	*	< LOD	< LOD	< LOD	.510 (<LOD-1.19)	1169
60 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	440
	05-06	*	< LOD	< LOD	< LOD	.360 (<LOD-.780)	473
	07-08	*	< LOD	< LOD	< LOD	< LOD	633
<b>Gender</b>							
Males	03-04	*	< LOD	< LOD	< LOD	.360 (<LOD-.530)	1056
	05-06	*	< LOD	< LOD	.940 (.530-1.19)	1.51 (1.08-2.09)	1219
	07-08	*	< LOD	< LOD	< LOD	.430 (<LOD-1.05)	1289
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1113
	05-06	*	< LOD	< LOD	.370 (<LOD-.890)	.950 (.500-1.58)	1366
	07-08	*	< LOD	< LOD	< LOD	.410 (<LOD-.960)	1282
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	495
	05-06	*	< LOD	< LOD	.440 (<LOD-.960)	1.12 (.650-1.76)	686
	07-08	*	< LOD	< LOD	< LOD	.340 (<LOD-.630)	491
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	.480 (<LOD-1.06)	607
	05-06	*	< LOD	< LOD	1.37 (.790-2.05)	2.22 (1.37-3.77)	695
	07-08	*	< LOD	< LOD	< LOD	.630 (<LOD-2.42)	570
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	.330 (<LOD-.560)	925
	05-06	*	< LOD	< LOD	.570 (<LOD-1.02)	1.18 (.940-1.42)	998
	07-08	*	< LOD	< LOD	< LOD	.300 (<LOD-.750)	1084

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.1, 0.24, and 0.21 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/ETUPTU\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/ETUPTU_BiomonitoringSummary.html)

## Urinary Ethylene thiourea (creatinine corrected) (2003 - 2008)

Metabolite of Several Dithiocarbamate Fungicides

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	.434 (<LOD-.538)	2167
	05-06	*	< LOD	< LOD	.792 (<LOD-1.06)	1.32 (1.06-1.58)	2585
	07-08	*	< LOD	< LOD	< LOD	.789 (<LOD-1.00)	2569
<b>Age group</b>							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	280
	05-06	*	< LOD	< LOD	1.04 (<LOD-1.36)	2.36 (1.16-3.12)	342
	07-08	*	< LOD	< LOD	< LOD	.974 (<LOD-1.50)	382
12-19 years	03-04	*	< LOD	< LOD	< LOD	.423 (<LOD-.700)	621
	05-06	*	< LOD	< LOD	.582 (<LOD-.893)	.967 (.680-1.58)	698
	07-08	*	< LOD	< LOD	< LOD	.417 (<LOD-.652)	385
20-59 years	03-04	*	< LOD	< LOD	< LOD	.425 (<LOD-.506)	826
	05-06	*	< LOD	< LOD	.892 (.708-1.21)	1.36 (1.21-1.78)	1072
	07-08	*	< LOD	< LOD	< LOD	.789 (<LOD-1.31)	1169
60 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	440
	05-06	*	< LOD	< LOD	< LOD	1.00 (<LOD-1.21)	473
	07-08	*	< LOD	< LOD	< LOD	< LOD	633
<b>Gender</b>							
Males	03-04	*	< LOD	< LOD	< LOD	.350 (<LOD-.467)	1055
	05-06	*	< LOD	< LOD	.783 (.634-1.04)	1.28 (1.05-1.45)	1219
	07-08	*	< LOD	< LOD	< LOD	.529 (<LOD-.652)	1288
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1112
	05-06	*	< LOD	< LOD	.827 (<LOD-1.21)	1.33 (1.00-2.01)	1366
	07-08	*	< LOD	< LOD	< LOD	.938 (<LOD-1.25)	1281
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	494
	05-06	*	< LOD	< LOD	.748 (<LOD-1.17)	1.33 (.837-1.89)	686
	07-08	*	< LOD	< LOD	< LOD	.714 (<LOD-1.10)	490
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	.368 (<LOD-.619)	607
	05-06	*	< LOD	< LOD	1.02 (.649-1.74)	1.84 (1.04-2.50)	695
	07-08	*	< LOD	< LOD	< LOD	.652 (<LOD-1.34)	569
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	.434 (<LOD-.583)	924
	05-06	*	< LOD	< LOD	.773 (<LOD-1.04)	1.25 (.968-1.48)	998
	07-08	*	< LOD	< LOD	< LOD	.750 (<LOD-.882)	1084

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/ETUPTU\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/ETUPTU_BiomonitoringSummary.html)

## Urinary Pentachlorophenol (2003 - 2004)

Also a Metabolite of Several Organochlorine Insecticides

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	1.12 (.570-1.58)	2.57 (2.08-2.99)	3.63 (2.98-4.61)	2354
<b>Age group</b>							
6-11 years	03-04	*	< LOD	1.57 (.970-2.25)	3.23 (2.12-5.67)	5.67 (2.94-6.38)	290
12-19 years	03-04	*	< LOD	1.36 (.760-1.99)	2.88 (2.08-3.53)	3.80 (3.06-6.38)	674
20-59 years	03-04	*	< LOD	.980 (<LOD-1.50)	2.40 (1.73-2.79)	3.11 (2.75-3.65)	889
60 years and older	03-04	*	< LOD	1.14 (.540-1.74)	2.76 (2.17-3.60)	4.77 (3.29-5.88)	501
<b>Gender</b>							
Males	03-04	*	< LOD	1.32 (.720-2.05)	2.79 (2.46-3.40)	4.58 (3.50-5.49)	1147
Females	03-04	*	< LOD	.880 (<LOD-1.41)	2.12 (1.71-2.74)	3.20 (2.44-3.84)	1207
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	1.73 (.640-3.38)	2.44 (1.73-3.84)	550
Non-Hispanic blacks	03-04	*	< LOD	1.46 (1.11-1.93)	2.79 (2.22-3.65)	4.06 (3.20-4.77)	610
Non-Hispanic whites	03-04	*	< LOD	1.17 (.580-1.74)	2.66 (2.06-3.23)	3.69 (2.99-5.17)	1039

Limit of detection (LOD, see Data Analysis section) for Survey year 03-04 is 0.5.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Pentachlorophenol\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Pentachlorophenol_BiomonitoringSummary.html)

## Urinary Pentachlorophenol (creatinine corrected) (2003 - 2004)

Also a Metabolite of Several Organochlorine Insecticides

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	1.22 (1.01-1.52)	2.30 (1.84-2.77)	3.44 (2.69-3.96)	2352
<b>Age group</b>							
6-11 years	03-04	*	< LOD	1.75 (1.38-2.69)	3.72 (2.50-4.96)	4.96 (3.59-10.6)	290
12-19 years	03-04	*	< LOD	1.11 (.800-1.28)	1.67 (1.31-2.65)	2.76 (1.64-3.89)	673
20-59 years	03-04	*	< LOD	1.10 (<LOD-1.31)	1.99 (1.66-2.59)	2.92 (2.20-3.81)	888
60 years and older	03-04	*	< LOD	1.65 (1.30-1.99)	2.64 (2.14-3.50)	4.15 (2.92-4.90)	501
<b>Gender</b>							
Males	03-04	*	< LOD	1.10 (.825-1.38)	1.93 (1.62-2.65)	3.23 (2.06-4.94)	1146
Females	03-04	*	< LOD	1.37 (<LOD-1.74)	2.50 (2.13-2.98)	3.50 (2.79-4.07)	1206
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	1.54 (1.01-2.69)	2.33 (1.40-4.62)	549
Non-Hispanic blacks	03-04	*	< LOD	.919 (.679-1.25)	1.88 (1.42-2.77)	2.94 (2.21-3.76)	610
Non-Hispanic whites	03-04	*	< LOD	1.35 (1.08-1.64)	2.42 (1.94-3.18)	3.54 (2.77-4.78)	1038

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Pentachlorophenol\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Pentachlorophenol_BiomonitoringSummary.html)

## Urinary Propylene thiourea (2003 - 2008)

Metabolite of Propineb

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2456
	05-06	*	< LOD	< LOD	< LOD	< LOD	2628
	07-08	*	< LOD	< LOD	< LOD	< LOD	2573
<b>Age group</b>							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	305
	05-06	*	< LOD	< LOD	< LOD	< LOD	349
	07-08	*	< LOD	< LOD	< LOD	< LOD	382
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	702
	05-06	*	< LOD	< LOD	< LOD	< LOD	718
	07-08	*	< LOD	< LOD	< LOD	< LOD	387
20-59 years	03-04	*	< LOD	< LOD	< LOD	< LOD	926
	05-06	*	< LOD	< LOD	< LOD	< LOD	1086
	07-08	*	< LOD	< LOD	< LOD	< LOD	1170
60 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	523
	05-06	*	< LOD	< LOD	< LOD	< LOD	475
	07-08	*	< LOD	< LOD	< LOD	< LOD	634
<b>Gender</b>							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1209
	05-06	*	< LOD	< LOD	< LOD	< LOD	1246
	07-08	*	< LOD	< LOD	< LOD	< LOD	1289
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1247
	05-06	*	< LOD	< LOD	< LOD	< LOD	1382
	07-08	*	< LOD	< LOD	< LOD	< LOD	1284
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	598
	05-06	*	< LOD	< LOD	< LOD	< LOD	693
	07-08	*	< LOD	< LOD	< LOD	< LOD	493
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	637
	05-06	*	< LOD	< LOD	< LOD	< LOD	720
	07-08	*	< LOD	< LOD	< LOD	< LOD	570
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1062
	05-06	*	< LOD	< LOD	< LOD	< LOD	1006
	07-08	*	< LOD	< LOD	< LOD	< LOD	1084

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.1, 0.37, and 0.36 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/ETUPTU\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/ETUPTU_BiomonitoringSummary.html)

## Urinary Propylene thiourea (creatinine corrected) (2003 - 2008)

Metabolite of Propineb

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2454
	05-06	*	< LOD	< LOD	< LOD	< LOD	2628
	07-08	*	< LOD	< LOD	< LOD	< LOD	2571
<b>Age group</b>							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	305
	05-06	*	< LOD	< LOD	< LOD	< LOD	349
	07-08	*	< LOD	< LOD	< LOD	< LOD	382
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	701
	05-06	*	< LOD	< LOD	< LOD	< LOD	718
	07-08	*	< LOD	< LOD	< LOD	< LOD	385
20-59 years	03-04	*	< LOD	< LOD	< LOD	< LOD	925
	05-06	*	< LOD	< LOD	< LOD	< LOD	1086
	07-08	*	< LOD	< LOD	< LOD	< LOD	1170
60 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	523
	05-06	*	< LOD	< LOD	< LOD	< LOD	475
	07-08	*	< LOD	< LOD	< LOD	< LOD	634
<b>Gender</b>							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1208
	05-06	*	< LOD	< LOD	< LOD	< LOD	1246
	07-08	*	< LOD	< LOD	< LOD	< LOD	1288
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1246
	05-06	*	< LOD	< LOD	< LOD	< LOD	1382
	07-08	*	< LOD	< LOD	< LOD	< LOD	1283
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	597
	05-06	*	< LOD	< LOD	< LOD	< LOD	693
	07-08	*	< LOD	< LOD	< LOD	< LOD	492
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	637
	05-06	*	< LOD	< LOD	< LOD	< LOD	720
	07-08	*	< LOD	< LOD	< LOD	< LOD	569
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1061
	05-06	*	< LOD	< LOD	< LOD	< LOD	1006
	07-08	*	< LOD	< LOD	< LOD	< LOD	1084

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/ETUPTU\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/ETUPTU_BiomonitoringSummary.html)

## Urinary Atrazine (2007 - 2008)‡

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Total</b>	07-08	*	< LOD	< LOD	< LOD	< LOD	2588
<b>Age group</b>							
6-11 years	07-08	*	< LOD	< LOD	< LOD	< LOD	384
12-19 years	07-08	*	< LOD	< LOD	< LOD	< LOD	390
20-59 years	07-08	*	< LOD	< LOD	< LOD	< LOD	1179
60 years and older	07-08	*	< LOD	< LOD	< LOD	< LOD	635
<b>Gender</b>							
Males	07-08	*	< LOD	< LOD	< LOD	< LOD	1294
Females	07-08	*	< LOD	< LOD	< LOD	< LOD	1294
<b>Race/ethnicity</b>							
Mexican Americans	07-08	*	< LOD	< LOD	< LOD	< LOD	501
Non-Hispanic blacks	07-08	*	< LOD	< LOD	< LOD	< LOD	573
Non-Hispanic whites	07-08	*	< LOD	< LOD	< LOD	< LOD	1085

Limit of detection (LOD, see Data Analysis section) for Survey year 07-08 is 0.5.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Only measured in Survey years 2007-2008.



## Urinary Atrazine (creatinine corrected) (2007 - 2008)‡

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	07-08	*	< LOD	< LOD	< LOD	< LOD	2586
<b>Age group</b>							
6-11 years	07-08	*	< LOD	< LOD	< LOD	< LOD	384
12-19 years	07-08	*	< LOD	< LOD	< LOD	< LOD	388
20-59 years	07-08	*	< LOD	< LOD	< LOD	< LOD	1179
60 years and older	07-08	*	< LOD	< LOD	< LOD	< LOD	635
<b>Gender</b>							
Males	07-08	*	< LOD	< LOD	< LOD	< LOD	1293
Females	07-08	*	< LOD	< LOD	< LOD	< LOD	1293
<b>Race/ethnicity</b>							
Mexican Americans	07-08	*	< LOD	< LOD	< LOD	< LOD	500
Non-Hispanic blacks	07-08	*	< LOD	< LOD	< LOD	< LOD	572
Non-Hispanic whites	07-08	*	< LOD	< LOD	< LOD	< LOD	1085

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Only measured in Survey years 2007-2008.

## Urinary Atrazine mercapturate (2007 - 2008)‡

Metabolite of Atrazine

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	07-08	*	< LOD	< LOD	< LOD	< LOD	2588
<b>Age group</b>							
6-11 years	07-08	*	< LOD	< LOD	< LOD	< LOD	384
12-19 years	07-08	*	< LOD	< LOD	< LOD	< LOD	390
20-59 years	07-08	*	< LOD	< LOD	< LOD	< LOD	1179
60 years and older	07-08	*	< LOD	< LOD	< LOD	< LOD	635
<b>Gender</b>							
Males	07-08	*	< LOD	< LOD	< LOD	< LOD	1294
Females	07-08	*	< LOD	< LOD	< LOD	< LOD	1294
<b>Race/ethnicity</b>							
Mexican Americans	07-08	*	< LOD	< LOD	< LOD	< LOD	501
Non-Hispanic blacks	07-08	*	< LOD	< LOD	< LOD	< LOD	573
Non-Hispanic whites	07-08	*	< LOD	< LOD	< LOD	< LOD	1085

Limit of detection (LOD, see Data Analysis section) for Survey year 07-08 is 0.5.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Only measured in Survey years 2007-2008.

## Urinary Atrazine mercapturate (creatinine corrected) (2007 - 2008)‡

Metabolite of Atrazine

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	07-08	*	< LOD	< LOD	< LOD	< LOD	2586
<b>Age group</b>							
6-11 years	07-08	*	< LOD	< LOD	< LOD	< LOD	384
12-19 years	07-08	*	< LOD	< LOD	< LOD	< LOD	388
20-59 years	07-08	*	< LOD	< LOD	< LOD	< LOD	1179
60 years and older	07-08	*	< LOD	< LOD	< LOD	< LOD	635
<b>Gender</b>							
Males	07-08	*	< LOD	< LOD	< LOD	< LOD	1293
Females	07-08	*	< LOD	< LOD	< LOD	< LOD	1293
<b>Race/ethnicity</b>							
Mexican Americans	07-08	*	< LOD	< LOD	< LOD	< LOD	500
Non-Hispanic blacks	07-08	*	< LOD	< LOD	< LOD	< LOD	572
Non-Hispanic whites	07-08	*	< LOD	< LOD	< LOD	< LOD	1085

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Only measured in Survey years 2007-2008.

## Urinary Desethyl atrazine (2007 - 2008)‡

Metabolite of Atrazine

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	07-08	*	< LOD	< LOD	< LOD	< LOD	2482
<b>Age group</b>							
6-11 years	07-08	*	< LOD	< LOD	< LOD	< LOD	360
12-19 years	07-08	*	< LOD	< LOD	< LOD	< LOD	382
20-59 years	07-08	*	< LOD	< LOD	< LOD	< LOD	1129
60 years and older	07-08	*	< LOD	< LOD	< LOD	< LOD	611
<b>Gender</b>							
Males	07-08	*	< LOD	< LOD	< LOD	< LOD	1234
Females	07-08	*	< LOD	< LOD	< LOD	< LOD	1248
<b>Race/ethnicity</b>							
Mexican Americans	07-08	*	< LOD	< LOD	< LOD	< LOD	462
Non-Hispanic blacks	07-08	*	< LOD	< LOD	< LOD	< LOD	563
Non-Hispanic whites	07-08	*	< LOD	< LOD	< LOD	< LOD	1048

Limit of detection (LOD, see Data Analysis section) for Survey year 07-08 is 0.25.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Only measured in Survey years 2007-2008.

## Urinary Desethyl atrazine (creatinine corrected) (2007 - 2008)‡

Metabolite of Atrazine

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	07-08	*	< LOD	< LOD	< LOD	< LOD	2480
<b>Age group</b>							
6-11 years	07-08	*	< LOD	< LOD	< LOD	< LOD	360
12-19 years	07-08	*	< LOD	< LOD	< LOD	< LOD	380
20-59 years	07-08	*	< LOD	< LOD	< LOD	< LOD	1129
60 years and older	07-08	*	< LOD	< LOD	< LOD	< LOD	611
<b>Gender</b>							
Males	07-08	*	< LOD	< LOD	< LOD	< LOD	1233
Females	07-08	*	< LOD	< LOD	< LOD	< LOD	1247
<b>Race/ethnicity</b>							
Mexican Americans	07-08	*	< LOD	< LOD	< LOD	< LOD	461
Non-Hispanic blacks	07-08	*	< LOD	< LOD	< LOD	< LOD	562
Non-Hispanic whites	07-08	*	< LOD	< LOD	< LOD	< LOD	1048

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Only measured in Survey years 2007-2008.

## Urinary Desisopropyl atrazine (2007 - 2008)‡

Metabolite of Atrazine

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	07-08	*	< LOD	< LOD	< LOD	< LOD	2445
<b>Age group</b>							
6-11 years	07-08	*	< LOD	< LOD	< LOD	< LOD	367
12-19 years	07-08	*	< LOD	< LOD	< LOD	< LOD	361
20-59 years	07-08	*	< LOD	< LOD	< LOD	< LOD	1113
60 years and older	07-08	*	< LOD	< LOD	< LOD	< LOD	604
<b>Gender</b>							
Males	07-08	*	< LOD	< LOD	< LOD	< LOD	1224
Females	07-08	*	< LOD	< LOD	< LOD	< LOD	1221
<b>Race/ethnicity</b>							
Mexican Americans	07-08	*	< LOD	< LOD	< LOD	< LOD	493
Non-Hispanic blacks	07-08	*	< LOD	< LOD	< LOD	< LOD	537
Non-Hispanic whites	07-08	*	< LOD	< LOD	< LOD	< LOD	1010

Limit of detection (LOD, see Data Analysis section) for Survey year 07-08 is 0.25.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Only measured in Survey years 2007-2008.

## Urinary Desisopropyl atrazine (creatinine corrected) (2007 - 2008)‡

Metabolite of Atrazine

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	07-08	*	< LOD	< LOD	< LOD	< LOD	2444
<b>Age group</b>							
6-11 years	07-08	*	< LOD	< LOD	< LOD	< LOD	367
12-19 years	07-08	*	< LOD	< LOD	< LOD	< LOD	360
20-59 years	07-08	*	< LOD	< LOD	< LOD	< LOD	1113
60 years and older	07-08	*	< LOD	< LOD	< LOD	< LOD	604
<b>Gender</b>							
Males	07-08	*	< LOD	< LOD	< LOD	< LOD	1223
Females	07-08	*	< LOD	< LOD	< LOD	< LOD	1221
<b>Race/ethnicity</b>							
Mexican Americans	07-08	*	< LOD	< LOD	< LOD	< LOD	492
Non-Hispanic blacks	07-08	*	< LOD	< LOD	< LOD	< LOD	537
Non-Hispanic whites	07-08	*	< LOD	< LOD	< LOD	< LOD	1010

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Only measured in Survey years 2007-2008.

## Urinary Desisopropyl atrazine mercapturate (2007 – 2008)‡

Metabolite of Atrazine

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	07-08	*	< LOD	< LOD	< LOD	< LOD	2480
<b>Age group</b>							
6-11 years	07-08	*	< LOD	< LOD	< LOD	< LOD	366
12-19 years	07-08	*	< LOD	< LOD	< LOD	< LOD	372
20-59 years	07-08	*	< LOD	< LOD	< LOD	< LOD	1135
60 years and older	07-08	*	< LOD	< LOD	< LOD	< LOD	607
<b>Gender</b>							
Males	07-08	*	< LOD	< LOD	< LOD	< LOD	1233
Females	07-08	*	< LOD	< LOD	< LOD	< LOD	1247
<b>Race/ethnicity</b>							
Mexican Americans	07-08	*	< LOD	< LOD	< LOD	< LOD	486
Non-Hispanic blacks	07-08	*	< LOD	< LOD	< LOD	< LOD	531
Non-Hispanic whites	07-08	*	< LOD	< LOD	< LOD	< LOD	1039

Limit of detection (LOD, see Data Analysis section) for Survey year 07-08 is 0.1.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Only measured in Survey years 2007-2008.



## Urinary Desisopropyl atrazine mercapturate (creatinine corrected) (2007 – 2008)‡

Metabolite of Atrazine

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	07-08	*	< LOD	< LOD	< LOD	< LOD	2478
<b>Age group</b>							
6-11 years	07-08	*	< LOD	< LOD	< LOD	< LOD	366
12-19 years	07-08	*	< LOD	< LOD	< LOD	< LOD	370
20-59 years	07-08	*	< LOD	< LOD	< LOD	< LOD	1135
60 years and older	07-08	*	< LOD	< LOD	< LOD	< LOD	607
<b>Gender</b>							
Males	07-08	*	< LOD	< LOD	< LOD	< LOD	1232
Females	07-08	*	< LOD	< LOD	< LOD	< LOD	1246
<b>Race/ethnicity</b>							
Mexican Americans	07-08	*	< LOD	< LOD	< LOD	< LOD	485
Non-Hispanic blacks	07-08	*	< LOD	< LOD	< LOD	< LOD	530
Non-Hispanic whites	07-08	*	< LOD	< LOD	< LOD	< LOD	1039

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Only measured in Survey years 2007-2008.

## Urinary Diaminochloroatrazine (2007 - 2008)‡

Metabolite of Atrazine

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	07-08	*	< LOD	< LOD	< LOD	< LOD	2588
<b>Age group</b>							
6-11 years	07-08	*	< LOD	< LOD	< LOD	< LOD	384
12-19 years	07-08	*	< LOD	< LOD	< LOD	< LOD	390
20-59 years	07-08	*	< LOD	< LOD	< LOD	< LOD	1179
60 years and older	07-08	*	< LOD	< LOD	< LOD	< LOD	635
<b>Gender</b>							
Males	07-08	*	< LOD	< LOD	< LOD	< LOD	1294
Females	07-08	*	< LOD	< LOD	< LOD	< LOD	1294
<b>Race/ethnicity</b>							
Mexican Americans	07-08	*	< LOD	< LOD	< LOD	< LOD	501
Non-Hispanic blacks	07-08	*	< LOD	< LOD	< LOD	< LOD	573
Non-Hispanic whites	07-08	*	< LOD	< LOD	< LOD	< LOD	1085

Limit of detection (LOD, see Data Analysis section) for Survey year 07-08 is 0.5.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Only measured in Survey years 2007-2008.

## Urinary Diaminochloroatrazine (creatinine corrected) (2007 - 2008)‡

Metabolite of Atrazine

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	07-08	*	< LOD	< LOD	< LOD	< LOD	2586
<b>Age group</b>							
6-11 years	07-08	*	< LOD	< LOD	< LOD	< LOD	384
12-19 years	07-08	*	< LOD	< LOD	< LOD	< LOD	388
20-59 years	07-08	*	< LOD	< LOD	< LOD	< LOD	1179
60 years and older	07-08	*	< LOD	< LOD	< LOD	< LOD	635
<b>Gender</b>							
Males	07-08	*	< LOD	< LOD	< LOD	< LOD	1293
Females	07-08	*	< LOD	< LOD	< LOD	< LOD	1293
<b>Race/ethnicity</b>							
Mexican Americans	07-08	*	< LOD	< LOD	< LOD	< LOD	500
Non-Hispanic blacks	07-08	*	< LOD	< LOD	< LOD	< LOD	572
Non-Hispanic whites	07-08	*	< LOD	< LOD	< LOD	< LOD	1085

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Only measured in Survey years 2007-2008.

## Urinary 2,4-Dichlorophenoxyacetic acid (1999 - 2010)‡

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size	
Total	99-00	*	< LOD	< LOD	< LOD	< LOD	1977	
	01-02	*	< LOD	.220 (<LOD-.310)	.690 (.560-.880)	1.26 (1.01-1.36)	2903	
	03-04	.245 (.210-.286)	.230 (.180-.320)	.580 (.490-.660)	1.10 (.910-1.34)	1.71 (1.41-2.37)	2488	
	07-08	*	< LOD	.550 (.530-.590)	1.06 (.940-1.19)	1.60 (1.38-1.79)	2587	
	09-10	.308 (.275-.345)	.280 (.250-.320)	.530 (.470-.600)	.930 (.810-1.08)	1.43 (1.12-2.02)	2747	
Age group	6-11 years	99-00	*	< LOD	< LOD	< LOD	1.30 (<LOD-2.40)	477
		01-02	*	< LOD	.310 (.210-.400)	.740 (.550-1.13)	1.55 (1.00-2.21)	546
		03-04	.266 (.214-.332)	.290 (.200-.390)	.670 (.440-.920)	1.03 (.890-1.40)	1.88 (1.01-2.54)	309
		07-08	*	< LOD	.720 (.630-.860)	1.44 (1.15-1.64)	1.93 (1.62-2.84)	385
		09-10	.385 (.330-.449)	.350 (.290-.440)	.670 (.510-.780)	1.20 (.860-1.58)	1.59 (1.36-2.77)	386
	12-19 years	99-00	*	< LOD	< LOD	< LOD	1.10 (<LOD-1.60)	677
		01-02	*	< LOD	.250 (<LOD-.420)	.690 (.440-1.16)	1.24 (.690-1.66)	797
		03-04	.256 (.212-.310)	.260 (.180-.380)	.580 (.470-.710)	1.04 (.890-1.31)	1.66 (1.20-2.97)	714
		07-08	*	< LOD	.590 (.530-.670)	1.29 (.790-1.97)	2.38 (1.46-2.73)	390
		09-10	.301 (.248-.366)	.280 (.240-.330)	.490 (.420-.620)	.900 (.660-1.05)	1.12 (.880-2.88)	401
	20-59 years	99-00	*	< LOD	< LOD	< LOD	< LOD	823
		01-02	*	< LOD	.210 (<LOD-.310)	.690 (.540-.910)	1.27 (.930-1.49)	1070
		03-04	.239 (.205-.279)	.220 (.170-.300)	.570 (.480-.640)	.980 (.840-1.35)	1.55 (1.25-2.50)	937
		07-08	*	< LOD	.530 (.490-.570)	.970 (.800-1.17)	1.36 (1.22-1.78)	1179
		09-10	.288 (.259-.319)	.270 (.230-.310)	.500 (.440-.560)	.870 (.740-1.04)	1.33 (1.05-1.69)	1309
60 years and older	01-02	*	< LOD	< LOD	.560 (.390-.870)	1.26 (.690-1.78)	490	
	03-04	.248 (.205-.301)	.210 (.130-.320)	.560 (.470-.680)	1.36 (1.07-1.90)	2.42 (1.66-3.67)	528	
	07-08	*	< LOD	.560 (.530-.640)	1.02 (.840-1.12)	1.46 (1.10-2.11)	633	
	09-10	.349 (.294-.414)	.300 (.230-.390)	.590 (.510-.720)	1.11 (.810-1.57)	2.08 (1.16-5.40)	651	
Gender	Males	99-00	*	< LOD	< LOD	< LOD	1.10 (<LOD-1.80)	962
		01-02	*	< LOD	.330 (.220-.490)	.890 (.690-1.17)	1.49 (1.26-2.03)	1364
		03-04	.276 (.240-.317)	.290 (.210-.370)	.630 (.540-.740)	1.22 (.960-1.42)	2.12 (1.42-2.73)	1218
		07-08	*	< LOD	.610 (.580-.650)	1.26 (1.05-1.38)	2.11 (1.68-2.41)	1292
		09-10	.347 (.298-.404)	.320 (.270-.370)	.580 (.500-.690)	1.05 (.810-1.47)	1.82 (1.12-4.14)	1343
	Females	99-00	*	< LOD	< LOD	< LOD	< LOD	1015
		01-02	*	< LOD	< LOD	.470 (.360-.620)	.890 (.670-1.21)	1539
		03-04	.219 (.181-.264)	.190 (.110-.280)	.490 (.400-.630)	.980 (.860-1.33)	1.48 (1.31-2.27)	1270
		07-08	*	< LOD	.500 (.460-.540)	.870 (.790-1.01)	1.28 (1.12-1.42)	1295
		09-10	.275 (.250-.303)	.260 (.220-.300)	.480 (.440-.540)	.860 (.740-.950)	1.14 (.970-1.39)	1404

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 07-08 and 09-10 are 0.952, 0.2, and 0.1, 0.4 and 0.15 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Not measured in Survey years 2005-2006

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/2,4-DichlorophenoxyaceticAcid\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/2,4-DichlorophenoxyaceticAcid_BiomonitoringSummary.html)

## Urinary 2,4-Dichlorophenoxyacetic acid (1999 - 2010) ‡

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00	*	< LOD	< LOD	< LOD	< LOD	695
	01-02	*	< LOD	.250 (<LOD-.330)	.730 (.610-.890)	1.20 (.960-1.36)	743
	03-04	.313 (.256-.383)	.340 (.260-.440)	.730 (.610-.840)	1.42 (1.02-1.52)	1.81 (1.23-3.53)	606
	07-08	*	< LOD	.520 (.470-.590)	.860 (.790-1.00)	1.46 (.950-2.22)	500
	09-10	.276 (.240-.318)	.250 (.210-.300)	.470 (.410-.570)	.840 (.680-1.08)	1.23 (.830-2.02)	602
Non-Hispanic blacks	99-00	*	< LOD	< LOD	< LOD	1.20 (<LOD-1.70)	520
	01-02	*	< LOD	< LOD	.560 (.420-.890)	1.06 (.790-1.48)	743
	03-04	*	.190 (<LOD-.290)	.510 (.380-.630)	.910 (.750-1.22)	1.31 (.990-1.98)	648
	07-08	*	< LOD	.580 (.530-.630)	1.05 (.910-1.20)	1.49 (1.23-1.97)	574
	09-10	.284 (.251-.321)	.260 (.240-.290)	.460 (.390-.540)	.790 (.620-1.03)	1.11 (.790-1.81)	504
Non-Hispanic whites	99-00	*	< LOD	< LOD	< LOD	< LOD	589
	01-02	*	< LOD	.240 (<LOD-.360)	.730 (.560-.980)	1.30 (1.01-1.66)	1201
	03-04	.254 (.211-.306)	.240 (.180-.360)	.590 (.470-.720)	1.17 (.930-1.41)	2.00 (1.40-2.51)	1076
	07-08	*	< LOD	.560 (.540-.600)	1.12 (.940-1.29)	1.61 (1.36-2.16)	1083
	09-10	.328 (.281-.382)	.300 (.250-.370)	.570 (.480-.680)	.980 (.830-1.20)	1.57 (1.14-2.77)	1200

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 07-08 and 07-08 are 0.952, 0.2, and 0.1, 0.4 and 0.15 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Not measured in Survey years 2005-2006

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/2,4-DichlorophenoxyaceticAcid\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/2,4-DichlorophenoxyaceticAcid_BiomonitoringSummary.html)

## Urinary 2,4-Dichlorophenoxyacetic acid (creatinine corrected) (1999 - 2010)‡

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	< LOD	< LOD	< LOD	1977
	01-02	*	< LOD	.378 (<LOD-.412)	.700 (.635-.778)	1.12 (1.03-1.26)	2901
	03-04	.241 (.203-.287)	.253 (.206-.290)	.500 (.423-.610)	1.03 (.855-1.28)	1.85 (1.42-2.50)	2486
	07-08	*	< LOD	.737 (.667-.779)	1.28 (1.17-1.40)	1.84 (1.65-2.12)	2585
	09-10	.321 (.286-.360)	.301 (.272-.329)	.500 (.458-.573)	.983 (.846-1.19)	1.55 (1.30-2.12)	2747
Age group 6-11 years	99-00	*	< LOD	< LOD	< LOD	1.32 (<LOD-2.24)	477
	01-02	*	< LOD	.485 (.378-.679)	1.13 (.825-1.35)	1.41 (1.27-1.73)	546
	03-04	.323 (.249-.421)	.320 (.250-.440)	.744 (.500-1.06)	1.30 (.990-2.55)	2.55 (1.23-5.16)	309
	07-08	*	< LOD	.970 (.817-1.24)	1.65 (1.47-1.85)	2.96 (1.65-6.18)	385
	09-10	.521 (.444-.610)	.478 (.411-.531)	.792 (.674-1.06)	1.52 (1.21-1.74)	2.20 (1.53-3.02)	386
12-19 years	99-00	*	< LOD	< LOD	< LOD	.593 (<LOD-1.05)	677
	01-02	*	< LOD	.275 (<LOD-.376)	.483 (.328-.662)	.662 (.517-.918)	796
	03-04	.193 (.160-.232)	.205 (.157-.250)	.419 (.328-.460)	.709 (.540-.925)	1.23 (.837-2.35)	713
	07-08	*	< LOD	.555 (.475-.651)	.908 (.778-1.05)	1.56 (.950-2.79)	388
	09-10	.258 (.212-.314)	.256 (.200-.299)	.358 (.320-.439)	.706 (.439-1.05)	1.05 (.579-3.27)	401
20-59 years	99-00	*	< LOD	< LOD	< LOD	< LOD	823
	01-02	*	< LOD	.378 (<LOD-.412)	.667 (.593-.778)	1.08 (.806-1.29)	1070
	03-04	.227 (.188-.274)	.242 (.196-.278)	.452 (.397-.545)	.923 (.708-1.20)	1.48 (1.14-2.43)	936
	07-08	*	< LOD	.667 (.588-.769)	1.17 (1.04-1.34)	1.65 (1.43-2.33)	1179
	09-10	.288 (.259-.321)	.276 (.250-.309)	.458 (.418-.507)	.860 (.750-.962)	1.36 (1.00-1.88)	1309
60 years and older	01-02	*	< LOD	< LOD	.824 (.583-1.10)	1.34 (1.00-2.16)	489
	03-04	.301 (.248-.366)	.310 (.237-.385)	.657 (.510-.866)	1.54 (1.16-1.95)	3.00 (1.95-6.36)	528
	07-08	*	< LOD	.860 (.781-.903)	1.53 (1.27-1.72)	1.96 (1.60-2.33)	633
	09-10	.414 (.356-.480)	.354 (.306-.407)	.667 (.548-.812)	1.41 (.983-1.99)	2.87 (1.49-4.49)	651
	Gender Males	99-00	*	< LOD	< LOD	< LOD	.667 (<LOD-1.16)
01-02		*	< LOD	.336 (.272-.412)	.652 (.560-.825)	1.14 (.979-1.39)	1364
03-04		.227 (.189-.271)	.238 (.194-.276)	.473 (.412-.564)	.941 (.767-1.23)	1.80 (1.09-2.79)	1217
07-08		*	< LOD	.596 (.538-.670)	1.14 (.980-1.24)	1.63 (1.47-2.15)	1291
09-10		.309 (.266-.359)	.282 (.242-.323)	.481 (.413-.554)	1.01 (.707-1.57)	1.80 (1.06-3.88)	1343
Females	99-00	*	< LOD	< LOD	< LOD	< LOD	1015
	01-02	*	< LOD	< LOD	.711 (.631-.809)	1.10 (.933-1.26)	1537
	03-04	.256 (.213-.308)	.263 (.212-.311)	.522 (.435-.645)	1.14 (.900-1.42)	1.85 (1.42-2.64)	1269
	07-08	*	< LOD	.854 (.757-.903)	1.47 (1.23-1.58)	1.91 (1.65-2.33)	1294
	09-10	.334 (.302-.369)	.319 (.288-.355)	.533 (.475-.611)	.953 (.862-1.10)	1.40 (1.21-1.55)	1404

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\*Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Not measured in Survey years 2005-2006

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/2,4-DichlorophenoxyaceticAcid\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/2,4-DichlorophenoxyaceticAcid_BiomonitoringSummary.html)

## Urinary 2,4-Dichlorophenoxyacetic acid (creatinine corrected) (1999 - 2010)‡

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00	*	< LOD	< LOD	< LOD	< LOD	695
	01-02	*	< LOD	.350 (<LOD-.386)	.720 (.583-.840)	1.08 (.778-1.56)	743
	03-04	.287 (.223-.371)	.309 (.194-.459)	.593 (.463-.771)	1.08 (.833-1.36)	1.54 (1.17-3.19)	605
	07-08	*	< LOD	.622 (.571-.691)	1.15 (.903-1.43)	1.74 (1.37-2.33)	499
	09-10	.289 (.255-.326)	.282 (.255-.300)	.434 (.392-.495)	.781 (.565-1.11)	1.30 (.733-2.63)	602
Non-Hispanic blacks	99-00	*	< LOD	< LOD	< LOD	.593 (<LOD-1.19)	520
	01-02	*	< LOD	< LOD	.467 (.349-.583)	.778 (.552-.975)	742
	03-04	*	.140 (<LOD-.194)	.304 (.264-.356)	.629 (.461-.815)	.970 (.719-1.50)	648
	07-08	*	< LOD	.509 (.457-.596)	.966 (.875-1.07)	1.33 (1.12-1.75)	573
	09-10	.215 (.192-.240)	.195 (.180-.218)	.344 (.314-.400)	.628 (.489-.822)	1.06 (.714-1.38)	504
Non-Hispanic whites	99-00	*	< LOD	< LOD	< LOD	< LOD	589
	01-02	*	< LOD	.412 (<LOD-.455)	.769 (.667-.894)	1.25 (1.05-1.40)	1200
	03-04	.263 (.213-.326)	.269 (.226-.318)	.539 (.434-.665)	1.13 (.941-1.46)	2.34 (1.54-2.73)	1075
	07-08	*	< LOD	.780 (.737-.871)	1.36 (1.17-1.55)	2.00 (1.60-2.49)	1083
	09-10	.357 (.308-.414)	.328 (.288-.384)	.547 (.485-.644)	1.10 (.897-1.40)	1.79 (1.35-3.02)	1200

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Not measured in Survey years 2005-2006

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/2,4-DichlorophenoxyaceticAcid\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/2,4-DichlorophenoxyaceticAcid_BiomonitoringSummary.html)

## Urinary 2,4,5-Trichlorophenoxyacetic acid (1999 - 2010)‡

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	< LOD	< LOD	< LOD	1814
	01-02	*	< LOD	< LOD	< LOD	< LOD	3047
	03-04	*	< LOD	< LOD	< LOD	.140 (<LOD-.210)	2416
	07-08	*	< LOD	< LOD	< LOD	< LOD	2588
	09-10	*	< LOD	< LOD	< LOD	< LOD	2747
<b>Age group</b>							
6-11 years	99-00	*	< LOD	< LOD	< LOD	< LOD	430
	01-02	*	< LOD	< LOD	< LOD	< LOD	580
	03-04	*	< LOD	< LOD	< LOD	.110 (<LOD-.160)	303
	07-08	*	< LOD	< LOD	< LOD	< LOD	385
	09-10	*	< LOD	< LOD	< LOD	< LOD	386
12-19 years	99-00	*	< LOD	< LOD	< LOD	< LOD	618
	01-02	*	< LOD	< LOD	< LOD	< LOD	831
	03-04	*	< LOD	< LOD	< LOD	.140 (<LOD-.190)	701
	07-08	*	< LOD	< LOD	< LOD	< LOD	390
	09-10	*	< LOD	< LOD	< LOD	< LOD	401
20-59 years	99-00	*	< LOD	< LOD	< LOD	< LOD	766
	01-02	*	< LOD	< LOD	< LOD	< LOD	1127
	03-04	*	< LOD	< LOD	< LOD	.160 (<LOD-.250)	908
	07-08	*	< LOD	< LOD	< LOD	< LOD	1180
	09-10	*	< LOD	< LOD	< LOD	< LOD	1309
60 years and older	01-02	*	< LOD	< LOD	< LOD	< LOD	509
	03-04	*	< LOD	< LOD	< LOD	.140 (<LOD-.230)	504
	07-08	*	< LOD	< LOD	< LOD	< LOD	633
	09-10	*	< LOD	< LOD	< LOD	< LOD	651
<b>Gender</b>							
Males	99-00	*	< LOD	< LOD	< LOD	< LOD	891
	01-02	*	< LOD	< LOD	< LOD	< LOD	1428
	03-04	*	< LOD	< LOD	< LOD	.140 (<LOD-.210)	1184
	07-08	*	< LOD	< LOD	< LOD	< LOD	1293
	09-10	*	< LOD	< LOD	< LOD	< LOD	1343
Females	99-00	*	< LOD	< LOD	< LOD	< LOD	923
	01-02	*	< LOD	< LOD	< LOD	< LOD	1619
	03-04	*	< LOD	< LOD	< LOD	.150 (<LOD-.230)	1232
	07-08	*	< LOD	< LOD	< LOD	< LOD	1295
	09-10	*	< LOD	< LOD	< LOD	< LOD	1404

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 07-08 and 09-10 are 1.2, 0.1, and 0.1, 0.1 and 0.1 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Not measured in Survey years 2005-2006 or after Survey years 2009-2010.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/2,4,5-TrichlorophenoxyaceticAcid\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/2,4,5-TrichlorophenoxyaceticAcid_BiomonitoringSummary.html)



## Urinary 2,4,5-Trichlorophenoxyacetic acid (1999 - 2010) ‡

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00	*	< LOD	< LOD	< LOD	< LOD	652
	01-02	*	< LOD	< LOD	< LOD	< LOD	766
	03-04	*	< LOD	< LOD	< LOD	< LOD	605
	07-08	*	< LOD	< LOD	< LOD	< LOD	500
	09-10	*	< LOD	< LOD	< LOD	< LOD	602
Non-Hispanic blacks	99-00	*	< LOD	< LOD	< LOD	< LOD	483
	01-02	*	< LOD	< LOD	< LOD	< LOD	776
	03-04	*	< LOD	< LOD	< LOD	< LOD	641
	07-08	*	< LOD	< LOD	< LOD	< LOD	574
	09-10	*	< LOD	< LOD	< LOD	< LOD	504
Non-Hispanic whites	99-00	*	< LOD	< LOD	< LOD	< LOD	531
	01-02	*	< LOD	< LOD	< LOD	< LOD	1281
	03-04	*	< LOD	< LOD	< LOD	< LOD	1013
	07-08	*	< LOD	< LOD	< LOD	< LOD	1084
	09-10	*	< LOD	< LOD	< LOD	< LOD	1200

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 07-08 and 07-08 are 1.2, 0.1, and 0.1, 0.1 and 0.1 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Not measured in Survey years 2005-2006 or after Survey years 2009-2010.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/2,4,5-TrichlorophenoxyaceticAcid\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/2,4,5-TrichlorophenoxyaceticAcid_BiomonitoringSummary.html)

## Urinary 2,4,5-Trichlorophenoxyacetic acid (creatinine corrected) (1999 - 2010)‡

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	< LOD	< LOD	< LOD	1814
	01-02	*	< LOD	< LOD	< LOD	< LOD	3045
	03-04	*	< LOD	< LOD	< LOD	.333 (<LOD-.412)	2414
	07-08	*	< LOD	< LOD	< LOD	< LOD	2586
	09-10	*	< LOD	< LOD	< LOD	< LOD	2747
<b>Age group</b>							
6-11 years	99-00	*	< LOD	< LOD	< LOD	< LOD	430
	01-02	*	< LOD	< LOD	< LOD	< LOD	580
	03-04	*	< LOD	< LOD	< LOD	.318 (<LOD-.368)	303
	07-08	*	< LOD	< LOD	< LOD	< LOD	385
	09-10	*	< LOD	< LOD	< LOD	< LOD	386
12-19 years	99-00	*	< LOD	< LOD	< LOD	< LOD	618
	01-02	*	< LOD	< LOD	< LOD	< LOD	830
	03-04	*	< LOD	< LOD	< LOD	.226 (<LOD-.269)	700
	07-08	*	< LOD	< LOD	< LOD	< LOD	388
	09-10	*	< LOD	< LOD	< LOD	< LOD	401
20-59 years	99-00	*	< LOD	< LOD	< LOD	< LOD	766
	01-02	*	< LOD	< LOD	< LOD	< LOD	1127
	03-04	*	< LOD	< LOD	< LOD	.350 (<LOD-.438)	907
	07-08	*	< LOD	< LOD	< LOD	< LOD	1180
	09-10	*	< LOD	< LOD	< LOD	< LOD	1309
60 years and older	01-02	*	< LOD	< LOD	< LOD	< LOD	508
	03-04	*	< LOD	< LOD	< LOD	.368 (<LOD-.538)	504
	07-08	*	< LOD	< LOD	< LOD	< LOD	633
	09-10	*	< LOD	< LOD	< LOD	< LOD	651
<b>Gender</b>							
Males	99-00	*	< LOD	< LOD	< LOD	< LOD	891
	01-02	*	< LOD	< LOD	< LOD	< LOD	1428
	03-04	*	< LOD	< LOD	< LOD	.253 (<LOD-.350)	1183
	07-08	*	< LOD	< LOD	< LOD	< LOD	1292
	09-10	*	< LOD	< LOD	< LOD	< LOD	1343
Females	99-00	*	< LOD	< LOD	< LOD	< LOD	923
	01-02	*	< LOD	< LOD	< LOD	< LOD	1617
	03-04	*	< LOD	< LOD	< LOD	.432 (<LOD-.500)	1231
	07-08	*	< LOD	< LOD	< LOD	< LOD	1294
	09-10	*	< LOD	< LOD	< LOD	< LOD	1404

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Not measured in Survey years 2005-2006 or after Survey years 2009-2010.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/2,4,5-TrichlorophenoxyaceticAcid\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/2,4,5-TrichlorophenoxyaceticAcid_BiomonitoringSummary.html)

## Urinary 2,4,5-Trichlorophenoxyacetic acid (creatinine corrected) (1999 - 2010) ‡

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00	*	< LOD	< LOD	< LOD	< LOD	652
	01-02	*	< LOD	< LOD	< LOD	< LOD	766
	03-04	*	< LOD	< LOD	< LOD	< LOD	604
	07-08	*	< LOD	< LOD	< LOD	< LOD	499
	09-10	*	< LOD	< LOD	< LOD	< LOD	602
Non-Hispanic blacks	99-00	*	< LOD	< LOD	< LOD	< LOD	483
	01-02	*	< LOD	< LOD	< LOD	< LOD	775
	03-04	*	< LOD	< LOD	< LOD	< LOD	641
	07-08	*	< LOD	< LOD	< LOD	< LOD	573
	09-10	*	< LOD	< LOD	< LOD	< LOD	504
Non-Hispanic whites	99-00	*	< LOD	< LOD	< LOD	< LOD	531
	01-02	*	< LOD	< LOD	< LOD	< LOD	1280
	03-04	*	< LOD	< LOD	< LOD	.350 (<LOD-.438)	1012
	07-08	*	< LOD	< LOD	< LOD	< LOD	1084
	09-10	*	< LOD	< LOD	< LOD	< LOD	1200

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated; proportion of results below limit of detection was too high to provide a valid result.

‡Not measured in Survey years 2005-2006 or after Survey years 2009-2010.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/2,4,5-TrichlorophenoxyaceticAcid\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/2,4,5-TrichlorophenoxyaceticAcid_BiomonitoringSummary.html)

## Urinary Bensulfuron-methyl (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2355
	05-06	*	< LOD	< LOD	< LOD	< LOD	2634
	07-08	*	< LOD	< LOD	< LOD	< LOD	2494
<b>Age group</b>							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	286
	05-06	*	< LOD	< LOD	< LOD	< LOD	350
	07-08	*	< LOD	< LOD	< LOD	< LOD	374
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	671
	05-06	*	< LOD	< LOD	< LOD	< LOD	718
	07-08	*	< LOD	< LOD	< LOD	< LOD	381
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1398
	05-06	*	< LOD	< LOD	< LOD	< LOD	1566
	07-08	*	< LOD	< LOD	< LOD	< LOD	1739
<b>Gender</b>							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1150
	05-06	*	< LOD	< LOD	< LOD	< LOD	1247
	07-08	*	< LOD	< LOD	< LOD	< LOD	1240
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1205
	05-06	*	< LOD	< LOD	< LOD	< LOD	1387
	07-08	*	< LOD	< LOD	< LOD	< LOD	1254
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	567
	05-06	*	< LOD	< LOD	< LOD	< LOD	697
	07-08	*	< LOD	< LOD	< LOD	< LOD	477
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	617
	05-06	*	< LOD	< LOD	< LOD	< LOD	720
	07-08	*	< LOD	< LOD	< LOD	< LOD	558
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1018
	05-06	*	< LOD	< LOD	< LOD	< LOD	1007
	07-08	*	< LOD	< LOD	< LOD	< LOD	1053

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.05, 0.05, and 0.05 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html)

## Urinary Bensulfuron-methyl (creatinine corrected) (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2353
	05-06	*	< LOD	< LOD	< LOD	< LOD	2634
	07-08	*	< LOD	< LOD	< LOD	< LOD	2492
<b>Age group</b>							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	286
	05-06	*	< LOD	< LOD	< LOD	< LOD	350
	07-08	*	< LOD	< LOD	< LOD	< LOD	374
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	670
	05-06	*	< LOD	< LOD	< LOD	< LOD	718
	07-08	*	< LOD	< LOD	< LOD	< LOD	379
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1397
	05-06	*	< LOD	< LOD	< LOD	< LOD	1566
	07-08	*	< LOD	< LOD	< LOD	< LOD	1739
<b>Gender</b>							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1149
	05-06	*	< LOD	< LOD	< LOD	< LOD	1247
	07-08	*	< LOD	< LOD	< LOD	< LOD	1239
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1204
	05-06	*	< LOD	< LOD	< LOD	< LOD	1387
	07-08	*	< LOD	< LOD	< LOD	< LOD	1253
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	566
	05-06	*	< LOD	< LOD	< LOD	< LOD	697
	07-08	*	< LOD	< LOD	< LOD	< LOD	476
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	617
	05-06	*	< LOD	< LOD	< LOD	< LOD	720
	07-08	*	< LOD	< LOD	< LOD	< LOD	557
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1017
	05-06	*	< LOD	< LOD	< LOD	< LOD	1007
	07-08	*	< LOD	< LOD	< LOD	< LOD	1053

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html)

## Urinary Chlorsulfuron (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2100
	05-06	*	< LOD	< LOD	< LOD	< LOD	2419
	07-08	*	< LOD	< LOD	< LOD	< LOD	2566
<b>Age group</b>							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	259
	05-06	*	< LOD	< LOD	< LOD	< LOD	314
	07-08	*	< LOD	< LOD	< LOD	< LOD	380
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	601
	05-06	*	< LOD	< LOD	< LOD	< LOD	653
	07-08	*	< LOD	< LOD	< LOD	< LOD	386
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1240
	05-06	*	< LOD	< LOD	< LOD	< LOD	1452
	07-08	*	< LOD	< LOD	< LOD	< LOD	1800
<b>Gender</b>							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1031
	05-06	*	< LOD	< LOD	< LOD	< LOD	1151
	07-08	*	< LOD	< LOD	< LOD	< LOD	1285
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1069
	05-06	*	< LOD	< LOD	< LOD	< LOD	1268
	07-08	*	< LOD	< LOD	< LOD	< LOD	1281
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	506
	05-06	*	< LOD	< LOD	< LOD	< LOD	633
	07-08	*	< LOD	< LOD	< LOD	< LOD	491
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	568
	05-06	*	< LOD	< LOD	< LOD	< LOD	658
	07-08	*	< LOD	< LOD	< LOD	< LOD	570
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	894
	05-06	*	< LOD	< LOD	< LOD	< LOD	940
	07-08	*	< LOD	< LOD	< LOD	< LOD	1081

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.06, 0.06, and 0.06 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html)

## Urinary Chlorsulfuron (creatinine corrected) (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2098
	05-06	*	< LOD	< LOD	< LOD	< LOD	2419
	07-08	*	< LOD	< LOD	< LOD	< LOD	2564
<b>Age group</b>							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	259
	05-06	*	< LOD	< LOD	< LOD	< LOD	314
	07-08	*	< LOD	< LOD	< LOD	< LOD	380
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	600
	05-06	*	< LOD	< LOD	< LOD	< LOD	653
	07-08	*	< LOD	< LOD	< LOD	< LOD	384
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1239
	05-06	*	< LOD	< LOD	< LOD	< LOD	1452
	07-08	*	< LOD	< LOD	< LOD	< LOD	1800
<b>Gender</b>							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1030
	05-06	*	< LOD	< LOD	< LOD	< LOD	1151
	07-08	*	< LOD	< LOD	< LOD	< LOD	1284
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1068
	05-06	*	< LOD	< LOD	< LOD	< LOD	1268
	07-08	*	< LOD	< LOD	< LOD	< LOD	1280
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	505
	05-06	*	< LOD	< LOD	< LOD	< LOD	633
	07-08	*	< LOD	< LOD	< LOD	< LOD	490
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	568
	05-06	*	< LOD	< LOD	< LOD	< LOD	658
	07-08	*	< LOD	< LOD	< LOD	< LOD	569
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	893
	05-06	*	< LOD	< LOD	< LOD	< LOD	940
	07-08	*	< LOD	< LOD	< LOD	< LOD	1081

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html)

## Urinary Ethametsulfuron-methyl (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2321
	05-06	*	< LOD	< LOD	< LOD	< LOD	2634
	07-08	*	< LOD	< LOD	< LOD	< LOD	2458
<b>Age group</b>							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	294
	05-06	*	< LOD	< LOD	< LOD	< LOD	350
	07-08	*	< LOD	< LOD	< LOD	< LOD	366
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	671
	05-06	*	< LOD	< LOD	< LOD	< LOD	718
	07-08	*	< LOD	< LOD	< LOD	< LOD	381
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1356
	05-06	*	< LOD	< LOD	< LOD	< LOD	1566
	07-08	*	< LOD	< LOD	< LOD	< LOD	1711
<b>Gender</b>							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1132
	05-06	*	< LOD	< LOD	< LOD	< LOD	1247
	07-08	*	< LOD	< LOD	< LOD	< LOD	1218
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1189
	05-06	*	< LOD	< LOD	< LOD	< LOD	1387
	07-08	*	< LOD	< LOD	< LOD	< LOD	1240
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	590
	05-06	*	< LOD	< LOD	< LOD	< LOD	697
	07-08	*	< LOD	< LOD	< LOD	< LOD	468
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	608
	05-06	*	< LOD	< LOD	< LOD	< LOD	720
	07-08	*	< LOD	< LOD	< LOD	< LOD	534
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	974
	05-06	*	< LOD	< LOD	< LOD	< LOD	1007
	07-08	*	< LOD	< LOD	< LOD	< LOD	1052

Limit of detection (LOD, see Data Analysis section) for Survey year 03-04, 05-06, and 07-08 are 0.1, 0.1, and 0.1 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html)



## Urinary Ethametsulfuron-methyl (creatinine corrected) (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2319
	05-06	*	< LOD	< LOD	< LOD	< LOD	2634
	07-08	*	< LOD	< LOD	< LOD	< LOD	2456
<b>Age group</b>							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	294
	05-06	*	< LOD	< LOD	< LOD	< LOD	350
	07-08	*	< LOD	< LOD	< LOD	< LOD	366
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	670
	05-06	*	< LOD	< LOD	< LOD	< LOD	718
	07-08	*	< LOD	< LOD	< LOD	< LOD	379
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1355
	05-06	*	< LOD	< LOD	< LOD	< LOD	1566
	07-08	*	< LOD	< LOD	< LOD	< LOD	1711
<b>Gender</b>							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1131
	05-06	*	< LOD	< LOD	< LOD	< LOD	1247
	07-08	*	< LOD	< LOD	< LOD	< LOD	1217
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1188
	05-06	*	< LOD	< LOD	< LOD	< LOD	1387
	07-08	*	< LOD	< LOD	< LOD	< LOD	1239
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	589
	05-06	*	< LOD	< LOD	< LOD	< LOD	697
	07-08	*	< LOD	< LOD	< LOD	< LOD	467
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	608
	05-06	*	< LOD	< LOD	< LOD	< LOD	720
	07-08	*	< LOD	< LOD	< LOD	< LOD	533
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	973
	05-06	*	< LOD	< LOD	< LOD	< LOD	1007
	07-08	*	< LOD	< LOD	< LOD	< LOD	1052

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html)

## Urinary Foramsulfuron (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2255
	05-06	*	< LOD	< LOD	< LOD	< LOD	2534
	07-08	*	< LOD	< LOD	< LOD	< LOD	2423
<b>Age group</b>							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	283
	05-06	*	< LOD	< LOD	< LOD	< LOD	334
	07-08	*	< LOD	< LOD	< LOD	< LOD	364
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	653
	05-06	*	< LOD	< LOD	< LOD	< LOD	688
	07-08	*	< LOD	< LOD	< LOD	< LOD	364
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1319
	05-06	*	< LOD	< LOD	< LOD	< LOD	1512
	07-08	*	< LOD	< LOD	< LOD	< LOD	1695
<b>Gender</b>							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1097
	05-06	*	< LOD	< LOD	< LOD	< LOD	1203
	07-08	*	< LOD	< LOD	< LOD	< LOD	1205
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1158
	05-06	*	< LOD	< LOD	< LOD	< LOD	1331
	07-08	*	< LOD	< LOD	< LOD	< LOD	1218
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	587
	05-06	*	< LOD	< LOD	< LOD	< LOD	632
	07-08	*	< LOD	< LOD	< LOD	< LOD	487
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	584
	05-06	*	< LOD	< LOD	< LOD	< LOD	711
	07-08	*	< LOD	< LOD	< LOD	< LOD	523
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	935
	05-06	*	< LOD	< LOD	< LOD	< LOD	990
	07-08	*	< LOD	< LOD	< LOD	< LOD	1004

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.05, 0.05, and 0.05 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html)

## Urinary Foramsulfuron (creatinine corrected) (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2253
	05-06	*	< LOD	< LOD	< LOD	< LOD	2534
	07-08	*	< LOD	< LOD	< LOD	< LOD	2421
<b>Age group</b>							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	283
	05-06	*	< LOD	< LOD	< LOD	< LOD	334
	07-08	*	< LOD	< LOD	< LOD	< LOD	364
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	652
	05-06	*	< LOD	< LOD	< LOD	< LOD	688
	07-08	*	< LOD	< LOD	< LOD	< LOD	362
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1318
	05-06	*	< LOD	< LOD	< LOD	< LOD	1512
	07-08	*	< LOD	< LOD	< LOD	< LOD	1695
<b>Gender</b>							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1096
	05-06	*	< LOD	< LOD	< LOD	< LOD	1203
	07-08	*	< LOD	< LOD	< LOD	< LOD	1204
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1157
	05-06	*	< LOD	< LOD	< LOD	< LOD	1331
	07-08	*	< LOD	< LOD	< LOD	< LOD	1217
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	586
	05-06	*	< LOD	< LOD	< LOD	< LOD	632
	07-08	*	< LOD	< LOD	< LOD	< LOD	486
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	584
	05-06	*	< LOD	< LOD	< LOD	< LOD	711
	07-08	*	< LOD	< LOD	< LOD	< LOD	522
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	934
	05-06	*	< LOD	< LOD	< LOD	< LOD	990
	07-08	*	< LOD	< LOD	< LOD	< LOD	1004

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html)

## Urinary Halosulfuron (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2356
	05-06	*	< LOD	< LOD	< LOD	< LOD	2485
	07-08	*	< LOD	< LOD	< LOD	< LOD	2530
<b>Age group</b>							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	291
	05-06	*	< LOD	< LOD	< LOD	< LOD	331
	07-08	*	< LOD	< LOD	< LOD	< LOD	377
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	672
	05-06	*	< LOD	< LOD	< LOD	< LOD	679
	07-08	*	< LOD	< LOD	< LOD	< LOD	385
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1393
	05-06	*	< LOD	< LOD	< LOD	< LOD	1475
	07-08	*	< LOD	< LOD	< LOD	< LOD	1768
<b>Gender</b>							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1148
	05-06	*	< LOD	< LOD	< LOD	< LOD	1184
	07-08	*	< LOD	< LOD	< LOD	< LOD	1261
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1208
	05-06	*	< LOD	< LOD	< LOD	< LOD	1301
	07-08	*	< LOD	< LOD	< LOD	< LOD	1269
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	592
	05-06	*	< LOD	< LOD	< LOD	< LOD	650
	07-08	*	< LOD	< LOD	< LOD	< LOD	485
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	609
	05-06	*	< LOD	< LOD	< LOD	< LOD	694
	07-08	*	< LOD	< LOD	< LOD	< LOD	565
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1005
	05-06	*	< LOD	< LOD	< LOD	< LOD	950
	07-08	*	< LOD	< LOD	< LOD	< LOD	1068

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.1, 0.1, and 0.1 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html)

## Urinary Halosulfuron (creatinine corrected) (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2354
	05-06	*	< LOD	< LOD	< LOD	< LOD	2485
	07-08	*	< LOD	< LOD	< LOD	< LOD	2528
<b>Age group</b>							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	291
	05-06	*	< LOD	< LOD	< LOD	< LOD	331
	07-08	*	< LOD	< LOD	< LOD	< LOD	377
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	671
	05-06	*	< LOD	< LOD	< LOD	< LOD	679
	07-08	*	< LOD	< LOD	< LOD	< LOD	383
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1392
	05-06	*	< LOD	< LOD	< LOD	< LOD	1475
	07-08	*	< LOD	< LOD	< LOD	< LOD	1768
<b>Gender</b>							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1147
	05-06	*	< LOD	< LOD	< LOD	< LOD	1184
	07-08	*	< LOD	< LOD	< LOD	< LOD	1260
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1207
	05-06	*	< LOD	< LOD	< LOD	< LOD	1301
	07-08	*	< LOD	< LOD	< LOD	< LOD	1268
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	591
	05-06	*	< LOD	< LOD	< LOD	< LOD	650
	07-08	*	< LOD	< LOD	< LOD	< LOD	484
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	609
	05-06	*	< LOD	< LOD	< LOD	< LOD	694
	07-08	*	< LOD	< LOD	< LOD	< LOD	564
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1004
	05-06	*	< LOD	< LOD	< LOD	< LOD	950
	07-08	*	< LOD	< LOD	< LOD	< LOD	1068

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html)

## Urinary Mesosulfuron-methyl (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2427
	05-06	*	< LOD	< LOD	< LOD	< LOD	2634
	07-08	*	< LOD	< LOD	< LOD	< LOD	2494
<b>Age group</b>							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	302
	05-06	*	< LOD	< LOD	< LOD	< LOD	350
	07-08	*	< LOD	< LOD	< LOD	< LOD	372
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	694
	05-06	*	< LOD	< LOD	< LOD	< LOD	718
	07-08	*	< LOD	< LOD	< LOD	< LOD	371
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1431
	05-06	*	< LOD	< LOD	< LOD	< LOD	1566
	07-08	*	< LOD	< LOD	< LOD	< LOD	1751
<b>Gender</b>							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1189
	05-06	*	< LOD	< LOD	< LOD	< LOD	1247
	07-08	*	< LOD	< LOD	< LOD	< LOD	1245
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1238
	05-06	*	< LOD	< LOD	< LOD	< LOD	1387
	07-08	*	< LOD	< LOD	< LOD	< LOD	1249
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	596
	05-06	*	< LOD	< LOD	< LOD	< LOD	697
	07-08	*	< LOD	< LOD	< LOD	< LOD	465
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	634
	05-06	*	< LOD	< LOD	< LOD	< LOD	720
	07-08	*	< LOD	< LOD	< LOD	< LOD	554
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1039
	05-06	*	< LOD	< LOD	< LOD	< LOD	1007
	07-08	*	< LOD	< LOD	< LOD	< LOD	1059

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.06, 0.06, and 0.06 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html)

## Urinary Mesosulfuron-methyl (creatinine corrected) (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2425
	05-06	*	< LOD	< LOD	< LOD	< LOD	2634
	07-08	*	< LOD	< LOD	< LOD	< LOD	2492
<b>Age group</b>							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	302
	05-06	*	< LOD	< LOD	< LOD	< LOD	350
	07-08	*	< LOD	< LOD	< LOD	< LOD	372
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	693
	05-06	*	< LOD	< LOD	< LOD	< LOD	718
	07-08	*	< LOD	< LOD	< LOD	< LOD	369
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1430
	05-06	*	< LOD	< LOD	< LOD	< LOD	1566
	07-08	*	< LOD	< LOD	< LOD	< LOD	1751
<b>Gender</b>							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1188
	05-06	*	< LOD	< LOD	< LOD	< LOD	1247
	07-08	*	< LOD	< LOD	< LOD	< LOD	1244
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1237
	05-06	*	< LOD	< LOD	< LOD	< LOD	1387
	07-08	*	< LOD	< LOD	< LOD	< LOD	1248
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	595
	05-06	*	< LOD	< LOD	< LOD	< LOD	697
	07-08	*	< LOD	< LOD	< LOD	< LOD	464
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	634
	05-06	*	< LOD	< LOD	< LOD	< LOD	720
	07-08	*	< LOD	< LOD	< LOD	< LOD	553
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1038
	05-06	*	< LOD	< LOD	< LOD	< LOD	1007
	07-08	*	< LOD	< LOD	< LOD	< LOD	1059

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html)

## Urinary Metsulfuron-methyl (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2360
	05-06	*	< LOD	< LOD	< LOD	< LOD	2634
	07-08	*	< LOD	< LOD	< LOD	< LOD	2494
<b>Age group</b>							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	297
	05-06	*	< LOD	< LOD	< LOD	< LOD	350
	07-08	*	< LOD	< LOD	< LOD	< LOD	373
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	675
	05-06	*	< LOD	< LOD	< LOD	< LOD	718
	07-08	*	< LOD	< LOD	< LOD	< LOD	374
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1388
	05-06	*	< LOD	< LOD	< LOD	< LOD	1566
	07-08	*	< LOD	< LOD	< LOD	< LOD	1747
<b>Gender</b>							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1152
	05-06	*	< LOD	< LOD	< LOD	< LOD	1247
	07-08	*	< LOD	< LOD	< LOD	< LOD	1246
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1208
	05-06	*	< LOD	< LOD	< LOD	< LOD	1387
	07-08	*	< LOD	< LOD	< LOD	< LOD	1248
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	595
	05-06	*	< LOD	< LOD	< LOD	< LOD	697
	07-08	*	< LOD	< LOD	< LOD	< LOD	470
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	596
	05-06	*	< LOD	< LOD	< LOD	< LOD	720
	07-08	*	< LOD	< LOD	< LOD	< LOD	538
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1013
	05-06	*	< LOD	< LOD	< LOD	< LOD	1007
	07-08	*	< LOD	< LOD	< LOD	< LOD	1066

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.05, 0.05, and 0.05 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html)



## Urinary Metsulfuron-methyl (creatinine corrected) (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2358
	05-06	*	< LOD	< LOD	< LOD	< LOD	2634
	07-08	*	< LOD	< LOD	< LOD	< LOD	2492
<b>Age group</b>							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	297
	05-06	*	< LOD	< LOD	< LOD	< LOD	350
	07-08	*	< LOD	< LOD	< LOD	< LOD	373
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	674
	05-06	*	< LOD	< LOD	< LOD	< LOD	718
	07-08	*	< LOD	< LOD	< LOD	< LOD	372
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1387
	05-06	*	< LOD	< LOD	< LOD	< LOD	1566
	07-08	*	< LOD	< LOD	< LOD	< LOD	1747
<b>Gender</b>							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1151
	05-06	*	< LOD	< LOD	< LOD	< LOD	1247
	07-08	*	< LOD	< LOD	< LOD	< LOD	1245
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1207
	05-06	*	< LOD	< LOD	< LOD	< LOD	1387
	07-08	*	< LOD	< LOD	< LOD	< LOD	1247
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	594
	05-06	*	< LOD	< LOD	< LOD	< LOD	697
	07-08	*	< LOD	< LOD	< LOD	< LOD	469
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	596
	05-06	*	< LOD	< LOD	< LOD	< LOD	720
	07-08	*	< LOD	< LOD	< LOD	< LOD	537
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1012
	05-06	*	< LOD	< LOD	< LOD	< LOD	1007
	07-08	*	< LOD	< LOD	< LOD	< LOD	1066

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html)

## Urinary Nicosulfuron (2003 -2008)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2322
	05-06	*	< LOD	< LOD	< LOD	< LOD	2570
	07-08	*	< LOD	< LOD	< LOD	< LOD	2422
<b>Age group</b>							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	296
	05-06	*	< LOD	< LOD	< LOD	< LOD	341
	07-08	*	< LOD	< LOD	< LOD	< LOD	363
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	666
	05-06	*	< LOD	< LOD	< LOD	< LOD	699
	07-08	*	< LOD	< LOD	< LOD	< LOD	364
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1360
	05-06	*	< LOD	< LOD	< LOD	< LOD	1530
	07-08	*	< LOD	< LOD	< LOD	< LOD	1695
<b>Gender</b>							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1131
	05-06	*	< LOD	< LOD	< LOD	< LOD	1222
	07-08	*	< LOD	< LOD	< LOD	< LOD	1210
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1191
	05-06	*	< LOD	< LOD	< LOD	< LOD	1348
	07-08	*	< LOD	< LOD	< LOD	< LOD	1212
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	589
	05-06	*	< LOD	< LOD	< LOD	< LOD	656
	07-08	*	< LOD	< LOD	< LOD	< LOD	486
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	601
	05-06	*	< LOD	< LOD	< LOD	< LOD	719
	07-08	*	< LOD	< LOD	< LOD	< LOD	524
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	980
	05-06	*	< LOD	< LOD	< LOD	< LOD	993
	07-08	*	< LOD	< LOD	< LOD	< LOD	1007

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.1, 0.1, and 0.1 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html)

## Urinary Nicosulfuron (creatinine corrected) (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2320
	05-06	*	< LOD	< LOD	< LOD	< LOD	2570
	07-08	*	< LOD	< LOD	< LOD	< LOD	2420
<b>Age group</b>							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	296
	05-06	*	< LOD	< LOD	< LOD	< LOD	341
	07-08	*	< LOD	< LOD	< LOD	< LOD	363
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	665
	05-06	*	< LOD	< LOD	< LOD	< LOD	699
	07-08	*	< LOD	< LOD	< LOD	< LOD	362
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1359
	05-06	*	< LOD	< LOD	< LOD	< LOD	1530
	07-08	*	< LOD	< LOD	< LOD	< LOD	1695
<b>Gender</b>							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1130
	05-06	*	< LOD	< LOD	< LOD	< LOD	1222
	07-08	*	< LOD	< LOD	< LOD	< LOD	1209
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1190
	05-06	*	< LOD	< LOD	< LOD	< LOD	1348
	07-08	*	< LOD	< LOD	< LOD	< LOD	1211
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	588
	05-06	*	< LOD	< LOD	< LOD	< LOD	656
	07-08	*	< LOD	< LOD	< LOD	< LOD	485
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	601
	05-06	*	< LOD	< LOD	< LOD	< LOD	719
	07-08	*	< LOD	< LOD	< LOD	< LOD	523
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	979
	05-06	*	< LOD	< LOD	< LOD	< LOD	993
	07-08	*	< LOD	< LOD	< LOD	< LOD	1007

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html)

## Urinary Oxasulfuron (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2355
	05-06	*	< LOD	< LOD	< LOD	< LOD	2634
	07-08	*	< LOD	< LOD	< LOD	< LOD	2540
<b>Age group</b>							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	290
	05-06	*	< LOD	< LOD	< LOD	< LOD	350
	07-08	*	< LOD	< LOD	< LOD	< LOD	379
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	672
	05-06	*	< LOD	< LOD	< LOD	< LOD	718
	07-08	*	< LOD	< LOD	< LOD	< LOD	381
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1393
	05-06	*	< LOD	< LOD	< LOD	< LOD	1566
	07-08	*	< LOD	< LOD	< LOD	< LOD	1780
<b>Gender</b>							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1150
	05-06	*	< LOD	< LOD	< LOD	< LOD	1247
	07-08	*	< LOD	< LOD	< LOD	< LOD	1269
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1205
	05-06	*	< LOD	< LOD	< LOD	< LOD	1387
	07-08	*	< LOD	< LOD	< LOD	< LOD	1271
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	579
	05-06	*	< LOD	< LOD	< LOD	< LOD	697
	07-08	*	< LOD	< LOD	< LOD	< LOD	487
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	616
	05-06	*	< LOD	< LOD	< LOD	< LOD	720
	07-08	*	< LOD	< LOD	< LOD	< LOD	567
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1018
	05-06	*	< LOD	< LOD	< LOD	< LOD	1007
	07-08	*	< LOD	< LOD	< LOD	< LOD	1076

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.06, 0.06, and 0.06 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html)

## Urinary Oxasulfuron (creatinine corrected) (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2353
	05-06	*	< LOD	< LOD	< LOD	< LOD	2634
	07-08	*	< LOD	< LOD	< LOD	< LOD	2538
<b>Age group</b>							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	290
	05-06	*	< LOD	< LOD	< LOD	< LOD	350
	07-08	*	< LOD	< LOD	< LOD	< LOD	379
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	671
	05-06	*	< LOD	< LOD	< LOD	< LOD	718
	07-08	*	< LOD	< LOD	< LOD	< LOD	379
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1392
	05-06	*	< LOD	< LOD	< LOD	< LOD	1566
	07-08	*	< LOD	< LOD	< LOD	< LOD	1780
<b>Gender</b>							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1149
	05-06	*	< LOD	< LOD	< LOD	< LOD	1247
	07-08	*	< LOD	< LOD	< LOD	< LOD	1268
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1204
	05-06	*	< LOD	< LOD	< LOD	< LOD	1387
	07-08	*	< LOD	< LOD	< LOD	< LOD	1270
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	578
	05-06	*	< LOD	< LOD	< LOD	< LOD	697
	07-08	*	< LOD	< LOD	< LOD	< LOD	486
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	616
	05-06	*	< LOD	< LOD	< LOD	< LOD	720
	07-08	*	< LOD	< LOD	< LOD	< LOD	566
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1017
	05-06	*	< LOD	< LOD	< LOD	< LOD	1007
	07-08	*	< LOD	< LOD	< LOD	< LOD	1076

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html)

## Urinary Primisulfuron-methyl (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2250
	05-06	*	< LOD	< LOD	< LOD	< LOD	2455
	07-08	*	< LOD	< LOD	< LOD	< LOD	2422
<b>Age group</b>							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	285
	05-06	*	< LOD	< LOD	< LOD	< LOD	327
	07-08	*	< LOD	< LOD	< LOD	< LOD	356
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	627
	05-06	*	< LOD	< LOD	< LOD	< LOD	665
	07-08	*	< LOD	< LOD	< LOD	< LOD	376
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1338
	05-06	*	< LOD	< LOD	< LOD	< LOD	1463
	07-08	*	< LOD	< LOD	< LOD	< LOD	1690
<b>Gender</b>							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1107
	05-06	*	< LOD	< LOD	< LOD	< LOD	1160
	07-08	*	< LOD	< LOD	< LOD	< LOD	1207
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1143
	05-06	*	< LOD	< LOD	< LOD	< LOD	1295
	07-08	*	< LOD	< LOD	< LOD	< LOD	1215
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	574
	05-06	*	< LOD	< LOD	< LOD	< LOD	667
	07-08	*	< LOD	< LOD	< LOD	< LOD	456
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	556
	05-06	*	< LOD	< LOD	< LOD	< LOD	661
	07-08	*	< LOD	< LOD	< LOD	< LOD	549
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	975
	05-06	*	< LOD	< LOD	< LOD	< LOD	938
	07-08	*	< LOD	< LOD	< LOD	< LOD	1030

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.07, 0.07, and 0.07 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html)

## Urinary Primisulfuron-methyl (creatinine corrected) (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2249
	05-06	*	< LOD	< LOD	< LOD	< LOD	2455
	07-08	*	< LOD	< LOD	< LOD	< LOD	2420
<b>Age group</b>							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	285
	05-06	*	< LOD	< LOD	< LOD	< LOD	327
	07-08	*	< LOD	< LOD	< LOD	< LOD	356
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	626
	05-06	*	< LOD	< LOD	< LOD	< LOD	665
	07-08	*	< LOD	< LOD	< LOD	< LOD	374
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1338
	05-06	*	< LOD	< LOD	< LOD	< LOD	1463
	07-08	*	< LOD	< LOD	< LOD	< LOD	1690
<b>Gender</b>							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1107
	05-06	*	< LOD	< LOD	< LOD	< LOD	1160
	07-08	*	< LOD	< LOD	< LOD	< LOD	1206
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1142
	05-06	*	< LOD	< LOD	< LOD	< LOD	1295
	07-08	*	< LOD	< LOD	< LOD	< LOD	1214
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	573
	05-06	*	< LOD	< LOD	< LOD	< LOD	667
	07-08	*	< LOD	< LOD	< LOD	< LOD	455
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	556
	05-06	*	< LOD	< LOD	< LOD	< LOD	661
	07-08	*	< LOD	< LOD	< LOD	< LOD	548
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	975
	05-06	*	< LOD	< LOD	< LOD	< LOD	938
	07-08	*	< LOD	< LOD	< LOD	< LOD	1030

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html)

## Urinary Prosulfuron (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2247
	05-06	*	< LOD	< LOD	< LOD	< LOD	2461
	07-08	*	< LOD	< LOD	< LOD	< LOD	2566
<b>Age group</b>							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	284
	05-06	*	< LOD	< LOD	< LOD	< LOD	326
	07-08	*	< LOD	< LOD	< LOD	< LOD	380
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	640
	05-06	*	< LOD	< LOD	< LOD	< LOD	676
	07-08	*	< LOD	< LOD	< LOD	< LOD	386
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1323
	05-06	*	< LOD	< LOD	< LOD	< LOD	1459
	07-08	*	< LOD	< LOD	< LOD	< LOD	1800
<b>Gender</b>							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1100
	05-06	*	< LOD	< LOD	< LOD	< LOD	1165
	07-08	*	< LOD	< LOD	< LOD	< LOD	1285
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1147
	05-06	*	< LOD	< LOD	< LOD	< LOD	1296
	07-08	*	< LOD	< LOD	< LOD	< LOD	1281
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	589
	05-06	*	< LOD	< LOD	< LOD	< LOD	673
	07-08	*	< LOD	< LOD	< LOD	< LOD	491
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	565
	05-06	*	< LOD	< LOD	< LOD	< LOD	677
	07-08	*	< LOD	< LOD	< LOD	< LOD	570
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	940
	05-06	*	< LOD	< LOD	< LOD	< LOD	924
	07-08	*	< LOD	< LOD	< LOD	< LOD	1081

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.05, 0.05, and 0.05 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html)



## Urinary Prosulfuron (creatinine corrected) (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2245
	05-06	*	< LOD	< LOD	< LOD	< LOD	2461
	07-08	*	< LOD	< LOD	< LOD	< LOD	2564
<b>Age group</b>							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	284
	05-06	*	< LOD	< LOD	< LOD	< LOD	326
	07-08	*	< LOD	< LOD	< LOD	< LOD	380
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	639
	05-06	*	< LOD	< LOD	< LOD	< LOD	676
	07-08	*	< LOD	< LOD	< LOD	< LOD	384
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1322
	05-06	*	< LOD	< LOD	< LOD	< LOD	1459
	07-08	*	< LOD	< LOD	< LOD	< LOD	1800
<b>Gender</b>							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1099
	05-06	*	< LOD	< LOD	< LOD	< LOD	1165
	07-08	*	< LOD	< LOD	< LOD	< LOD	1284
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1146
	05-06	*	< LOD	< LOD	< LOD	< LOD	1296
	07-08	*	< LOD	< LOD	< LOD	< LOD	1280
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	588
	05-06	*	< LOD	< LOD	< LOD	< LOD	673
	07-08	*	< LOD	< LOD	< LOD	< LOD	490
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	565
	05-06	*	< LOD	< LOD	< LOD	< LOD	677
	07-08	*	< LOD	< LOD	< LOD	< LOD	569
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	939
	05-06	*	< LOD	< LOD	< LOD	< LOD	924
	07-08	*	< LOD	< LOD	< LOD	< LOD	1081

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html)

## Urinary Rimsulfuron (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2284
	05-06	*	< LOD	< LOD	< LOD	< LOD	2593
	07-08	*	< LOD	< LOD	< LOD	< LOD	2530
<b>Age group</b>							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	279
	05-06	*	< LOD	< LOD	< LOD	< LOD	346
	07-08	*	< LOD	< LOD	< LOD	< LOD	376
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	654
	05-06	*	< LOD	< LOD	< LOD	< LOD	706
	07-08	*	< LOD	< LOD	< LOD	< LOD	383
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1351
	05-06	*	< LOD	< LOD	< LOD	< LOD	1541
	07-08	*	< LOD	< LOD	< LOD	< LOD	1771
<b>Gender</b>							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1110
	05-06	*	< LOD	< LOD	< LOD	< LOD	1224
	07-08	*	< LOD	< LOD	< LOD	< LOD	1271
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1174
	05-06	*	< LOD	< LOD	< LOD	< LOD	1369
	07-08	*	< LOD	< LOD	< LOD	< LOD	1259
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	561
	05-06	*	< LOD	< LOD	< LOD	< LOD	675
	07-08	*	< LOD	< LOD	< LOD	< LOD	463
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	592
	05-06	*	< LOD	< LOD	< LOD	< LOD	715
	07-08	*	< LOD	< LOD	< LOD	< LOD	568
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	985
	05-06	*	< LOD	< LOD	< LOD	< LOD	998
	07-08	*	< LOD	< LOD	< LOD	< LOD	1080

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.05, 0.05, and 0.05 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html)

## Urinary Rimsulfuron (creatinine corrected) (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2282
	05-06	*	< LOD	< LOD	< LOD	< LOD	2593
	07-08	*	< LOD	< LOD	< LOD	< LOD	2528
<b>Age group</b>							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	279
	05-06	*	< LOD	< LOD	< LOD	< LOD	346
	07-08	*	< LOD	< LOD	< LOD	< LOD	376
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	653
	05-06	*	< LOD	< LOD	< LOD	< LOD	706
	07-08	*	< LOD	< LOD	< LOD	< LOD	381
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1350
	05-06	*	< LOD	< LOD	< LOD	< LOD	1541
	07-08	*	< LOD	< LOD	< LOD	< LOD	1771
<b>Gender</b>							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1109
	05-06	*	< LOD	< LOD	< LOD	< LOD	1224
	07-08	*	< LOD	< LOD	< LOD	< LOD	1270
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1173
	05-06	*	< LOD	< LOD	< LOD	< LOD	1369
	07-08	*	< LOD	< LOD	< LOD	< LOD	1258
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	560
	05-06	*	< LOD	< LOD	< LOD	< LOD	675
	07-08	*	< LOD	< LOD	< LOD	< LOD	462
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	592
	05-06	*	< LOD	< LOD	< LOD	< LOD	715
	07-08	*	< LOD	< LOD	< LOD	< LOD	567
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	984
	05-06	*	< LOD	< LOD	< LOD	< LOD	998
	07-08	*	< LOD	< LOD	< LOD	< LOD	1080

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html)

## Urinary Sulfometuron-methyl (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2067
	05-06	*	< LOD	< LOD	< LOD	< LOD	2598
	07-08	*	< LOD	< LOD	< LOD	< LOD	2458
<b>Age group</b>							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	252
	05-06	*	< LOD	< LOD	< LOD	< LOD	345
	07-08	*	< LOD	< LOD	< LOD	< LOD	352
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	587
	05-06	*	< LOD	< LOD	< LOD	< LOD	710
	07-08	*	< LOD	< LOD	< LOD	< LOD	373
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1228
	05-06	*	< LOD	< LOD	< LOD	< LOD	1543
	07-08	*	< LOD	< LOD	< LOD	< LOD	1733
<b>Gender</b>							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1007
	05-06	*	< LOD	< LOD	< LOD	< LOD	1233
	07-08	*	< LOD	< LOD	< LOD	< LOD	1226
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1060
	05-06	*	< LOD	< LOD	< LOD	< LOD	1365
	07-08	*	< LOD	< LOD	< LOD	< LOD	1232
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	441
	05-06	*	< LOD	< LOD	< LOD	< LOD	697
	07-08	*	< LOD	< LOD	< LOD	< LOD	454
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	569
	05-06	*	< LOD	< LOD	< LOD	< LOD	698
	07-08	*	< LOD	< LOD	< LOD	< LOD	557
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	916
	05-06	*	< LOD	< LOD	< LOD	< LOD	996
	07-08	*	< LOD	< LOD	< LOD	< LOD	1045

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.05, 0.05, and 0.05 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html)

## Urinary Sulfometuron-methyl (creatinine corrected) (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2065
	05-06	*	< LOD	< LOD	< LOD	< LOD	2598
	07-08	*	< LOD	< LOD	< LOD	< LOD	2456
<b>Age group</b>							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	252
	05-06	*	< LOD	< LOD	< LOD	< LOD	345
	07-08	*	< LOD	< LOD	< LOD	< LOD	352
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	586
	05-06	*	< LOD	< LOD	< LOD	< LOD	710
	07-08	*	< LOD	< LOD	< LOD	< LOD	371
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1227
	05-06	*	< LOD	< LOD	< LOD	< LOD	1543
	07-08	*	< LOD	< LOD	< LOD	< LOD	1733
<b>Gender</b>							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1006
	05-06	*	< LOD	< LOD	< LOD	< LOD	1233
	07-08	*	< LOD	< LOD	< LOD	< LOD	1225
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1059
	05-06	*	< LOD	< LOD	< LOD	< LOD	1365
	07-08	*	< LOD	< LOD	< LOD	< LOD	1231
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	440
	05-06	*	< LOD	< LOD	< LOD	< LOD	697
	07-08	*	< LOD	< LOD	< LOD	< LOD	453
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	569
	05-06	*	< LOD	< LOD	< LOD	< LOD	698
	07-08	*	< LOD	< LOD	< LOD	< LOD	556
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	915
	05-06	*	< LOD	< LOD	< LOD	< LOD	996
	07-08	*	< LOD	< LOD	< LOD	< LOD	1045

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html)

## Urinary Sulfosulfuron (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2391
	05-06	*	< LOD	< LOD	< LOD	< LOD	2593
	07-08	*	< LOD	< LOD	< LOD	< LOD	2530
<b>Age group</b>							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	294
	05-06	*	< LOD	< LOD	< LOD	< LOD	344
	07-08	*	< LOD	< LOD	< LOD	< LOD	377
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	681
	05-06	*	< LOD	< LOD	< LOD	< LOD	708
	07-08	*	< LOD	< LOD	< LOD	< LOD	385
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1416
	05-06	*	< LOD	< LOD	< LOD	< LOD	1541
	07-08	*	< LOD	< LOD	< LOD	< LOD	1768
<b>Gender</b>							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1170
	05-06	*	< LOD	< LOD	< LOD	< LOD	1230
	07-08	*	< LOD	< LOD	< LOD	< LOD	1261
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1221
	05-06	*	< LOD	< LOD	< LOD	< LOD	1363
	07-08	*	< LOD	< LOD	< LOD	< LOD	1269
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	594
	05-06	*	< LOD	< LOD	< LOD	< LOD	673
	07-08	*	< LOD	< LOD	< LOD	< LOD	485
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	617
	05-06	*	< LOD	< LOD	< LOD	< LOD	719
	07-08	*	< LOD	< LOD	< LOD	< LOD	565
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1026
	05-06	*	< LOD	< LOD	< LOD	< LOD	997
	07-08	*	< LOD	< LOD	< LOD	< LOD	1068

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.1, 0.1, and 0.1 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html)

## Urinary Sulfosulfuron (creatinine corrected) (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2389
	05-06	*	< LOD	< LOD	< LOD	< LOD	2593
	07-08	*	< LOD	< LOD	< LOD	< LOD	2528
<b>Age group</b>							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	294
	05-06	*	< LOD	< LOD	< LOD	< LOD	344
	07-08	*	< LOD	< LOD	< LOD	< LOD	377
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	680
	05-06	*	< LOD	< LOD	< LOD	< LOD	708
	07-08	*	< LOD	< LOD	< LOD	< LOD	383
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1415
	05-06	*	< LOD	< LOD	< LOD	< LOD	1541
	07-08	*	< LOD	< LOD	< LOD	< LOD	1768
<b>Gender</b>							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1169
	05-06	*	< LOD	< LOD	< LOD	< LOD	1230
	07-08	*	< LOD	< LOD	< LOD	< LOD	1260
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1220
	05-06	*	< LOD	< LOD	< LOD	< LOD	1363
	07-08	*	< LOD	< LOD	< LOD	< LOD	1268
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	593
	05-06	*	< LOD	< LOD	< LOD	< LOD	673
	07-08	*	< LOD	< LOD	< LOD	< LOD	484
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	617
	05-06	*	< LOD	< LOD	< LOD	< LOD	719
	07-08	*	< LOD	< LOD	< LOD	< LOD	564
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1025
	05-06	*	< LOD	< LOD	< LOD	< LOD	997
	07-08	*	< LOD	< LOD	< LOD	< LOD	1068

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html)

## Urinary Thifensulfuron-methyl (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2355
	05-06	*	< LOD	< LOD	< LOD	< LOD	2634
	07-08	*	< LOD	< LOD	< LOD	< LOD	2495
<b>Age group</b>							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	291
	05-06	*	< LOD	< LOD	< LOD	< LOD	350
	07-08	*	< LOD	< LOD	< LOD	< LOD	370
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	677
	05-06	*	< LOD	< LOD	< LOD	< LOD	718
	07-08	*	< LOD	< LOD	< LOD	< LOD	375
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1387
	05-06	*	< LOD	< LOD	< LOD	< LOD	1566
	07-08	*	< LOD	< LOD	< LOD	< LOD	1750
<b>Gender</b>							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1145
	05-06	*	< LOD	< LOD	< LOD	< LOD	1247
	07-08	*	< LOD	< LOD	< LOD	< LOD	1252
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1210
	05-06	*	< LOD	< LOD	< LOD	< LOD	1387
	07-08	*	< LOD	< LOD	< LOD	< LOD	1243
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	566
	05-06	*	< LOD	< LOD	< LOD	< LOD	697
	07-08	*	< LOD	< LOD	< LOD	< LOD	479
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	616
	05-06	*	< LOD	< LOD	< LOD	< LOD	720
	07-08	*	< LOD	< LOD	< LOD	< LOD	542
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1022
	05-06	*	< LOD	< LOD	< LOD	< LOD	1007
	07-08	*	< LOD	< LOD	< LOD	< LOD	1056

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.08, 0.08, and 0.08 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html)



## Urinary Thifensulfuron-methyl (creatinine corrected) (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2353
	05-06	*	< LOD	< LOD	< LOD	< LOD	2634
	07-08	*	< LOD	< LOD	< LOD	< LOD	2493
<b>Age group</b>							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	291
	05-06	*	< LOD	< LOD	< LOD	< LOD	350
	07-08	*	< LOD	< LOD	< LOD	< LOD	370
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	676
	05-06	*	< LOD	< LOD	< LOD	< LOD	718
	07-08	*	< LOD	< LOD	< LOD	< LOD	373
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1386
	05-06	*	< LOD	< LOD	< LOD	< LOD	1566
	07-08	*	< LOD	< LOD	< LOD	< LOD	1750
<b>Gender</b>							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1144
	05-06	*	< LOD	< LOD	< LOD	< LOD	1247
	07-08	*	< LOD	< LOD	< LOD	< LOD	1251
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1209
	05-06	*	< LOD	< LOD	< LOD	< LOD	1387
	07-08	*	< LOD	< LOD	< LOD	< LOD	1242
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	565
	05-06	*	< LOD	< LOD	< LOD	< LOD	697
	07-08	*	< LOD	< LOD	< LOD	< LOD	478
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	616
	05-06	*	< LOD	< LOD	< LOD	< LOD	720
	07-08	*	< LOD	< LOD	< LOD	< LOD	541
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1021
	05-06	*	< LOD	< LOD	< LOD	< LOD	1007
	07-08	*	< LOD	< LOD	< LOD	< LOD	1056

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html)

## Urinary Triasulfuron (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2250
	05-06	*	< LOD	< LOD	< LOD	< LOD	2557
	07-08	*	< LOD	< LOD	< LOD	< LOD	2530
<b>Age group</b>							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	278
	05-06	*	< LOD	< LOD	< LOD	< LOD	341
	07-08	*	< LOD	< LOD	< LOD	< LOD	378
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	643
	05-06	*	< LOD	< LOD	< LOD	< LOD	695
	07-08	*	< LOD	< LOD	< LOD	< LOD	385
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1329
	05-06	*	< LOD	< LOD	< LOD	< LOD	1521
	07-08	*	< LOD	< LOD	< LOD	< LOD	1767
<b>Gender</b>							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1101
	05-06	*	< LOD	< LOD	< LOD	< LOD	1210
	07-08	*	< LOD	< LOD	< LOD	< LOD	1265
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1149
	05-06	*	< LOD	< LOD	< LOD	< LOD	1347
	07-08	*	< LOD	< LOD	< LOD	< LOD	1265
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	549
	05-06	*	< LOD	< LOD	< LOD	< LOD	677
	07-08	*	< LOD	< LOD	< LOD	< LOD	488
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	580
	05-06	*	< LOD	< LOD	< LOD	< LOD	713
	07-08	*	< LOD	< LOD	< LOD	< LOD	547
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	973
	05-06	*	< LOD	< LOD	< LOD	< LOD	968
	07-08	*	< LOD	< LOD	< LOD	< LOD	1073

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.07, 0.07, and 0.07 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html)

## Urinary Triasulfuron (creatinine corrected) (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2248
	05-06	*	< LOD	< LOD	< LOD	< LOD	2557
	07-08	*	< LOD	< LOD	< LOD	< LOD	2528
<b>Age group</b>							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	278
	05-06	*	< LOD	< LOD	< LOD	< LOD	341
	07-08	*	< LOD	< LOD	< LOD	< LOD	378
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	642
	05-06	*	< LOD	< LOD	< LOD	< LOD	695
	07-08	*	< LOD	< LOD	< LOD	< LOD	383
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1328
	05-06	*	< LOD	< LOD	< LOD	< LOD	1521
	07-08	*	< LOD	< LOD	< LOD	< LOD	1767
<b>Gender</b>							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1100
	05-06	*	< LOD	< LOD	< LOD	< LOD	1210
	07-08	*	< LOD	< LOD	< LOD	< LOD	1264
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1148
	05-06	*	< LOD	< LOD	< LOD	< LOD	1347
	07-08	*	< LOD	< LOD	< LOD	< LOD	1264
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	548
	05-06	*	< LOD	< LOD	< LOD	< LOD	677
	07-08	*	< LOD	< LOD	< LOD	< LOD	487
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	580
	05-06	*	< LOD	< LOD	< LOD	< LOD	713
	07-08	*	< LOD	< LOD	< LOD	< LOD	546
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	972
	05-06	*	< LOD	< LOD	< LOD	< LOD	968
	07-08	*	< LOD	< LOD	< LOD	< LOD	1073

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html)

## Urinary Triflurosulfuron-methyl (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2427
	05-06	*	< LOD	< LOD	< LOD	< LOD	2562
	07-08	*	< LOD	< LOD	< LOD	< LOD	2494
<b>Age group</b>							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	302
	05-06	*	< LOD	< LOD	< LOD	< LOD	340
	07-08	*	< LOD	< LOD	< LOD	< LOD	374
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	694
	05-06	*	< LOD	< LOD	< LOD	< LOD	702
	07-08	*	< LOD	< LOD	< LOD	< LOD	381
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1431
	05-06	*	< LOD	< LOD	< LOD	< LOD	1520
	07-08	*	< LOD	< LOD	< LOD	< LOD	1739
<b>Gender</b>							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1189
	05-06	*	< LOD	< LOD	< LOD	< LOD	1216
	07-08	*	< LOD	< LOD	< LOD	< LOD	1240
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1238
	05-06	*	< LOD	< LOD	< LOD	< LOD	1346
	07-08	*	< LOD	< LOD	< LOD	< LOD	1254
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	596
	05-06	*	< LOD	< LOD	< LOD	< LOD	693
	07-08	*	< LOD	< LOD	< LOD	< LOD	477
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	634
	05-06	*	< LOD	< LOD	< LOD	< LOD	699
	07-08	*	< LOD	< LOD	< LOD	< LOD	558
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1039
	05-06	*	< LOD	< LOD	< LOD	< LOD	972
	07-08	*	< LOD	< LOD	< LOD	< LOD	1053

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.05, 0.05, and 0.05 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html)

## Urinary Triflurosulfuron-methyl (creatinine corrected) (2003 -2008)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2425
	05-06	*	< LOD	< LOD	< LOD	< LOD	2562
	07-08	*	< LOD	< LOD	< LOD	< LOD	2492
<b>Age group</b>							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	302
	05-06	*	< LOD	< LOD	< LOD	< LOD	340
	07-08	*	< LOD	< LOD	< LOD	< LOD	374
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	693
	05-06	*	< LOD	< LOD	< LOD	< LOD	702
	07-08	*	< LOD	< LOD	< LOD	< LOD	379
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1430
	05-06	*	< LOD	< LOD	< LOD	< LOD	1520
	07-08	*	< LOD	< LOD	< LOD	< LOD	1739
<b>Gender</b>							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1188
	05-06	*	< LOD	< LOD	< LOD	< LOD	1216
	07-08	*	< LOD	< LOD	< LOD	< LOD	1239
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1237
	05-06	*	< LOD	< LOD	< LOD	< LOD	1346
	07-08	*	< LOD	< LOD	< LOD	< LOD	1253
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	595
	05-06	*	< LOD	< LOD	< LOD	< LOD	693
	07-08	*	< LOD	< LOD	< LOD	< LOD	476
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	634
	05-06	*	< LOD	< LOD	< LOD	< LOD	699
	07-08	*	< LOD	< LOD	< LOD	< LOD	557
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1038
	05-06	*	< LOD	< LOD	< LOD	< LOD	972
	07-08	*	< LOD	< LOD	< LOD	< LOD	1053

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html)

## Urinary N,N-diethyl-*meta*-toluamide (DEET) (2007 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	07-08	*	< LOD	< LOD	< LOD	< LOD	2565
	09-10	*	< LOD	< LOD	< LOD	< LOD	2744
<b>Age group</b>							
6-11 years	07-08	*	< LOD	< LOD	< LOD	< LOD	380
	09-10	*	< LOD	< LOD	< LOD	< LOD	386
12-19 years	07-08	*	< LOD	< LOD	< LOD	< LOD	386
	09-10	*	< LOD	< LOD	< LOD	< LOD	400
20-59 years	07-08	*	< LOD	< LOD	< LOD	< LOD	1169
	09-10	*	< LOD	< LOD	< LOD	< LOD	1307
60 years and older	07-08	*	< LOD	< LOD	< LOD	< LOD	630
	09-10	*	< LOD	< LOD	< LOD	< LOD	651
<b>Gender</b>							
Males	07-08	*	< LOD	< LOD	< LOD	< LOD	1286
	09-10	*	< LOD	< LOD	< LOD	< LOD	1343
Females	07-08	*	< LOD	< LOD	< LOD	< LOD	1279
	09-10	*	< LOD	< LOD	< LOD	< LOD	1401
<b>Race/ethnicity</b>							
Mexican Americans	07-08	*	< LOD	< LOD	< LOD	< LOD	499
	09-10	*	< LOD	< LOD	< LOD	< LOD	600
Non-Hispanic blacks	07-08	*	< LOD	< LOD	< LOD	< LOD	570
	09-10	*	< LOD	< LOD	< LOD	< LOD	504
Non-Hispanic whites	07-08	*	< LOD	< LOD	< LOD	< LOD	1071
	09-10	*	< LOD	< LOD	< LOD	< LOD	1199

Limit of detection (LOD, see Data Analysis section) for Survey year 07-08 and 09-10 are 0.089 and 0.089.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

## Urinary N,N-diethyl-*meta*-toluamide (DEET) (creatinine corrected) (2007 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	07-08	*	< LOD	< LOD	< LOD	< LOD	2563
	09-10	*	< LOD	< LOD	< LOD	< LOD	2744
<b>Age group</b>							
6-11 years	07-08	*	< LOD	< LOD	< LOD	< LOD	380
	09-10	*	< LOD	< LOD	< LOD	< LOD	386
12-19 years	07-08	*	< LOD	< LOD	< LOD	< LOD	384
	09-10	*	< LOD	< LOD	< LOD	< LOD	400
20-59 years	07-08	*	< LOD	< LOD	< LOD	< LOD	1169
	09-10	*	< LOD	< LOD	< LOD	< LOD	1307
60 years and older	07-08	*	< LOD	< LOD	< LOD	< LOD	630
	09-10	*	< LOD	< LOD	< LOD	< LOD	651
<b>Gender</b>							
Males	07-08	*	< LOD	< LOD	< LOD	< LOD	1285
	09-10	*	< LOD	< LOD	< LOD	< LOD	1343
Females	07-08	*	< LOD	< LOD	< LOD	< LOD	1278
	09-10	*	< LOD	< LOD	< LOD	< LOD	1401
<b>Race/ethnicity</b>							
Mexican Americans	07-08	*	< LOD	< LOD	< LOD	< LOD	498
	09-10	*	< LOD	< LOD	< LOD	< LOD	600
Non-Hispanic blacks	07-08	*	< LOD	< LOD	< LOD	< LOD	569
	09-10	*	< LOD	< LOD	< LOD	< LOD	504
Non-Hispanic whites	07-08	*	< LOD	< LOD	< LOD	< LOD	1071
	09-10	*	< LOD	< LOD	< LOD	< LOD	1199

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

## Urinary 3-(Diethylcarbamoyl) benzoic acid (DCBA) (2007 - 2010)

Metabolite of DEET

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	07-08	<b>3.50</b> (2.64-4.64)	<b>2.37</b> (1.88-3.10)	<b>9.14</b> (5.61-14.5)	<b>33.9</b> (20.5-53.1)	<b>79.2</b> (37.9-145)	2538
	09-10	<b>4.54</b> (3.35-6.15)	<b>3.40</b> (2.31-4.95)	<b>13.8</b> (8.63-20.6)	<b>51.9</b> (31.1-108)	<b>165</b> (57.8-464)	2735
<b>Age group</b>							
6-11 years	07-08	<b>4.44</b> (3.73-5.29)	<b>3.44</b> (2.70-5.87)	<b>12.7</b> (9.54-15.9)	<b>42.0</b> (24.2-70.4)	<b>79.7</b> (44.9-114)	378
	09-10	<b>6.44</b> (3.72-11.1)	<b>5.35</b> (2.58-8.86)	<b>18.5</b> (8.15-37.9)	<b>83.8</b> (28.4-439)	<b>316</b> (41.2-3970)	385
12-19 years	07-08	<b>5.26</b> (3.47-7.98)	<b>4.37</b> (2.68-5.98)	<b>13.1</b> (6.81-25.8)	<b>35.4</b> (20.4-71.2)	<b>71.2</b> (30.7-700)	380
	09-10	<b>6.58</b> (4.49-9.66)	<b>4.63</b> (2.82-8.64)	<b>18.9</b> (10.7-33.6)	<b>87.8</b> (32.9-186)	<b>186</b> (31.1-1130)	398
20-59 years	07-08	<b>3.33</b> (2.56-4.35)	<b>2.23</b> (1.83-2.90)	<b>7.95</b> (5.05-14.5)	<b>30.8</b> (17.4-53.1)	<b>75.6</b> (39.3-131)	1157
	09-10	<b>4.39</b> (3.29-5.86)	<b>3.33</b> (2.23-4.95)	<b>14.0</b> (8.36-20.9)	<b>51.4</b> (32.6-95.8)	<b>138</b> (52.9-280)	1300
60 years and older	07-08	<b>2.78</b> (1.75-4.42)	<b>1.64</b> (.936-3.06)	<b>6.15</b> (3.08-16.9)	<b>34.7</b> (16.3-75.4)	<b>103</b> (32.4-200)	623
	09-10	<b>3.42</b> (2.39-4.91)	<b>2.13</b> (1.45-4.00)	<b>9.63</b> (5.33-17.1)	<b>35.4</b> (19.7-63.8)	<b>103</b> (43.2-346)	652
<b>Gender</b>							
Males	07-08	<b>4.15</b> (2.88-6.00)	<b>2.90</b> (2.13-4.34)	<b>11.3</b> (6.63-19.7)	<b>37.7</b> (20.7-82.0)	<b>112</b> (34.7-556)	1269
	09-10	<b>5.58</b> (3.94-7.90)	<b>4.39</b> (2.67-6.24)	<b>18.7</b> (10.8-30.6)	<b>78.3</b> (37.3-174)	<b>199</b> (96.2-525)	1340
Females	07-08	<b>2.97</b> (2.32-3.80)	<b>2.06</b> (1.64-2.59)	<b>6.84</b> (4.41-10.8)	<b>30.8</b> (15.0-40.8)	<b>52.6</b> (36.4-103)	1269
	09-10	<b>3.73</b> (2.79-4.98)	<b>2.76</b> (1.87-4.24)	<b>9.91</b> (6.35-15.9)	<b>36.2</b> (22.4-70.4)	<b>94.9</b> (40.2-278)	1395
<b>Race/ethnicity</b>							
Mexican Americans	07-08	<b>3.70</b> (2.57-5.33)	<b>3.26</b> (1.87-5.17)	<b>9.63</b> (5.93-17.6)	<b>28.0</b> (14.7-69.1)	<b>69.1</b> (27.5-133)	490
	09-10	<b>2.63</b> (1.61-4.28)	<b>2.03</b> (.932-4.71)	<b>7.35</b> (4.22-14.5)	<b>23.1</b> (12.5-48.2)	<b>48.9</b> (26.0-94.3)	599
Non-Hispanic blacks	07-08	<b>4.36</b> (3.18-5.96)	<b>3.54</b> (2.24-6.04)	<b>10.3</b> (6.78-17.4)	<b>31.9</b> (19.3-51.6)	<b>62.4</b> (40.4-103)	562
	09-10	<b>3.91</b> (2.85-5.35)	<b>3.22</b> (2.24-4.75)	<b>9.53</b> (5.88-14.4)	<b>23.4</b> (18.0-33.4)	<b>38.4</b> (29.1-60.5)	497
Non-Hispanic whites	07-08	<b>3.47</b> (2.35-5.14)	<b>2.22</b> (1.65-3.19)	<b>9.12</b> (4.82-17.0)	<b>36.5</b> (17.7-82.0)	<b>86.9</b> (32.9-356)	1064
	09-10	<b>5.48</b> (3.83-7.84)	<b>4.31</b> (2.64-6.25)	<b>17.7</b> (10.5-28.4)	<b>67.9</b> (32.6-195)	<b>200</b> (63.8-832)	1199

Limit of detection (LOD, see Data Analysis section) for Survey year 07-08 and 09-10 are 0.93 and 0.475.



## Urinary 3-(Diethylcarbamoyl) benzoic acid (DCBA) (creatinine corrected) (2007 - 2010)

Metabolite of DEET

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	07-08	<b>3.60</b> (2.79-4.65)	<b>2.79</b> (2.14-3.55)	<b>8.55</b> (5.49-13.2)	<b>27.3</b> (17.8-47.9)	<b>70.8</b> (34.1-170)	2537
	09-10	<b>4.74</b> (3.48-6.46)	<b>3.35</b> (2.30-5.26)	<b>12.9</b> (8.53-20.6)	<b>44.6</b> (28.3-86.3)	<b>131</b> (47.0-405)	2735
<b>Age group</b>							
6-11 years	07-08	<b>5.64</b> (4.72-6.75)	<b>4.84</b> (3.65-5.78)	<b>14.2</b> (10.7-19.8)	<b>47.7</b> (34.2-55.1)	<b>88.6</b> (47.9-182)	378
	09-10	<b>8.72</b> (5.03-15.1)	<b>6.42</b> (4.02-11.6)	<b>23.5</b> (13.2-36.7)	<b>75.4</b> (28.6-673)	<b>365</b> (46.2-4980)	385
12-19 years	07-08	<b>4.08</b> (2.81-5.93)	<b>2.96</b> (2.14-5.36)	<b>11.0</b> (6.38-16.0)	<b>24.3</b> (14.8-53.4)	<b>53.4</b> (19.3-345)	379
	09-10	<b>5.65</b> (3.76-8.50)	<b>3.76</b> (2.56-6.22)	<b>16.5</b> (7.29-31.7)	<b>68.6</b> (25.3-182)	<b>154</b> (25.3-1270)	398
20-59 years	07-08	<b>3.34</b> (2.61-4.27)	<b>2.73</b> (1.99-3.46)	<b>7.57</b> (4.92-12.1)	<b>24.8</b> (14.9-44.7)	<b>57.8</b> (30.9-117)	1157
	09-10	<b>4.41</b> (3.25-5.97)	<b>2.98</b> (2.11-5.32)	<b>11.7</b> (7.71-19.6)	<b>39.1</b> (24.7-82.6)	<b>112</b> (51.3-228)	1300
60 years and older	07-08	<b>3.42</b> (2.33-5.02)	<b>2.47</b> (1.45-3.64)	<b>7.33</b> (4.25-16.8)	<b>33.8</b> (15.9-86.0)	<b>93.3</b> (34.2-244)	623
	09-10	<b>4.06</b> (2.95-5.59)	<b>2.68</b> (2.10-3.96)	<b>10.8</b> (6.79-15.9)	<b>37.7</b> (22.2-51.1)	<b>108</b> (42.7-393)	652
<b>Gender</b>							
Males	07-08	<b>3.46</b> (2.46-4.87)	<b>2.72</b> (1.76-3.73)	<b>8.68</b> (5.34-14.4)	<b>27.8</b> (16.9-69.4)	<b>87.0</b> (27.8-403)	1269
	09-10	<b>4.97</b> (3.49-7.08)	<b>3.29</b> (2.14-5.94)	<b>14.7</b> (9.13-24.0)	<b>60.0</b> (28.5-134)	<b>185</b> (74.8-433)	1340
Females	07-08	<b>3.74</b> (2.99-4.68)	<b>2.88</b> (2.27-3.63)	<b>8.55</b> (5.36-13.2)	<b>27.2</b> (16.2-46.3)	<b>54.8</b> (34.2-117)	1268
	09-10	<b>4.54</b> (3.40-6.05)	<b>3.35</b> (2.39-4.67)	<b>11.8</b> (7.55-18.4)	<b>35.3</b> (24.2-53.4)	<b>77.6</b> (36.7-252)	1395
<b>Race/ethnicity</b>							
Mexican Americans	07-08	<b>3.79</b> (2.57-5.58)	<b>3.60</b> (1.99-5.96)	<b>9.91</b> (6.55-16.9)	<b>27.8</b> (15.0-60.6)	<b>60.6</b> (24.4-107)	490
	09-10	<b>2.74</b> (1.75-4.28)	<b>2.03</b> (1.12-5.18)	<b>7.57</b> (3.92-14.0)	<b>23.3</b> (13.6-31.8)	<b>37.4</b> (23.6-90.5)	599
Non-Hispanic blacks	07-08	<b>3.33</b> (2.46-4.49)	<b>2.74</b> (1.91-3.76)	<b>7.07</b> (4.88-11.9)	<b>22.5</b> (12.6-45.1)	<b>53.9</b> (28.7-103)	561
	09-10	<b>2.98</b> (2.26-3.94)	<b>2.41</b> (1.70-3.37)	<b>6.73</b> (4.34-9.46)	<b>16.5</b> (13.0-20.4)	<b>30.6</b> (19.4-51.1)	497
Non-Hispanic whites	07-08	<b>3.78</b> (2.69-5.32)	<b>2.82</b> (2.05-4.02)	<b>8.70</b> (5.23-14.9)	<b>30.7</b> (16.7-57.2)	<b>76.9</b> (26.7-432)	1064
	09-10	<b>5.97</b> (4.13-8.64)	<b>4.41</b> (2.61-7.43)	<b>17.4</b> (10.7-26.7)	<b>61.1</b> (29.0-189)	<b>189</b> (56.4-849)	1199

## Urinary N,N-Diethyl-3-(hydroxymethyl) benzamide (DHMB) (2007 - 2010)

Metabolite of DEET

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	07-08	*	< LOD	< LOD	.229 (<LOD-.525)	.780 (.326-1.51)	2562
	09-10	*	< LOD	< LOD	.455 (.162-.956)	1.34 (.644-3.10)	2736
<b>Age group</b>							
6-11 years	07-08	*	< LOD	< LOD	.275 (.168-.433)	.640 (.264-2.64)	380
	09-10	*	< LOD	< LOD	.655 (<LOD-2.93)	2.82 (.205-24.6)	385
12-19 years	07-08	*	< LOD	< LOD	.356 (<LOD-.879)	.665 (.165-8.14)	386
	09-10	*	< LOD	< LOD	.472 (<LOD-1.59)	1.20 (.201-4.11)	398
20-59 years	07-08	*	< LOD	< LOD	.188 (<LOD-.413)	.767 (.335-1.30)	1167
	09-10	*	< LOD	< LOD	.498 (.172-.956)	1.34 (.729-2.29)	1304
60 years and older	07-08	*	< LOD	< LOD	.256 (<LOD-.787)	.787 (.194-1.81)	629
	09-10	*	< LOD	< LOD	.257 (.106-.512)	.840 (.521-2.46)	649
<b>Gender</b>							
Males	07-08	*	< LOD	< LOD	.325 (.091-.909)	1.05 (.249-4.86)	1283
	09-10	*	< LOD	< LOD	.744 (.323-1.43)	1.81 (.946-3.94)	1339
Females	07-08	*	< LOD	< LOD	.165 (<LOD-.326)	.512 (.256-.968)	1279
	09-10	*	< LOD	< LOD	.220 (<LOD-.521)	.796 (.329-2.05)	1397
<b>Race/ethnicity</b>							
Mexican Americans	07-08	*	< LOD	< LOD	.216 (.092-.509)	.509 (.207-.989)	499
	09-10	*	< LOD	< LOD	.228 (<LOD-.504)	.507 (.223-.866)	598
Non-Hispanic blacks	07-08	*	< LOD	< LOD	.310 (.091-.470)	.640 (.378-1.29)	567
	09-10	*	< LOD	< LOD	.135 (<LOD-.292)	.449 (.212-.884)	503
Non-Hispanic whites	07-08	*	< LOD	< LOD	.255 (<LOD-.861)	.884 (.225-4.84)	1071
	09-10	*	< LOD	< LOD	.644 (.182-1.34)	1.89 (.770-5.34)	1195

Limit of detection (LOD, see Data Analysis section) for Survey year 07-08 and 09-10 are 0.083 and 0.083.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

## Urinary N,N-Diethyl-3-(hydroxymethyl) benzamide (DHMB) (creatinine corrected) (2007 - 2010)

Metabolite of DEET

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	07-08	*	< LOD	< LOD	.331 (<LOD-.452)	.628 (.393-1.32)	2560
	09-10	*	< LOD	< LOD	.449 (.300-.720)	1.13 (.548-2.41)	2736
<b>Age group</b>							
6-11 years	07-08	*	< LOD	< LOD	.370 (.289-.524)	.831 (.347-1.37)	380
	09-10	*	< LOD	< LOD	.572 (<LOD-3.40)	3.12 (.370-18.4)	385
12-19 years	07-08	*	< LOD	< LOD	.253 (<LOD-.555)	.544 (.191-1.76)	384
	09-10	*	< LOD	< LOD	.436 (<LOD-.869)	.869 (.246-8.42)	398
20-59 years	07-08	*	< LOD	< LOD	.331 (<LOD-.441)	.582 (.441-.866)	1167
	09-10	*	< LOD	< LOD	.468 (.300-.702)	1.10 (.572-1.79)	1304
60 years and older	07-08	*	< LOD	< LOD	.394 (<LOD-.701)	1.01 (.389-2.48)	629
	09-10	*	< LOD	< LOD	.395 (.315-.489)	.875 (.548-2.41)	649
<b>Gender</b>							
Males	07-08	*	< LOD	< LOD	.300 (.176-.826)	.866 (.304-3.33)	1282
	09-10	*	< LOD	< LOD	.524 (.280-1.39)	1.45 (.718-3.16)	1339
Females	07-08	*	< LOD	< LOD	.341 (<LOD-.393)	.572 (.419-.734)	1278
	09-10	*	< LOD	< LOD	.419 (<LOD-.488)	.723 (.458-1.85)	1397
<b>Race/ethnicity</b>							
Mexican Americans	07-08	*	< LOD	< LOD	.315 (.203-.446)	.467 (.337-.720)	498
	09-10	*	< LOD	< LOD	.297 (<LOD-.401)	.415 (.299-.718)	598
Non-Hispanic blacks	07-08	*	< LOD	< LOD	.234 (.175-.411)	.487 (.315-1.05)	566
	09-10	*	< LOD	< LOD	.221 (<LOD-.262)	.362 (.246-.648)	503
Non-Hispanic whites	07-08	*	< LOD	< LOD	.343 (<LOD-.583)	.826 (.349-2.99)	1071
	09-10	*	< LOD	< LOD	.531 (.305-1.36)	1.59 (.524-5.83)	1195

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

## Urinary Carbofuranphenol (1999 - 2004)

Metabolite of Benfuracarb, Carbofuran, Carbosulfan, and Furathiocar

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	< LOD	< LOD	.770 (<LOD-1.30)	1994
	01-02	*	< LOD	< LOD	< LOD	< LOD	3030
	03-04	*	< LOD	< LOD	< LOD	< LOD	2390
<b>Age group</b>							
6-11 years	99-00	*	< LOD	< LOD	< LOD	.450 (<LOD-2.20)	482
	01-02	*	< LOD	< LOD	< LOD	< LOD	578
	03-04	*	< LOD	< LOD	< LOD	< LOD	293
12-19 years	99-00	*	< LOD	< LOD	< LOD	.570 (<LOD-1.20)	681
	01-02	*	< LOD	< LOD	< LOD	< LOD	827
	03-04	*	< LOD	< LOD	< LOD	< LOD	684
20-59 years	99-00	*	< LOD	< LOD	< LOD	.840 (<LOD-1.50)	831
	01-02	*	< LOD	< LOD	< LOD	< LOD	1125
	03-04	*	< LOD	< LOD	< LOD	< LOD	902
60 years and older	01-02	*	< LOD	< LOD	< LOD	< LOD	500
	03-04	*	< LOD	< LOD	< LOD	< LOD	511
<b>Gender</b>							
Males	99-00	*	< LOD	< LOD	< LOD	.740 (<LOD-1.50)	973
	01-02	*	< LOD	< LOD	< LOD	< LOD	1423
	03-04	*	< LOD	< LOD	< LOD	< LOD	1164
Females	99-00	*	< LOD	< LOD	< LOD	.840 (<LOD-1.50)	1021
	01-02	*	< LOD	< LOD	< LOD	< LOD	1607
	03-04	*	< LOD	< LOD	< LOD	< LOD	1226
<b>Race/ethnicity</b>							
Mexican Americans	99-00	*	< LOD	< LOD	.590 (<LOD-2.00)	1.90 (<LOD-5.10)	696
	01-02	*	< LOD	< LOD	< LOD	< LOD	765
	03-04	*	< LOD	< LOD	< LOD	< LOD	568
Non-Hispanic blacks	99-00	*	< LOD	< LOD	< LOD	.550 (<LOD-1.60)	521
	01-02	*	< LOD	< LOD	< LOD	< LOD	770
	03-04	*	< LOD	< LOD	< LOD	< LOD	613
Non-Hispanic whites	99-00	*	< LOD	< LOD	< LOD	.740 (<LOD-1.50)	603
	01-02	*	< LOD	< LOD	< LOD	< LOD	1272
	03-04	*	< LOD	< LOD	< LOD	< LOD	1054

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, and 03-04 are 0.4, 0.4, and 0.4 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Carbofuran\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Carbofuran_BiomonitoringSummary.html)

## Urinary Carbofuranphenol (creatinine corrected) (1999 - 2004)

Metabolite of Benfuracarb, Carbofuran, Carbosulfan, and Furathiocar

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	< LOD	< LOD	.778 (<LOD-1.00)	1994
	01-02	*	< LOD	< LOD	< LOD	< LOD	3029
	03-04	*	< LOD	< LOD	< LOD	< LOD	2388
<b>Age group</b>							
6-11 years	99-00	*	< LOD	< LOD	< LOD	.988 (<LOD-2.80)	482
	01-02	*	< LOD	< LOD	< LOD	< LOD	578
	03-04	*	< LOD	< LOD	< LOD	< LOD	293
12-19 years	99-00	*	< LOD	< LOD	< LOD	.482 (<LOD-.853)	681
	01-02	*	< LOD	< LOD	< LOD	< LOD	826
	03-04	*	< LOD	< LOD	< LOD	< LOD	683
20-59 years	99-00	*	< LOD	< LOD	< LOD	.875 (<LOD-1.06)	831
	01-02	*	< LOD	< LOD	< LOD	< LOD	1125
	03-04	*	< LOD	< LOD	< LOD	< LOD	901
60 years and older	01-02	*	< LOD	< LOD	< LOD	< LOD	500
	03-04	*	< LOD	< LOD	< LOD	< LOD	511
<b>Gender</b>							
Males	99-00	*	< LOD	< LOD	< LOD	.667 (<LOD-1.08)	973
	01-02	*	< LOD	< LOD	< LOD	< LOD	1423
	03-04	*	< LOD	< LOD	< LOD	< LOD	1163
Females	99-00	*	< LOD	< LOD	< LOD	.881 (<LOD-1.13)	1021
	01-02	*	< LOD	< LOD	< LOD	< LOD	1606
	03-04	*	< LOD	< LOD	< LOD	< LOD	1225
<b>Race/ethnicity</b>							
Mexican Americans	99-00	*	< LOD	< LOD	.778 (<LOD-1.94)	1.83 (<LOD-4.16)	696
	01-02	*	< LOD	< LOD	< LOD	< LOD	765
	03-04	*	< LOD	< LOD	< LOD	< LOD	567
Non-Hispanic blacks	99-00	*	< LOD	< LOD	< LOD	.700 (<LOD-1.08)	521
	01-02	*	< LOD	< LOD	< LOD	< LOD	769
	03-04	*	< LOD	< LOD	< LOD	< LOD	613
Non-Hispanic whites	99-00	*	< LOD	< LOD	< LOD	.737 (<LOD-.929)	603
	01-02	*	< LOD	< LOD	< LOD	< LOD	1272
	03-04	*	< LOD	< LOD	< LOD	< LOD	1053

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Carbofuran\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Carbofuran_BiomonitoringSummary.html)

## Urinary 2-Isopropoxyphenol (1999 - 2004)

Metabolite of Propoxur

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	< LOD	< LOD	< LOD	1917
	01-02	*	< LOD	< LOD	< LOD	< LOD	2994
	03-04	*	< LOD	< LOD	< LOD	< LOD	2387
<b>Age group</b>							
6-11 years	99-00	*	< LOD	< LOD	< LOD	< LOD	456
	01-02	*	< LOD	< LOD	< LOD	< LOD	574
	03-04	*	< LOD	< LOD	< LOD	< LOD	295
12-19 years	99-00	*	< LOD	< LOD	< LOD	< LOD	655
	01-02	*	< LOD	< LOD	< LOD	< LOD	820
	03-04	*	< LOD	< LOD	< LOD	< LOD	686
20-59 years	99-00	*	< LOD	< LOD	< LOD	< LOD	806
	01-02	*	< LOD	< LOD	< LOD	< LOD	1109
	03-04	*	< LOD	< LOD	< LOD	< LOD	900
60 years and older	01-02	*	< LOD	< LOD	< LOD	< LOD	491
	03-04	*	< LOD	< LOD	< LOD	< LOD	506
<b>Gender</b>							
Males	99-00	*	< LOD	< LOD	< LOD	< LOD	936
	01-02	*	< LOD	< LOD	< LOD	< LOD	1406
	03-04	*	< LOD	< LOD	< LOD	< LOD	1161
Females	99-00	*	< LOD	< LOD	< LOD	< LOD	981
	01-02	*	< LOD	< LOD	< LOD	< LOD	1588
	03-04	*	< LOD	< LOD	< LOD	< LOD	1226
<b>Race/ethnicity</b>							
Mexican Americans	99-00	*	< LOD	< LOD	< LOD	< LOD	664
	01-02	*	< LOD	< LOD	< LOD	< LOD	762
	03-04	*	< LOD	< LOD	< LOD	< LOD	594
Non-Hispanic blacks	99-00	*	< LOD	< LOD	< LOD	< LOD	500
	01-02	*	< LOD	< LOD	< LOD	< LOD	770
	03-04	*	< LOD	< LOD	< LOD	< LOD	601
Non-Hispanic whites	99-00	*	< LOD	< LOD	< LOD	< LOD	585
	01-02	*	< LOD	< LOD	< LOD	< LOD	1241
	03-04	*	< LOD	< LOD	< LOD	< LOD	1041

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, and 03-04 are 1.1, 0.4, and 0.4 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Propoxur\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Propoxur_BiomonitoringSummary.html)

## Urinary 2-Isopropoxyphenol (creatinine corrected) (1999 - 2004)

Metabolite of Propoxur

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	< LOD	< LOD	< LOD	1917
	01-02	*	< LOD	< LOD	< LOD	< LOD	2993
	03-04	*	< LOD	< LOD	< LOD	< LOD	2385
<b>Age group</b>							
6-11 years	99-00	*	< LOD	< LOD	< LOD	< LOD	456
	01-02	*	< LOD	< LOD	< LOD	< LOD	574
	03-04	*	< LOD	< LOD	< LOD	< LOD	295
12-19 years	99-00	*	< LOD	< LOD	< LOD	< LOD	655
	01-02	*	< LOD	< LOD	< LOD	< LOD	819
	03-04	*	< LOD	< LOD	< LOD	< LOD	685
20-59 years	99-00	*	< LOD	< LOD	< LOD	< LOD	806
	01-02	*	< LOD	< LOD	< LOD	< LOD	1109
	03-04	*	< LOD	< LOD	< LOD	< LOD	899
60 years and older	01-02	*	< LOD	< LOD	< LOD	< LOD	491
	03-04	*	< LOD	< LOD	< LOD	< LOD	506
<b>Gender</b>							
Males	99-00	*	< LOD	< LOD	< LOD	< LOD	936
	01-02	*	< LOD	< LOD	< LOD	< LOD	1406
	03-04	*	< LOD	< LOD	< LOD	< LOD	1160
Females	99-00	*	< LOD	< LOD	< LOD	< LOD	981
	01-02	*	< LOD	< LOD	< LOD	< LOD	1587
	03-04	*	< LOD	< LOD	< LOD	< LOD	1225
<b>Race/ethnicity</b>							
Mexican Americans	99-00	*	< LOD	< LOD	< LOD	< LOD	664
	01-02	*	< LOD	< LOD	< LOD	< LOD	762
	03-04	*	< LOD	< LOD	< LOD	< LOD	593
Non-Hispanic blacks	99-00	*	< LOD	< LOD	< LOD	< LOD	500
	01-02	*	< LOD	< LOD	< LOD	< LOD	769
	03-04	*	< LOD	< LOD	< LOD	< LOD	601
Non-Hispanic whites	99-00	*	< LOD	< LOD	< LOD	< LOD	585
	01-02	*	< LOD	< LOD	< LOD	< LOD	1241
	03-04	*	< LOD	< LOD	< LOD	< LOD	1040

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Propoxur\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Propoxur_BiomonitoringSummary.html)

## Urinary 2,4,5-Trichlorophenol (2003 – 2010)†

Metabolite of Several Organochlorine Insecticides

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	.100 (.100-.100)	.200 (.200-.300)	.400 (.300-.400)	2525
	05-06	*	< LOD	.100 (.100-.200)	.300 (.200-.300)	.400 (.300-.500)	2548
	07-08	*	< LOD	.100 (<LOD-.100)	.200 (.200-.200)	.300 (.200-.300)	2604
	09-10	*	< LOD	< LOD	.200 (.200-.200)	.300 (.200-.300)	2749
<b>Age group</b>							
6-11 years	03-04	*	< LOD	.100 (.100-.200)	.200 (.200-.300)	.300 (.200-.500)	314
	05-06	*	< LOD	.100 (.100-.200)	.300 (.200-.400)	.400 (.300-.500)	356
	07-08	*	< LOD	.100 (<LOD-.100)	.200 (.100-.300)	.300 (.200-.500)	389
	09-10	*	< LOD	< LOD	.200 (.100-.200)	.200 (.200-.300)	415
12-19 years	03-04	*	< LOD	.100 (.100-.200)	.200 (.200-.300)	.300 (.200-.500)	722
	05-06	*	< LOD	.100 (.100-.200)	.300 (.200-.300)	.400 (.300-.500)	702
	07-08	*	< LOD	.100 (<LOD-.100)	.200 (.100-.200)	.200 (.200-.500)	401
	09-10	*	< LOD	.100 (<LOD-.100)	.200 (.200-.300)	.300 (.200-.500)	420
20 years and older	03-04	*	< LOD	.100 (.100-.100)	.300 (.200-.300)	.400 (.300-.500)	1489
	05-06	*	< LOD	.100 (.100-.200)	.300 (.200-.300)	.400 (.300-.500)	1490
	07-08	*	< LOD	.100 (<LOD-.100)	.200 (.200-.300)	.300 (.200-.400)	1814
	09-10	*	< LOD	< LOD	.200 (.200-.200)	.300 (.200-.300)	1914
<b>Gender</b>							
Males	03-04	*	< LOD	.100 (.100-.100)	.200 (.200-.300)	.400 (.300-.400)	1231
	05-06	*	< LOD	.100 (.100-.200)	.200 (.200-.300)	.400 (.300-.500)	1270
	07-08	*	< LOD	.100 (<LOD-.100)	.200 (.200-.200)	.300 (.200-.300)	1294
	09-10	*	< LOD	< LOD	.200 (.200-.200)	.300 (.200-.300)	1399
Females	03-04	*	< LOD	.100 (.100-.200)	.200 (.200-.300)	.400 (.300-.400)	1294
	05-06	*	< LOD	.100 (.100-.200)	.300 (.200-.400)	.500 (.300-.500)	1278
	07-08	*	< LOD	.100 (<LOD-.100)	.200 (.200-.300)	.300 (.200-.400)	1310
	09-10	*	< LOD	.100 (<LOD-.100)	.200 (.200-.200)	.300 (.200-.300)	1350
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	.100 (<LOD-.200)	.200 (.200-.300)	.300 (.200-.400)	617
	05-06	*	< LOD	.100 (<LOD-.200)	.300 (.200-.300)	.400 (.300-.500)	637
	07-08	*	< LOD	< LOD	.200 (.100-.200)	.200 (.200-.300)	531
	09-10	*	< LOD	< LOD	.100 (<LOD-.200)	.200 (.100-.300)	566
Non-Hispanic blacks	03-04	*	< LOD	.200 (.100-.200)	.300 (.200-.500)	.400 (.300-.700)	636
	05-06	*	< LOD	.200 (.100-.200)	.300 (.200-.400)	.500 (.300-.500)	678
	07-08	*	< LOD	.100 (.100-.200)	.200 (.200-.300)	.400 (.300-.500)	597
	09-10	*	< LOD	.100 (<LOD-.100)	.200 (.200-.200)	.200 (.200-.300)	516
Non-Hispanic whites	03-04	*	< LOD	.100 (.100-.100)	.200 (.200-.300)	.400 (.300-.400)	1077
	05-06	*	< LOD	.100 (.100-.200)	.300 (.200-.300)	.400 (.300-.600)	1038
	07-08	*	< LOD	.100 (<LOD-.100)	.200 (.200-.300)	.300 (.200-.400)	1077
	09-10	*	< LOD	< LOD	.200 (.200-.200)	.300 (.200-.300)	1206

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08 and 09-10 are 0.1, 0.1, 0.1, and 0.1 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Not measured after Survey years 2009-2010.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Trichlorophenols\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Trichlorophenols_BiomonitoringSummary.html)



## Urinary 2,4,5-Trichlorophenol (creatinine corrected) (2003 – 2010)†

Metabolite of Several Organochlorine Insecticides

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	.170 (.160-.180)	.280 (.260-.310)	.370 (.330-.420)	2522
	05-06	*	< LOD	.160 (.150-.180)	.290 (.260-.320)	.410 (.360-.450)	2548
	07-08	*	< LOD	.150 (<LOD-.160)	.280 (.230-.320)	.390 (.330-.470)	2604
	09-10	*	< LOD	< LOD	.260 (.240-.280)	.350 (.320-.390)	2749
<b>Age group</b>							
6-11 years	03-04	*	< LOD	.180 (.150-.230)	.290 (.250-.320)	.370 (.310-.540)	314
	05-06	*	< LOD	.180 (.140-.200)	.310 (.210-.450)	.450 (.320-.610)	356
	07-08	*	< LOD	.180 (<LOD-.190)	.270 (.210-.390)	.430 (.270-.580)	389
	09-10	*	< LOD	< LOD	.320 (.240-.350)	.390 (.320-.470)	415
12-19 years	03-04	*	< LOD	.120 (.100-.140)	.200 (.170-.220)	.240 (.220-.280)	720
	05-06	*	< LOD	.120 (.110-.130)	.210 (.180-.240)	.290 (.240-.330)	702
	07-08	*	< LOD	.100 (<LOD-.120)	.170 (.150-.210)	.250 (.170-.310)	401
	09-10	*	< LOD	.110 (<LOD-.130)	.190 (.150-.250)	.280 (.190-.380)	420
20 years and older	03-04	*	< LOD	.180 (.160-.180)	.290 (.270-.320)	.390 (.350-.470)	1488
	05-06	*	< LOD	.170 (.150-.190)	.300 (.260-.330)	.410 (.370-.470)	1490
	07-08	*	< LOD	.150 (<LOD-.180)	.290 (.230-.350)	.410 (.340-.500)	1814
	09-10	*	< LOD	< LOD	.270 (.240-.280)	.350 (.320-.410)	1914
<b>Gender</b>							
Males	03-04	*	< LOD	.130 (.110-.150)	.230 (.190-.260)	.320 (.270-.350)	1230
	05-06	*	< LOD	.130 (.120-.140)	.220 (.190-.240)	.310 (.260-.360)	1270
	07-08	*	< LOD	.110 (<LOD-.120)	.190 (.180-.230)	.300 (.230-.340)	1294
	09-10	*	< LOD	< LOD	.210 (.190-.230)	.280 (.240-.330)	1399
Females	03-04	*	< LOD	.200 (.180-.210)	.320 (.290-.350)	.440 (.350-.510)	1292
	05-06	*	< LOD	.210 (.180-.230)	.350 (.300-.410)	.470 (.410-.550)	1278
	07-08	*	< LOD	.190 (<LOD-.230)	.330 (.280-.410)	.470 (.370-.580)	1310
	09-10	*	< LOD	.180 (<LOD-.190)	.300 (.280-.330)	.420 (.330-.470)	1350
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	.140 (<LOD-.150)	.240 (.200-.280)	.330 (.280-.460)	616
	05-06	*	< LOD	.140 (<LOD-.160)	.240 (.190-.320)	.350 (.290-.380)	637
	07-08	*	< LOD	< LOD	.210 (.180-.250)	.270 (.240-.320)	531
	09-10	*	< LOD	< LOD	.190 (<LOD-.230)	.290 (.220-.330)	566
Non-Hispanic blacks	03-04	*	< LOD	.120 (.100-.150)	.230 (.170-.290)	.310 (.230-.390)	635
	05-06	*	< LOD	.110 (.100-.140)	.210 (.170-.260)	.320 (.260-.360)	678
	07-08	*	< LOD	.120 (.100-.140)	.200 (.170-.250)	.290 (.230-.420)	597
	09-10	*	< LOD	.090 (<LOD-.110)	.160 (.130-.200)	.220 (.160-.380)	516
Non-Hispanic whites	03-04	*	< LOD	.180 (.160-.190)	.290 (.260-.320)	.370 (.340-.440)	1076
	05-06	*	< LOD	.180 (.160-.190)	.300 (.270-.350)	.410 (.360-.500)	1038
	07-08	*	< LOD	.160 (<LOD-.190)	.300 (.250-.360)	.440 (.330-.510)	1077
	09-10	*	< LOD	< LOD	.280 (.250-.320)	.370 (.330-.410)	1206

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

†Not measured after Survey years 2009-2010.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Trichlorophenols\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Trichlorophenols_BiomonitoringSummary.html)

## Urinary 2,4,6-Trichlorophenol (2003 – 2010) ‡

Metabolite of Several Organochlorine Insecticides

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	.500 (<LOD-.600)	1.00 (.800-1.20)	1.40 (1.20-1.80)	2525
	05-06	*	< LOD	.600 (<LOD-.700)	1.00 (.800-1.20)	1.40 (1.20-1.80)	2548
	07-08	*	< LOD	< LOD	.800 (.700-900)	1.20 (1.00-1.30)	2604
	09-10	*	< LOD	.500 (<LOD-.600)	.800 (.700-900)	1.10 (1.00-1.40)	2749
<b>Age group</b>							
6-11 years	03-04	*	< LOD	.600 (.500-.700)	1.10 (.800-1.40)	1.90 (1.10-3.10)	314
	05-06	*	< LOD	.700 (.600-.900)	1.30 (1.00-2.30)	2.70 (1.30-5.40)	356
	07-08	*	< LOD	.600 (<LOD-.700)	1.10 (.900-1.40)	1.60 (1.30-2.10)	389
	09-10	*	< LOD	.500 (<LOD-.600)	.900 (.700-1.20)	1.30 (.900-2.20)	415
12-19 years	03-04	*	< LOD	.600 (.500-.800)	1.20 (.900-1.70)	1.80 (1.50-2.10)	722
	05-06	*	< LOD	.600 (<LOD-.800)	1.00 (.800-1.30)	1.30 (1.20-1.70)	702
	07-08	*	< LOD	.600 (<LOD-.700)	.800 (.700-1.10)	1.10 (.800-1.70)	401
	09-10	*	< LOD	.600 (<LOD-.700)	.900 (.700-1.30)	1.30 (.900-1.90)	420
20 years and older	03-04	*	< LOD	.500 (<LOD-.600)	1.00 (.800-1.10)	1.30 (1.10-1.70)	1489
	05-06	*	< LOD	.600 (<LOD-.700)	1.00 (.800-1.20)	1.30 (1.20-1.80)	1490
	07-08	*	< LOD	< LOD	.800 (.700-900)	1.10 (.900-1.30)	1814
	09-10	*	< LOD	< LOD	.800 (.700-900)	1.10 (1.00-1.20)	1914
<b>Gender</b>							
Males	03-04	*	< LOD	.600 (<LOD-.600)	1.00 (.800-1.10)	1.30 (1.10-1.80)	1231
	05-06	*	< LOD	.600 (<LOD-.800)	1.10 (.900-1.30)	1.60 (1.20-2.00)	1270
	07-08	*	< LOD	.500 (<LOD-.600)	.900 (.700-1.00)	1.20 (1.10-1.40)	1294
	09-10	*	< LOD	< LOD	.800 (.700-900)	1.10 (1.00-1.20)	1399
Females	03-04	*	< LOD	.500 (<LOD-.600)	1.10 (.900-1.20)	1.40 (1.10-2.00)	1294
	05-06	*	< LOD	.500 (<LOD-.600)	.900 (.800-1.20)	1.30 (1.10-1.70)	1278
	07-08	*	< LOD	< LOD	.800 (.700-900)	1.10 (.900-1.40)	1310
	09-10	*	< LOD	.500 (<LOD-.600)	.800 (.700-1.00)	1.10 (.900-1.60)	1350
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	.700 (.600-.800)	1.20 (1.10-1.60)	1.80 (1.30-2.00)	617
	05-06	*	< LOD	.600 (.500-.700)	1.00 (.800-1.20)	1.30 (1.20-1.70)	637
	07-08	*	< LOD	< LOD	.700 (.700-900)	1.00 (.900-1.20)	531
	09-10	*	< LOD	.500 (<LOD-.600)	.900 (.700-1.10)	1.10 (.900-1.30)	566
Non-Hispanic blacks	03-04	*	< LOD	.900 (.700-1.00)	1.40 (1.10-1.90)	2.00 (1.50-2.70)	636
	05-06	*	< LOD	.800 (.700-1.10)	1.50 (1.20-1.90)	2.20 (1.60-3.30)	678
	07-08	*	< LOD	.600 (.500-.600)	1.00 (.900-1.10)	1.30 (1.10-1.60)	597
	09-10	*	< LOD	.700 (.600-.800)	1.10 (.900-1.30)	1.50 (1.20-2.00)	516
Non-Hispanic whites	03-04	*	< LOD	< LOD	.800 (.700-1.00)	1.20 (1.00-1.50)	1077
	05-06	*	< LOD	.500 (<LOD-.700)	.900 (.700-1.30)	1.30 (1.10-1.80)	1038
	07-08	*	< LOD	< LOD	.800 (.700-900)	1.20 (1.00-1.40)	1077
	09-10	*	< LOD	< LOD	.700 (.600-900)	1.00 (.800-1.30)	1206

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08 and 09-10 are 0.5, 0.5, 0.5, and 0.5 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Not measured after Survey years 2009-2010.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Trichlorophenols\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Trichlorophenols_BiomonitoringSummary.html)

## Urinary 2,4,6-Trichlorophenol (creatinine corrected) (2003 – 2010)‡

Metabolite of Several Organochlorine Insecticides

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	.710 (<LOD-.780)	1.25 (1.17-1.35)	1.75 (1.59-2.06)	2522
	05-06	*	< LOD	.720 (<LOD-.760)	1.27 (1.17-1.38)	1.75 (1.59-1.94)	2548
	07-08	*	< LOD	< LOD	1.25 (1.06-1.42)	1.75 (1.52-2.19)	2604
	09-10	*	< LOD	.710 (<LOD-.760)	1.21 (1.13-1.35)	1.67 (1.55-1.84)	2749
<b>Age group</b>							
6-11 years	03-04	*	< LOD	.920 (.850-1.13)	1.59 (1.22-1.91)	2.11 (1.46-4.55)	314
	05-06	*	< LOD	.880 (.740-1.06)	1.59 (1.21-2.06)	2.50 (1.61-5.20)	356
	07-08	*	< LOD	.900 (<LOD-.930)	1.46 (1.14-1.67)	2.33 (1.52-2.92)	389
	09-10	*	< LOD	.850 (<LOD-1.03)	1.59 (1.17-1.74)	1.85 (1.67-2.33)	415
12-19 years	03-04	*	< LOD	.580 (.510-.660)	.970 (.830-1.10)	1.21 (1.09-1.49)	720
	05-06	*	< LOD	.550 (<LOD-.630)	.970 (.690-1.17)	1.40 (1.08-1.59)	702
	07-08	*	< LOD	.550 (<LOD-.610)	.830 (.730-1.03)	1.30 (.930-1.48)	401
	09-10	*	< LOD	.590 (<LOD-.700)	.970 (.690-1.23)	1.23 (.920-1.66)	420
20 years and older	03-04	*	< LOD	.710 (<LOD-.770)	1.25 (1.17-1.35)	1.75 (1.59-2.00)	1488
	05-06	*	< LOD	.730 (<LOD-.780)	1.30 (1.17-1.40)	1.75 (1.57-2.06)	1490
	07-08	*	< LOD	< LOD	1.30 (1.06-1.46)	1.84 (1.52-2.33)	1814
	09-10	*	< LOD	< LOD	1.21 (1.13-1.35)	1.67 (1.52-1.94)	1914
<b>Gender</b>							
Males	03-04	*	< LOD	.560 (<LOD-.600)	.920 (.820-1.10)	1.30 (1.17-1.46)	1230
	05-06	*	< LOD	.600 (<LOD-.650)	1.00 (.850-1.13)	1.43 (1.25-1.59)	1270
	07-08	*	< LOD	.530 (<LOD-.600)	.930 (.830-1.06)	1.46 (1.18-1.59)	1294
	09-10	*	< LOD	< LOD	.980 (.850-1.12)	1.33 (1.13-1.59)	1399
Females	03-04	*	< LOD	.900 (<LOD-.960)	1.59 (1.35-1.75)	2.19 (1.75-2.63)	1292
	05-06	*	< LOD	.850 (<LOD-.970)	1.46 (1.30-1.67)	2.06 (1.67-2.50)	1278
	07-08	*	< LOD	< LOD	1.46 (1.23-1.75)	2.19 (1.67-2.50)	1310
	09-10	*	< LOD	.850 (<LOD-.920)	1.46 (1.30-1.59)	2.06 (1.62-2.33)	1350
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	.760 (.600-.900)	1.15 (.970-1.38)	1.59 (1.18-2.42)	616
	05-06	*	< LOD	.650 (.570-.700)	1.03 (.860-1.19)	1.46 (1.11-1.94)	637
	07-08	*	< LOD	< LOD	1.05 (.910-1.17)	1.35 (1.13-1.57)	531
	09-10	*	< LOD	.690 (<LOD-.760)	1.00 (.900-1.33)	1.67 (1.13-2.18)	566
Non-Hispanic blacks	03-04	*	< LOD	.600 (.560-.640)	.950 (.800-1.10)	1.34 (1.06-1.67)	635
	05-06	*	< LOD	.630 (.540-.740)	1.03 (.830-1.49)	1.59 (1.13-2.07)	678
	07-08	*	< LOD	.520 (.470-.620)	1.00 (.830-1.13)	1.40 (1.13-1.52)	597
	09-10	*	< LOD	.560 (.490-.610)	.830 (.750-.950)	1.17 (.920-1.52)	516
Non-Hispanic whites	03-04	*	< LOD	< LOD	1.30 (1.17-1.46)	1.75 (1.59-2.11)	1076
	05-06	*	< LOD	.760 (<LOD-.830)	1.35 (1.25-1.50)	1.79 (1.60-2.06)	1038
	07-08	*	< LOD	< LOD	1.35 (1.13-1.52)	1.84 (1.52-2.50)	1077
	09-10	*	< LOD	< LOD	1.30 (1.18-1.46)	1.73 (1.59-2.06)	1206

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Not measured after Survey years 2009-2010.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Trichlorophenols\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Trichlorophenols_BiomonitoringSummary.html)

## Urinary Acephate (2003 - 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2491
	05-06	*	< LOD	< LOD	< LOD	< LOD	2546
	07-08	*	< LOD	< LOD	< LOD	< LOD	2505
<b>Age group</b>							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	309
	05-06	*	< LOD	< LOD	< LOD	< LOD	343
	07-08	*	< LOD	< LOD	< LOD	< LOD	374
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	715
	05-06	*	< LOD	< LOD	< LOD	< LOD	696
	07-08	*	< LOD	< LOD	< LOD	< LOD	375
20-59 years	03-04	*	< LOD	< LOD	< LOD	< LOD	939
	05-06	*	< LOD	< LOD	< LOD	< LOD	1050
	07-08	*	< LOD	< LOD	< LOD	< LOD	1134
60 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	528
	05-06	*	< LOD	< LOD	< LOD	< LOD	457
	07-08	*	< LOD	< LOD	< LOD	< LOD	622
<b>Gender</b>							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1221
	05-06	*	< LOD	< LOD	< LOD	< LOD	1205
	07-08	*	< LOD	< LOD	< LOD	< LOD	1250
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1270
	05-06	*	< LOD	< LOD	< LOD	< LOD	1341
	07-08	*	< LOD	< LOD	< LOD	< LOD	1255
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	608
	05-06	*	< LOD	< LOD	< LOD	< LOD	666
	07-08	*	< LOD	< LOD	< LOD	< LOD	476
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	647
	05-06	*	< LOD	< LOD	< LOD	< LOD	698
	07-08	*	< LOD	< LOD	< LOD	< LOD	551
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1077
	05-06	*	< LOD	< LOD	< LOD	< LOD	979
	07-08	*	< LOD	< LOD	< LOD	< LOD	1062

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.1, 0.25, and 0.27 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Acephate\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Acephate_BiomonitoringSummary.html)

## Urinary Acephate (creatinine corrected) (2003 - 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2489
	05-06	*	< LOD	< LOD	< LOD	< LOD	2546
	07-08	*	< LOD	< LOD	< LOD	< LOD	2503
<b>Age group</b>							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	309
	05-06	*	< LOD	< LOD	< LOD	< LOD	343
	07-08	*	< LOD	< LOD	< LOD	< LOD	374
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	714
	05-06	*	< LOD	< LOD	< LOD	< LOD	696
	07-08	*	< LOD	< LOD	< LOD	< LOD	373
20-59 years	03-04	*	< LOD	< LOD	< LOD	< LOD	938
	05-06	*	< LOD	< LOD	< LOD	< LOD	1050
	07-08	*	< LOD	< LOD	< LOD	< LOD	1134
60 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	528
	05-06	*	< LOD	< LOD	< LOD	< LOD	457
	07-08	*	< LOD	< LOD	< LOD	< LOD	622
<b>Gender</b>							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1220
	05-06	*	< LOD	< LOD	< LOD	< LOD	1205
	07-08	*	< LOD	< LOD	< LOD	< LOD	1249
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1269
	05-06	*	< LOD	< LOD	< LOD	< LOD	1341
	07-08	*	< LOD	< LOD	< LOD	< LOD	1254
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	607
	05-06	*	< LOD	< LOD	< LOD	< LOD	666
	07-08	*	< LOD	< LOD	< LOD	< LOD	475
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	647
	05-06	*	< LOD	< LOD	< LOD	< LOD	698
	07-08	*	< LOD	< LOD	< LOD	< LOD	550
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1076
	05-06	*	< LOD	< LOD	< LOD	< LOD	979
	07-08	*	< LOD	< LOD	< LOD	< LOD	1062

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Acephate\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Acephate_BiomonitoringSummary.html)

## Urinary Dimethoate (2003 - 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2455
	05-06	*	< LOD	< LOD	< LOD	< LOD	2628
	07-08	*	< LOD	< LOD	< LOD	< LOD	2573
<b>Age group</b>							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	306
	05-06	*	< LOD	< LOD	< LOD	< LOD	349
	07-08	*	< LOD	< LOD	< LOD	< LOD	382
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	708
	05-06	*	< LOD	< LOD	< LOD	< LOD	718
	07-08	*	< LOD	< LOD	< LOD	< LOD	388
20-59 years	03-04	*	< LOD	< LOD	< LOD	< LOD	922
	05-06	*	< LOD	< LOD	< LOD	< LOD	1087
	07-08	*	< LOD	< LOD	< LOD	< LOD	1170
60 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	519
	05-06	*	< LOD	< LOD	< LOD	< LOD	474
	07-08	*	< LOD	< LOD	< LOD	< LOD	633
<b>Gender</b>							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1197
	05-06	*	< LOD	< LOD	< LOD	< LOD	1245
	07-08	*	< LOD	< LOD	< LOD	< LOD	1290
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1258
	05-06	*	< LOD	< LOD	< LOD	< LOD	1383
	07-08	*	< LOD	< LOD	< LOD	< LOD	1283
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	605
	05-06	*	< LOD	< LOD	< LOD	< LOD	693
	07-08	*	< LOD	< LOD	< LOD	< LOD	493
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	629
	05-06	*	< LOD	< LOD	< LOD	< LOD	719
	07-08	*	< LOD	< LOD	< LOD	< LOD	570
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1068
	05-06	*	< LOD	< LOD	< LOD	< LOD	1007
	07-08	*	< LOD	< LOD	< LOD	< LOD	1084

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.1, 0.25, and 0.1 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DimethoateOmethoate\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DimethoateOmethoate_BiomonitoringSummary.html)

## Urinary Dimethoate (creatinine corrected) (2003 - 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2453
	05-06	*	< LOD	< LOD	< LOD	< LOD	2628
	07-08	*	< LOD	< LOD	< LOD	< LOD	2571
<b>Age group</b>							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	306
	05-06	*	< LOD	< LOD	< LOD	< LOD	349
	07-08	*	< LOD	< LOD	< LOD	< LOD	382
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	707
	05-06	*	< LOD	< LOD	< LOD	< LOD	718
	07-08	*	< LOD	< LOD	< LOD	< LOD	386
20-59 years	03-04	*	< LOD	< LOD	< LOD	< LOD	921
	05-06	*	< LOD	< LOD	< LOD	< LOD	1087
	07-08	*	< LOD	< LOD	< LOD	< LOD	1170
60 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	519
	05-06	*	< LOD	< LOD	< LOD	< LOD	474
	07-08	*	< LOD	< LOD	< LOD	< LOD	633
<b>Gender</b>							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1196
	05-06	*	< LOD	< LOD	< LOD	< LOD	1245
	07-08	*	< LOD	< LOD	< LOD	< LOD	1289
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1257
	05-06	*	< LOD	< LOD	< LOD	< LOD	1383
	07-08	*	< LOD	< LOD	< LOD	< LOD	1282
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	604
	05-06	*	< LOD	< LOD	< LOD	< LOD	693
	07-08	*	< LOD	< LOD	< LOD	< LOD	492
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	629
	05-06	*	< LOD	< LOD	< LOD	< LOD	719
	07-08	*	< LOD	< LOD	< LOD	< LOD	569
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1067
	05-06	*	< LOD	< LOD	< LOD	< LOD	1007
	07-08	*	< LOD	< LOD	< LOD	< LOD	1084

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DimethoateOmetoate\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DimethoateOmetoate_BiomonitoringSummary.html)

## Urinary Methamidophos (2003 - 2008)

Also a metabolite of Acephate

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2379
	05-06	*	< LOD	< LOD	< LOD	< LOD	2591
	07-08	*	< LOD	< LOD	< LOD	< LOD	2573
<b>Age group</b>							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	295
	05-06	*	< LOD	< LOD	< LOD	< LOD	346
	07-08	*	< LOD	< LOD	< LOD	< LOD	382
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	683
	05-06	*	< LOD	< LOD	< LOD	< LOD	710
	07-08	*	< LOD	< LOD	< LOD	< LOD	388
20-59 years	03-04	*	< LOD	< LOD	< LOD	< LOD	893
	05-06	*	< LOD	< LOD	< LOD	< LOD	1070
	07-08	*	< LOD	< LOD	< LOD	< LOD	1169
60 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	508
	05-06	*	< LOD	< LOD	< LOD	< LOD	465
	07-08	*	< LOD	< LOD	< LOD	< LOD	634
<b>Gender</b>							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1171
	05-06	*	< LOD	< LOD	< LOD	< LOD	1232
	07-08	*	< LOD	< LOD	< LOD	< LOD	1290
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1208
	05-06	*	< LOD	< LOD	< LOD	< LOD	1359
	07-08	*	< LOD	< LOD	< LOD	< LOD	1283
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	564
	05-06	*	< LOD	< LOD	< LOD	< LOD	688
	07-08	*	< LOD	< LOD	< LOD	< LOD	492
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	631
	05-06	*	< LOD	< LOD	< LOD	< LOD	717
	07-08	*	< LOD	< LOD	< LOD	< LOD	571
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1034
	05-06	*	< LOD	< LOD	< LOD	< LOD	979
	07-08	*	< LOD	< LOD	< LOD	< LOD	1084

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.1, 0.37, and 0.41 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Methamidophos\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Methamidophos_BiomonitoringSummary.html)



## Urinary Methamidophos (creatinine corrected) (2003 - 2008)

Also a metabolite of Acephate

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2377
	05-06	*	< LOD	< LOD	< LOD	< LOD	2591
	07-08	*	< LOD	< LOD	< LOD	< LOD	2571
<b>Age group</b>							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	295
	05-06	*	< LOD	< LOD	< LOD	< LOD	346
	07-08	*	< LOD	< LOD	< LOD	< LOD	382
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	682
	05-06	*	< LOD	< LOD	< LOD	< LOD	710
	07-08	*	< LOD	< LOD	< LOD	< LOD	386
20-59 years	03-04	*	< LOD	< LOD	< LOD	< LOD	892
	05-06	*	< LOD	< LOD	< LOD	< LOD	1070
	07-08	*	< LOD	< LOD	< LOD	< LOD	1169
60 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	508
	05-06	*	< LOD	< LOD	< LOD	< LOD	465
	07-08	*	< LOD	< LOD	< LOD	< LOD	634
<b>Gender</b>							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1170
	05-06	*	< LOD	< LOD	< LOD	< LOD	1232
	07-08	*	< LOD	< LOD	< LOD	< LOD	1289
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1207
	05-06	*	< LOD	< LOD	< LOD	< LOD	1359
	07-08	*	< LOD	< LOD	< LOD	< LOD	1282
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	563
	05-06	*	< LOD	< LOD	< LOD	< LOD	688
	07-08	*	< LOD	< LOD	< LOD	< LOD	491
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	631
	05-06	*	< LOD	< LOD	< LOD	< LOD	717
	07-08	*	< LOD	< LOD	< LOD	< LOD	570
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1033
	05-06	*	< LOD	< LOD	< LOD	< LOD	979
	07-08	*	< LOD	< LOD	< LOD	< LOD	1084

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Methamidophos\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Methamidophos_BiomonitoringSummary.html)

## Urinary Omethoate (2003 - 2008)

Metabolite of Dimethoate

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2455
	05-06	*	< LOD	< LOD	< LOD	< LOD	2628
	07-08	*	< LOD	< LOD	< LOD	< LOD	2574
<b>Age group</b>							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	303
	05-06	*	< LOD	< LOD	< LOD	< LOD	349
	07-08	*	< LOD	< LOD	< LOD	< LOD	382
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	707
	05-06	*	< LOD	< LOD	< LOD	< LOD	718
	07-08	*	< LOD	< LOD	< LOD	< LOD	388
20-59 years	03-04	*	< LOD	< LOD	< LOD	< LOD	923
	05-06	*	< LOD	< LOD	< LOD	< LOD	1086
	07-08	*	< LOD	< LOD	< LOD	< LOD	1170
60 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	522
	05-06	*	< LOD	< LOD	< LOD	< LOD	475
	07-08	*	< LOD	< LOD	< LOD	< LOD	634
<b>Gender</b>							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1207
	05-06	*	< LOD	< LOD	< LOD	< LOD	1245
	07-08	*	< LOD	< LOD	< LOD	< LOD	1290
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1248
	05-06	*	< LOD	< LOD	< LOD	< LOD	1383
	07-08	*	< LOD	< LOD	< LOD	< LOD	1284
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	606
	05-06	*	< LOD	< LOD	< LOD	< LOD	693
	07-08	*	< LOD	< LOD	< LOD	< LOD	493
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	637
	05-06	*	< LOD	< LOD	< LOD	< LOD	719
	07-08	*	< LOD	< LOD	< LOD	< LOD	571
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1055
	05-06	*	< LOD	< LOD	< LOD	< LOD	1007
	07-08	*	< LOD	< LOD	< LOD	< LOD	1084

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.1, 0.14, and 0.1 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DimethoateOmethoate\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DimethoateOmethoate_BiomonitoringSummary.html)

## Urinary Omethoate (creatinine corrected) (2003 - 2008)

Metabolite of Dimethoate

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2453
	05-06	*	< LOD	< LOD	< LOD	< LOD	2628
	07-08	*	< LOD	< LOD	< LOD	< LOD	2572
<b>Age group</b>							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	303
	05-06	*	< LOD	< LOD	< LOD	< LOD	349
	07-08	*	< LOD	< LOD	< LOD	< LOD	382
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	706
	05-06	*	< LOD	< LOD	< LOD	< LOD	718
	07-08	*	< LOD	< LOD	< LOD	< LOD	386
20-59 years	03-04	*	< LOD	< LOD	< LOD	< LOD	922
	05-06	*	< LOD	< LOD	< LOD	< LOD	1086
	07-08	*	< LOD	< LOD	< LOD	< LOD	1170
60 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	522
	05-06	*	< LOD	< LOD	< LOD	< LOD	475
	07-08	*	< LOD	< LOD	< LOD	< LOD	634
<b>Gender</b>							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1206
	05-06	*	< LOD	< LOD	< LOD	< LOD	1245
	07-08	*	< LOD	< LOD	< LOD	< LOD	1289
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1247
	05-06	*	< LOD	< LOD	< LOD	< LOD	1383
	07-08	*	< LOD	< LOD	< LOD	< LOD	1283
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	605
	05-06	*	< LOD	< LOD	< LOD	< LOD	693
	07-08	*	< LOD	< LOD	< LOD	< LOD	492
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	637
	05-06	*	< LOD	< LOD	< LOD	< LOD	719
	07-08	*	< LOD	< LOD	< LOD	< LOD	570
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1054
	05-06	*	< LOD	< LOD	< LOD	< LOD	1007
	07-08	*	< LOD	< LOD	< LOD	< LOD	1084

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DimethoateOmethoate\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DimethoateOmethoate_BiomonitoringSummary.html)

## Urinary Malathion dicarboxylic acid (1999 - 2010)

Metabolite of Malathion

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	< LOD	< LOD	< LOD	1920
	07-08	*	< LOD	< LOD	.980 (.900-1.08)	1.65 (1.44-1.94)	2581
	09-10	*	< LOD	< LOD	.990 (.830-1.09)	2.05 (1.64-2.33)	2742
<b>Age group</b>							
6-11 years	99-00	*	< LOD	< LOD	< LOD	2.80 (<LOD-5.50)	453
	07-08	*	< LOD	.510 (<LOD-.640)	1.26 (.810-2.13)	2.32 (1.43-3.55)	383
	09-10	*	< LOD	< LOD	1.10 (.580-1.59)	1.80 (1.15-3.73)	385
12-19 years	99-00	*	< LOD	< LOD	< LOD	< LOD	660
	07-08	*	< LOD	< LOD	1.09 (.740-1.40)	1.59 (1.14-1.94)	390
	09-10	*	< LOD	< LOD	1.08 (.520-1.41)	1.60 (1.00-3.37)	400
20-59 years	99-00	*	< LOD	< LOD	< LOD	< LOD	807
	07-08	*	< LOD	< LOD	.900 (.770-1.01)	1.41 (1.14-1.65)	1177
	09-10	*	< LOD	< LOD	.910 (.710-1.10)	2.23 (1.65-2.57)	1307
60 years and older	07-08	*	< LOD	.500 (<LOD-.580)	1.37 (.980-1.73)	3.29 (1.48-7.45)	631
	09-10	*	< LOD	< LOD	1.03 (.830-1.25)	1.63 (1.34-3.34)	650
<b>Gender</b>							
Males	99-00	*	< LOD	< LOD	< LOD	< LOD	937
	07-08	*	< LOD	< LOD	1.05 (.930-1.23)	1.90 (1.55-2.46)	1290
	09-10	*	< LOD	< LOD	.950 (.720-1.19)	1.85 (1.22-2.86)	1341
Females	99-00	*	< LOD	< LOD	< LOD	< LOD	983
	07-08	*	< LOD	< LOD	.860 (.660-1.13)	1.52 (1.13-1.91)	1291
	09-10	*	< LOD	< LOD	1.00 (.720-1.29)	2.19 (1.64-2.63)	1401
<b>Race/ethnicity</b>							
Mexican Americans	99-00	*	< LOD	< LOD	< LOD	< LOD	680
	07-08	*	< LOD	< LOD	.740 (.550-1.01)	1.12 (.900-1.52)	500
	09-10	*	< LOD	< LOD	.790 (.540-1.05)	1.29 (.920-1.94)	600
Non-Hispanic blacks	99-00	*	< LOD	< LOD	< LOD	< LOD	498
	07-08	*	< LOD	< LOD	.670 (.540-.810)	1.06 (.860-1.34)	573
	09-10	*	< LOD	< LOD	.630 (<LOD-.880)	1.33 (.880-1.80)	504
Non-Hispanic whites	99-00	*	< LOD	< LOD	< LOD	< LOD	580
	07-08	*	< LOD	< LOD	1.08 (.900-1.29)	1.84 (1.55-2.47)	1079
	09-10	*	< LOD	< LOD	1.09 (.910-1.30)	2.33 (1.81-2.87)	1197

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 07-08, and 09-10 are 2.64, 0.5, and 0.5 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Malathion\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Malathion_BiomonitoringSummary.html)

## Urinary Malathion dicarboxylic acid (creatinine corrected) (1999 - 2010)

Metabolite of Malathion

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	< LOD	< LOD	< LOD	1920
	07-08	*	< LOD	< LOD	1.46 (1.30-1.71)	2.19 (1.85-2.72)	2579
	09-10	*	< LOD	< LOD	1.52 (1.40-1.65)	2.50 (2.13-2.94)	2742
<b>Age group</b>							
6-11 years	99-00	*	< LOD	< LOD	< LOD	3.74 (<LOD-5.50)	453
	07-08	*	< LOD	.946 (<LOD-1.14)	1.85 (1.55-2.27)	2.84 (1.85-5.11)	383
	09-10	*	< LOD	< LOD	1.75 (1.25-2.19)	2.25 (1.94-6.25)	385
12-19 years	99-00	*	< LOD	< LOD	< LOD	< LOD	660
	07-08	*	< LOD	< LOD	.982 (.761-1.21)	1.46 (1.06-1.80)	388
	09-10	*	< LOD	< LOD	.946 (.833-1.25)	1.49 (.946-3.41)	400
20-59 years	99-00	*	< LOD	< LOD	< LOD	< LOD	807
	07-08	*	< LOD	< LOD	1.35 (1.21-1.52)	1.96 (1.71-2.69)	1177
	09-10	*	< LOD	< LOD	1.53 (1.40-1.67)	2.56 (2.06-3.26)	1307
60 years and older	07-08	*	< LOD	1.06 (<LOD-1.17)	2.06 (1.64-2.72)	3.58 (2.19-8.63)	631
	09-10	*	< LOD	< LOD	1.62 (1.40-1.94)	2.52 (2.19-3.28)	650
<b>Gender</b>							
Males	99-00	*	< LOD	< LOD	< LOD	< LOD	937
	07-08	*	< LOD	< LOD	1.13 (1.00-1.31)	1.73 (1.40-2.09)	1289
	09-10	*	< LOD	< LOD	1.25 (1.06-1.52)	2.06 (1.59-2.52)	1341
Females	99-00	*	< LOD	< LOD	< LOD	< LOD	983
	07-08	*	< LOD	< LOD	1.82 (1.46-2.06)	2.72 (2.19-3.08)	1290
	09-10	*	< LOD	< LOD	1.67 (1.46-2.06)	2.94 (2.33-3.97)	1401
<b>Race/ethnicity</b>							
Mexican Americans	99-00	*	< LOD	< LOD	< LOD	< LOD	680
	07-08	*	< LOD	< LOD	1.13 (.946-1.46)	1.84 (1.21-2.69)	499
	09-10	*	< LOD	< LOD	1.30 (1.13-1.56)	1.84 (1.52-2.10)	600
Non-Hispanic blacks	99-00	*	< LOD	< LOD	< LOD	< LOD	498
	07-08	*	< LOD	< LOD	.946 (.756-1.09)	1.35 (1.03-1.67)	572
	09-10	*	< LOD	< LOD	.875 (<LOD-1.06)	1.46 (1.09-1.75)	504
Non-Hispanic whites	99-00	*	< LOD	< LOD	< LOD	< LOD	580
	07-08	*	< LOD	< LOD	1.63 (1.32-1.84)	2.47 (1.94-3.06)	1079
	09-10	*	< LOD	< LOD	1.63 (1.46-1.89)	2.99 (2.33-3.69)	1197

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Malathion\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Malathion_BiomonitoringSummary.html)

## Urinary 2-Isopropyl-4-methyl-6-hydroxypyrimidine (1999 - 2010)

Metabolite of Diazinon

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	< LOD	< LOD	< LOD	1842
	01-02	*	< LOD	< LOD	< LOD	< LOD	3044
	07-08	*	< LOD	< LOD	.350 (.260-.470)	.720 (.530-.890)	2588
	09-10	*	< LOD	< LOD	.180 (.100-.280)	.440 (.310-.660)	2747
<b>Age group</b>							
6-11 years	99-00	*	< LOD	< LOD	< LOD	< LOD	454
	01-02	*	< LOD	< LOD	< LOD	1.45 (<LOD-3.11)	580
	07-08	*	< LOD	< LOD	.260 (.160-.510)	.580 (.380-1.29)	385
	09-10	*	< LOD	< LOD	.180 (<LOD-.260)	.410 (.210-.480)	386
12-19 years	99-00	*	< LOD	< LOD	< LOD	< LOD	632
	01-02	*	< LOD	< LOD	< LOD	< LOD	829
	07-08	*	< LOD	< LOD	.320 (.180-.510)	.660 (.350-1.24)	390
	09-10	*	< LOD	< LOD	< LOD	.260 (<LOD-.390)	401
20-59 years	99-00	*	< LOD	< LOD	< LOD	< LOD	756
	01-02	*	< LOD	< LOD	< LOD	< LOD	1126
	07-08	*	< LOD	< LOD	.310 (.220-.500)	.670 (.490-.890)	1180
	09-10	*	< LOD	< LOD	.160 (<LOD-.280)	.450 (.280-.810)	1309
60 years and older	01-02	*	< LOD	< LOD	< LOD	< LOD	509
	07-08	*	< LOD	< LOD	.470 (.320-.670)	1.02 (.600-1.27)	633
	09-10	*	< LOD	< LOD	.290 (.200-.430)	.640 (.350-.860)	651
<b>Gender</b>							
Males	99-00	*	< LOD	< LOD	< LOD	< LOD	894
	01-02	*	< LOD	< LOD	< LOD	< LOD	1427
	07-08	*	< LOD	< LOD	.390 (.300-.500)	.760 (.530-1.02)	1293
	09-10	*	< LOD	< LOD	.160 (<LOD-.240)	.450 (.270-.710)	1343
Females	99-00	*	< LOD	< LOD	< LOD	< LOD	948
	01-02	*	< LOD	< LOD	< LOD	< LOD	1617
	07-08	*	< LOD	< LOD	.300 (.210-.450)	.670 (.510-.830)	1295
	09-10	*	< LOD	< LOD	.210 (.130-.290)	.440 (.310-.600)	1404
<b>Race/ethnicity</b>							
Mexican Americans	99-00	*	< LOD	< LOD	< LOD	< LOD	644
	01-02	*	< LOD	< LOD	< LOD	< LOD	765
	07-08	*	< LOD	.110 (<LOD-.160)	.350 (.260-.440)	.540 (.400-.790)	500
	09-10	*	< LOD	< LOD	.140 (<LOD-.210)	.360 (.210-.570)	602
Non-Hispanic blacks	99-00	*	< LOD	< LOD	< LOD	< LOD	484
	01-02	*	< LOD	< LOD	< LOD	1.49 (<LOD-2.36)	775
	07-08	*	< LOD	.230 (.140-.300)	.680 (.460-.990)	1.26 (.880-1.77)	574
	09-10	*	< LOD	< LOD	.430 (.310-.510)	.760 (.460-1.21)	504
Non-Hispanic whites	99-00	*	< LOD	< LOD	< LOD	< LOD	554
	01-02	*	< LOD	< LOD	< LOD	< LOD	1280
	07-08	*	< LOD	< LOD	.270 (.190-.400)	.650 (.440-.880)	1084
	09-10	*	< LOD	< LOD	.120 (<LOD-.260)	.410 (.280-.660)	1200

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 07-08, and 09-10 are 7.2, 0.7, 0.1, and 0.1 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Diazinon\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Diazinon_BiomonitoringSummary.html)

## Urinary 2-Isopropyl-4-methyl-6-hydroxypyrimidine (creatinine corrected) (1999 - 2010)

Metabolite of Diazinon

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	< LOD	< LOD	< LOD	1842
	01-02	*	< LOD	< LOD	< LOD	< LOD	3042
	07-08	*	< LOD	< LOD	.412 (.333-.508)	.731 (.538-1.00)	2586
	09-10	*	< LOD	< LOD	.313 (.269-.350)	.526 (.429-.636)	2747
<b>Age group</b>							
6-11 years	99-00	*	< LOD	< LOD	< LOD	< LOD	454
	01-02	*	< LOD	< LOD	< LOD	2.72 (<LOD-4.46)	580
	07-08	*	< LOD	< LOD	.412 (.304-.658)	1.00 (.412-1.59)	385
	09-10	*	< LOD	< LOD	.333 (<LOD-.438)	.438 (.323-.900)	386
12-19 years	99-00	*	< LOD	< LOD	< LOD	< LOD	632
	01-02	*	< LOD	< LOD	< LOD	< LOD	828
	07-08	*	< LOD	< LOD	.278 (.175-.452)	.460 (.276-1.17)	388
	09-10	*	< LOD	< LOD	< LOD	.228 (<LOD-.365)	401
20-59 years	99-00	*	< LOD	< LOD	< LOD	< LOD	756
	01-02	*	< LOD	< LOD	< LOD	< LOD	1126
	07-08	*	< LOD	< LOD	.383 (.304-.508)	.645 (.500-.846)	1180
	09-10	*	< LOD	< LOD	.304 (<LOD-.350)	.526 (.364-.700)	1309
60 years and older	01-02	*	< LOD	< LOD	< LOD	< LOD	508
	07-08	*	< LOD	< LOD	.594 (.414-.822)	1.05 (.708-1.80)	633
	09-10	*	< LOD	< LOD	.438 (.333-.551)	.773 (.550-1.09)	651
<b>Gender</b>							
Males	99-00	*	< LOD	< LOD	< LOD	< LOD	894
	01-02	*	< LOD	< LOD	< LOD	< LOD	1427
	07-08	*	< LOD	< LOD	.333 (.286-.457)	.677 (.500-.795)	1292
	09-10	*	< LOD	< LOD	.259 (<LOD-.318)	.438 (.318-.613)	1343
Females	99-00	*	< LOD	< LOD	< LOD	< LOD	948
	01-02	*	< LOD	< LOD	< LOD	< LOD	1615
	07-08	*	< LOD	< LOD	.438 (.368-.632)	.822 (.562-1.35)	1294
	09-10	*	< LOD	< LOD	.347 (.304-.407)	.583 (.500-.710)	1404
<b>Race/ethnicity</b>							
Mexican Americans	99-00	*	< LOD	< LOD	< LOD	< LOD	644
	01-02	*	< LOD	< LOD	< LOD	< LOD	765
	07-08	*	< LOD	.172 (<LOD-.203)	.385 (.260-.483)	.636 (.401-.990)	499
	09-10	*	< LOD	< LOD	.271 (<LOD-.333)	.412 (.350-.538)	602
Non-Hispanic blacks	99-00	*	< LOD	< LOD	< LOD	< LOD	484
	01-02	*	< LOD	< LOD	< LOD	1.89 (<LOD-3.06)	774
	07-08	*	< LOD	.202 (.152-.256)	.571 (.333-.800)	1.01 (.728-1.47)	573
	09-10	*	< LOD	< LOD	.318 (.269-.374)	.619 (.352-.933)	504
Non-Hispanic whites	99-00	*	< LOD	< LOD	< LOD	< LOD	554
	01-02	*	< LOD	< LOD	< LOD	< LOD	1279
	07-08	*	< LOD	< LOD	.368 (.292-.484)	.700 (.418-1.06)	1084
	09-10	*	< LOD	< LOD	.304 (<LOD-.368)	.525 (.412-.691)	1200

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Diazinon\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Diazinon_BiomonitoringSummary.html)



## Urinary *para*-Nitrophenol (1999 - 2010)

Metabolite of Ethyl Parathion, Methyl Parathion, and Nitrobenzene

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	< LOD	2.50 (1.40-4.50)	5.00 (2.90-11.0)	1989
	01-02	*	< LOD	1.33 (1.20-1.46)	2.69 (2.39-3.01)	3.72 (3.46-4.15)	2975
	07-08	.673 (.595-.761)	.740 (.660-.830)	1.49 (1.32-1.66)	2.77 (2.19-3.45)	4.50 (3.50-5.42)	2564
	09-10	.454 (.407-.506)	.510 (.440-.580)	1.09 (1.00-1.19)	2.18 (1.99-2.34)	3.14 (2.85-3.55)	2744
Age group 6-11 years	99-00	*	< LOD	.940 (<LOD-2.40)	2.67 (1.70-3.80)	4.30 (2.70-6.40)	479
	01-02	*	.790 (<LOD-.910)	1.49 (1.36-1.61)	2.89 (2.22-3.58)	4.10 (3.01-4.74)	565
	07-08	.803 (.678-.952)	.890 (.760-1.01)	1.66 (1.26-1.99)	2.85 (2.10-3.94)	4.37 (2.91-6.75)	383
	09-10	.506 (.426-.601)	.600 (.500-.720)	1.20 (.980-1.43)	2.21 (1.74-2.73)	2.85 (2.28-3.81)	386
12-19 years	99-00	*	< LOD	< LOD	3.40 (1.60-5.70)	5.70 (2.60-19.0)	680
	01-02	*	.730 (<LOD-.910)	1.45 (1.32-1.61)	2.66 (2.15-3.11)	3.34 (3.11-4.01)	813
	07-08	.769 (.614-.962)	.850 (.680-1.02)	1.49 (1.28-1.74)	2.79 (1.94-3.45)	3.47 (2.97-4.48)	387
	09-10	.430 (.375-.493)	.520 (.460-.590)	.950 (.870-1.09)	1.84 (1.43-2.03)	2.37 (1.84-2.98)	401
20-59 years	99-00	*	< LOD	< LOD	2.30 (1.20-5.70)	4.50 (2.30-16.0)	830
	01-02	*	< LOD	1.28 (1.09-1.47)	2.69 (2.32-3.10)	3.72 (3.37-4.24)	1099
	07-08	.658 (.574-.754)	.720 (.640-.840)	1.49 (1.31-1.65)	2.77 (2.10-3.70)	4.68 (3.37-5.56)	1173
	09-10	.452 (.400-.511)	.510 (.420-.590)	1.12 (1.00-1.24)	2.16 (1.91-2.39)	3.27 (2.84-3.58)	1308
60 years and older	01-02	*	< LOD	1.29 (1.07-1.49)	2.66 (2.11-3.39)	4.01 (3.17-7.19)	498
	07-08	.607 (.512-.720)	.610 (.550-.710)	1.41 (1.14-1.76)	2.81 (2.19-3.90)	4.70 (2.90-6.91)	621
	09-10	.453 (.386-.530)	.460 (.380-.580)	1.06 (.970-1.33)	2.42 (1.87-3.00)	3.65 (3.00-4.36)	649
Gender Males	99-00	*	< LOD	< LOD	2.50 (1.40-4.50)	4.50 (2.50-14.0)	971
	01-02	*	.760 (.450-.880)	1.49 (1.32-1.63)	3.01 (2.66-3.33)	4.13 (3.61-4.92)	1395
	07-08	.782 (.690-.887)	.850 (.740-.980)	1.59 (1.43-1.73)	2.85 (2.19-3.53)	4.52 (3.47-5.01)	1282
	09-10	.524 (.472-.581)	.590 (.490-.670)	1.30 (1.14-1.42)	2.29 (2.07-2.54)	3.29 (2.90-3.73)	1342
Females	99-00	*	< LOD	< LOD	2.50 (1.30-5.70)	5.70 (2.90-9.50)	1018
	01-02	*	< LOD	1.18 (1.01-1.37)	2.29 (1.95-2.69)	3.52 (3.16-3.77)	1580
	07-08	.582 (.510-.664)	.640 (.550-.720)	1.32 (1.10-1.59)	2.72 (2.16-3.35)	4.37 (3.09-5.64)	1282
	09-10	.396 (.352-.446)	.440 (.380-.510)	.960 (.860-1.06)	2.01 (1.70-2.26)	3.07 (2.62-3.55)	1402
Race/ethnicity Mexican Americans	99-00	*	< LOD	1.70 (<LOD-3.50)	5.80 (2.60-24.0)	22.0 (3.60-36.0)	695
	01-02	*	.680 (<LOD-.840)	1.33 (1.08-1.58)	2.61 (1.91-3.41)	3.64 (2.70-5.73)	744
	07-08	.624 (.542-.720)	.700 (.560-.810)	1.37 (1.16-1.52)	2.58 (2.03-3.33)	4.46 (2.79-6.91)	494
	09-10	.484 (.392-.599)	.560 (.440-.710)	1.30 (1.03-1.46)	2.21 (1.78-2.46)	3.07 (2.39-3.73)	602
Non-Hispanic blacks	99-00	*	< LOD	1.20 (<LOD-2.60)	2.90 (1.70-6.00)	4.80 (2.50-9.20)	518
	01-02	*	.850 (<LOD-1.10)	1.76 (1.36-2.15)	3.13 (2.47-4.26)	4.92 (3.75-6.36)	752
	07-08	.826 (.716-.952)	.860 (.760-1.01)	1.71 (1.45-1.92)	3.15 (2.56-3.90)	4.72 (3.91-5.68)	568
	09-10	.505 (.381-.670)	.570 (.400-.820)	1.30 (1.01-1.50)	2.19 (1.80-2.63)	3.49 (2.57-4.28)	504
Non-Hispanic whites	99-00	*	< LOD	< LOD	2.10 (<LOD-6.33)	4.20 (2.10-11.0)	603
	01-02	*	< LOD	1.29 (1.14-1.42)	2.70 (2.38-3.10)	3.71 (3.38-4.00)	1259
	07-08	.623 (.531-.730)	.690 (.610-.790)	1.36 (1.19-1.59)	2.51 (1.89-3.08)	3.63 (2.82-5.48)	1075
	09-10	.440 (.388-.499)	.490 (.410-.580)	1.03 (.930-1.12)	2.18 (1.89-2.48)	3.14 (2.67-3.62)	1197

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 07-08, and 09-10 are 0.8, 0.1, 0.1, and 0.1 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Nitrobenzene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Nitrobenzene_BiomonitoringSummary.html)



## Urinary *para*-Nitrophenol (creatinine corrected) (1999 - 2010)

Metabolite of Ethyl Parathion, Methyl Parathion, and Nitrobenzene

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	< LOD	2.08 (1.33-3.91)	4.25 (2.15-10.2)	1989
	01-02	*	< LOD	.987 (.868-1.10)	1.97 (1.86-2.13)	2.98 (2.60-3.33)	2973
	07-08	.692 (.632-.757)	.673 (.624-.737)	1.28 (1.15-1.40)	2.38 (2.11-2.66)	3.57 (2.94-4.39)	2562
	09-10	.473 (.430-.521)	.490 (.438-.531)	.923 (.851-1.01)	1.87 (1.60-2.06)	2.62 (2.32-2.91)	2744
Age group 6-11 years	99-00	*	< LOD	.938 (<LOD-1.95)	2.80 (1.94-4.00)	4.20 (3.33-6.70)	479
	01-02	*	.715 (<LOD-.870)	1.60 (1.30-1.82)	2.78 (2.31-3.11)	3.67 (3.11-4.61)	565
	07-08	1.02 (.892-1.17)	1.02 (.920-1.12)	1.67 (1.46-1.90)	3.13 (2.51-3.64)	3.76 (3.31-4.89)	383
	09-10	.684 (.598-.784)	.717 (.650-.826)	1.30 (1.10-1.54)	2.19 (2.00-2.59)	3.16 (2.33-3.67)	386
12-19 years	99-00	*	< LOD	< LOD	1.80 (1.08-3.04)	4.00 (1.57-7.29)	680
	01-02	*	.373 (<LOD-.503)	.840 (.790-.951)	1.59 (1.37-1.78)	2.10 (1.78-2.43)	812
	07-08	.597 (.511-.698)	.581 (.497-.697)	1.02 (.891-1.14)	1.64 (1.29-2.17)	2.92 (1.55-4.54)	385
	09-10	.368 (.319-.426)	.413 (.350-.488)	.684 (.615-.732)	1.09 (.930-1.48)	1.73 (1.47-2.09)	401
20-59 years	99-00	*	< LOD	< LOD	2.00 (1.17-4.25)	4.29 (2.13-12.3)	830
	01-02	*	< LOD	.875 (.693-1.07)	1.79 (1.56-2.05)	2.89 (2.35-3.33)	1099
	07-08	.656 (.595-.724)	.635 (.585-.706)	1.22 (1.09-1.34)	2.19 (1.94-2.51)	3.04 (2.56-4.07)	1173
	09-10	.452 (.410-.498)	.453 (.405-.521)	.868 (.805-.981)	1.61 (1.48-1.87)	2.34 (2.08-2.67)	1308
60 years and older	01-02	*	< LOD	1.21 (.920-1.56)	2.29 (1.99-2.83)	4.29 (2.51-5.67)	497
	07-08	.755 (.643-.886)	.763 (.638-.909)	1.59 (1.40-1.73)	3.26 (2.46-4.47)	5.43 (3.33-7.09)	621
	09-10	.537 (.450-.641)	.520 (.451-.636)	1.15 (.899-1.59)	2.53 (2.03-3.39)	4.27 (2.98-5.26)	649
Gender Males	99-00	*	< LOD	< LOD	1.90 (1.01-3.39)	3.39 (1.77-7.55)	971
	01-02	*	.433 (.333-.534)	.984 (.869-1.07)	1.89 (1.66-2.09)	2.98 (2.29-3.57)	1395
	07-08	.650 (.595-.712)	.641 (.594-.697)	1.20 (1.08-1.33)	2.11 (1.63-2.49)	3.02 (2.51-3.71)	1281
	09-10	.466 (.424-.512)	.495 (.432-.538)	.922 (.843-.985)	1.84 (1.48-2.05)	2.36 (2.21-2.68)	1342
Females	99-00	*	< LOD	< LOD	2.26 (1.48-4.88)	6.92 (2.76-14.1)	1018
	01-02	*	< LOD	.995 (.801-1.23)	2.08 (1.85-2.32)	3.04 (2.58-3.44)	1578
	07-08	.735 (.660-.818)	.707 (.644-.779)	1.37 (1.21-1.63)	2.67 (2.20-3.25)	4.11 (3.11-5.06)	1281
	09-10	.480 (.430-.536)	.488 (.426-.538)	.923 (.824-1.08)	1.93 (1.62-2.17)	2.72 (2.32-3.46)	1402
Race/ethnicity Mexican Americans	99-00	*	< LOD	1.55 (<LOD-3.17)	4.86 (2.21-21.9)	17.4 (3.94-47.7)	695
	01-02	*	.389 (<LOD-.546)	.935 (.716-1.22)	1.89 (1.43-2.63)	3.23 (2.49-3.84)	744
	07-08	.638 (.538-.757)	.604 (.554-.708)	1.14 (.938-1.40)	2.03 (1.45-3.57)	3.63 (2.05-4.71)	493
	09-10	.506 (.419-.612)	.541 (.480-.621)	1.02 (.854-1.19)	1.73 (1.39-2.15)	2.35 (1.84-3.02)	602
Non-Hispanic blacks	99-00	*	< LOD	.683 (<LOD-1.79)	2.07 (1.33-3.71)	3.71 (1.98-7.20)	518
	01-02	*	.438 (<LOD-.640)	1.04 (.847-1.27)	1.84 (1.59-2.30)	2.81 (2.14-4.30)	751
	07-08	.633 (.565-.708)	.634 (.553-.743)	1.07 (.973-1.23)	2.04 (1.64-2.32)	2.66 (2.11-3.54)	567
	09-10	.382 (.289-.505)	.431 (.312-.554)	.785 (.671-.874)	1.36 (1.03-1.99)	2.52 (1.73-3.22)	504
Non-Hispanic whites	99-00	*	< LOD	< LOD	1.97 (<LOD-4.29)	3.83 (1.97-10.2)	603
	01-02	*	< LOD	.984 (.827-1.16)	2.06 (1.89-2.29)	3.11 (2.49-3.57)	1258
	07-08	.677 (.604-.759)	.664 (.604-.761)	1.25 (1.10-1.38)	2.28 (2.00-2.56)	3.23 (2.60-4.00)	1075
	09-10	.479 (.433-.530)	.490 (.433-.538)	.923 (.849-1.03)	1.92 (1.60-2.13)	2.62 (2.24-3.04)	1197

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Nitrobenzene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Nitrobenzene_BiomonitoringSummary.html)

## Urinary 3,5,6-Trichloro-2-pyridinol (1999 - 2010)

Metabolite of Chlorpyrifos and Chlorpyrifos-methyl

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	1.77 (1.46-2.14)	1.70 (1.40-2.20)	3.50 (2.50-5.20)	7.30 (4.80-10.0)	10.0 (7.70-15.0)	1994
	01-02	1.72 (1.50-1.97)	2.17 (1.81-2.51)	4.87 (4.45-5.24)	8.80 (7.80-9.77)	12.4 (10.7-15.2)	3011
	07-08	1.29 (1.20-1.39)	1.48 (1.31-1.65)	2.63 (2.39-2.94)	4.55 (4.03-5.14)	6.11 (5.60-6.93)	2588
	09-10	.779 (.706-.859)	1.03 (.920-1.16)	1.96 (1.80-2.20)	3.34 (2.96-3.68)	4.47 (4.04-5.15)	2747
<b>Age group</b>							
6-11 years	99-00	2.88 (1.99-4.16)	2.80 (1.60-4.90)	7.09 (3.40-10.0)	12.0 (7.70-17.0)	16.0 (10.0-28.0)	481
	01-02	2.67 (2.13-3.35)	3.09 (2.50-4.22)	6.36 (4.97-7.97)	10.9 (7.98-15.3)	15.3 (11.5-24.0)	573
	07-08	1.72 (1.48-2.01)	1.85 (1.49-2.22)	3.18 (2.58-3.68)	4.69 (3.90-5.74)	6.04 (5.12-7.63)	385
	09-10	1.12 (.899-1.39)	1.46 (1.27-1.64)	2.38 (1.96-2.75)	4.29 (2.67-6.07)	5.81 (4.14-7.16)	386
12-19 years	99-00	2.37 (1.89-2.97)	2.10 (1.60-3.00)	4.50 (2.90-7.10)	8.10 (5.50-14.0)	12.5 (8.00-24.0)	681
	01-02	2.71 (2.19-3.35)	3.57 (2.66-4.34)	6.60 (5.61-7.59)	11.3 (8.66-15.1)	18.0 (13.7-23.7)	823
	07-08	1.54 (1.27-1.86)	1.81 (1.39-2.20)	2.75 (2.34-3.29)	4.70 (3.66-5.72)	6.33 (4.98-7.96)	390
	09-10	.884 (.793-.985)	1.08 (.960-1.30)	1.89 (1.64-2.28)	3.04 (2.28-4.21)	4.30 (3.14-5.60)	401
20-59 years	99-00	1.53 (1.29-1.83)	1.50 (1.30-1.80)	2.90 (2.20-4.30)	5.90 (3.90-8.90)	8.90 (6.70-11.0)	832
	01-02	1.51 (1.32-1.72)	1.91 (1.44-2.26)	4.44 (3.90-4.80)	7.78 (7.00-8.91)	10.9 (9.52-12.4)	1113
	07-08	1.19 (1.07-1.33)	1.36 (1.22-1.53)	2.55 (2.21-2.98)	4.46 (3.82-5.30)	5.85 (5.40-6.93)	1180
	09-10	.710 (.634-.795)	.970 (.860-1.12)	1.89 (1.70-2.07)	3.14 (2.81-3.49)	4.18 (3.66-4.73)	1309
60 years and older	01-02	1.51 (1.21-1.89)	1.76 (1.22-2.33)	4.36 (3.54-5.08)	9.11 (6.67-13.0)	13.5 (11.2-15.5)	502
	07-08	1.31 (1.17-1.47)	1.51 (1.27-1.70)	2.51 (2.34-2.78)	4.64 (3.97-5.81)	6.69 (5.14-8.14)	633
	09-10	.812 (.710-.929)	.990 (.870-1.15)	2.30 (1.73-2.58)	3.90 (3.16-4.67)	5.32 (4.23-6.85)	651
<b>Gender</b>							
Males	99-00	1.92 (1.60-2.32)	1.90 (1.50-2.40)	3.60 (2.70-5.60)	7.40 (5.04-10.0)	10.0 (7.70-16.0)	972
	01-02	2.13 (1.82-2.49)	2.67 (2.24-3.16)	5.33 (4.81-6.05)	9.69 (8.45-11.5)	15.0 (11.7-17.7)	1416
	07-08	1.49 (1.36-1.64)	1.70 (1.49-1.92)	2.85 (2.50-3.17)	4.87 (4.17-5.52)	6.01 (5.56-6.67)	1293
	09-10	.865 (.775-.965)	1.16 (1.03-1.27)	2.10 (1.87-2.35)	3.50 (2.97-3.93)	4.66 (3.96-5.84)	1343
Females	99-00	1.63 (1.31-2.02)	1.50 (1.20-2.00)	3.30 (2.30-5.30)	7.20 (4.30-12.0)	11.0 (7.20-16.0)	1022
	01-02	1.40 (1.21-1.62)	1.63 (1.32-2.01)	4.31 (3.57-4.84)	7.78 (6.52-9.20)	10.9 (8.62-13.2)	1595
	07-08	1.13 (1.04-1.22)	1.26 (1.13-1.40)	2.41 (2.15-2.79)	4.32 (3.76-4.98)	6.30 (5.27-7.59)	1295
	09-10	.704 (.631-.786)	.940 (.830-1.04)	1.88 (1.63-2.11)	3.22 (2.78-3.72)	4.40 (4.09-4.73)	1404
<b>Race/ethnicity</b>							
Mexican Americans	99-00	1.61 (1.31-2.00)	1.67 (1.30-2.20)	3.20 (2.60-3.80)	5.10 (3.80-8.40)	7.40 (5.10-17.0)	697
	01-02	1.98 (1.77-2.21)	2.54 (2.21-2.89)	4.55 (4.09-5.22)	8.94 (7.06-10.4)	11.9 (10.0-15.7)	744
	07-08	1.13 (.926-1.38)	1.26 (1.06-1.53)	2.34 (1.89-2.94)	4.04 (3.13-4.92)	5.36 (4.37-7.16)	500
	09-10	.761 (.650-.892)	.950 (.850-1.18)	1.90 (1.66-2.11)	3.31 (2.76-4.19)	4.64 (4.19-5.46)	602
Non-Hispanic blacks	99-00	2.17 (1.59-2.97)	1.90 (1.43-2.80)	4.30 (2.50-8.30)	9.40 (6.40-13.7)	13.0 (9.40-26.0)	521
	01-02	2.14 (1.61-2.84)	2.85 (2.16-3.38)	5.45 (4.57-6.96)	9.27 (7.21-11.7)	12.9 (9.57-17.5)	776
	07-08	1.64 (1.36-1.97)	1.86 (1.47-2.24)	3.22 (2.65-4.17)	5.79 (4.85-7.17)	7.97 (6.49-9.58)	574
	09-10	.918 (.823-1.02)	1.22 (1.06-1.38)	2.24 (2.00-2.52)	3.49 (2.99-4.14)	4.99 (3.93-6.17)	504
Non-Hispanic whites	99-00	1.76 (1.51-2.05)	1.70 (1.50-2.10)	3.50 (2.50-4.86)	7.10 (4.30-11.0)	10.0 (7.20-14.0)	602
	01-02	1.67 (1.44-1.94)	2.11 (1.64-2.47)	4.85 (4.38-5.29)	8.91 (7.63-9.97)	12.9 (10.4-15.7)	1267
	07-08	1.23 (1.16-1.30)	1.44 (1.27-1.58)	2.57 (2.35-2.83)	4.41 (3.89-4.87)	5.69 (5.40-6.14)	1084
	09-10	.768 (.667-.885)	1.03 (.890-1.18)	1.96 (1.71-2.31)	3.42 (2.93-3.86)	4.46 (3.93-5.32)	1200

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 07-08, and 09-10 are 0.4, 0.4, 0.1, and 0.1 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Chlorpyrifos\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Chlorpyrifos_BiomonitoringSummary.html)

## Urinary 3,5,6-Trichloro-2-pyridinol (creatinine corrected) (1999 - 2010)

Metabolite of Chlorpyrifos and Chlorpyrifos-methyl

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	1.58 (1.35-1.85)	1.47 (1.24-1.74)	2.85 (2.12-3.59)	5.43 (4.22-6.68)	8.42 (6.25-11.6)	1994
	01-02	1.75 (1.53-2.00)	1.94 (1.66-2.25)	3.80 (3.13-4.48)	6.53 (5.24-8.23)	9.27 (7.46-12.1)	3009
	07-08	1.33 (1.22-1.44)	1.34 (1.25-1.48)	2.29 (2.06-2.48)	3.80 (3.44-4.15)	4.91 (4.47-5.83)	2586
	09-10	.812 (.748-.881)	.979 (.917-1.05)	1.66 (1.52-1.80)	2.67 (2.40-2.94)	3.53 (3.15-4.02)	2747
<b>Age group</b>							
6-11 years	99-00	3.11 (2.31-4.19)	3.20 (2.05-4.80)	6.39 (4.14-8.19)	10.1 (7.26-14.0)	14.1 (10.1-21.0)	481
	01-02	3.48 (2.80-4.32)	3.76 (3.17-4.36)	6.22 (4.88-8.57)	12.2 (7.24-24.4)	16.9 (12.1-38.0)	573
	07-08	2.18 (1.89-2.53)	2.21 (1.86-2.66)	3.23 (2.86-3.89)	4.67 (4.23-5.00)	5.94 (4.76-6.58)	385
	09-10	1.51 (1.28-1.78)	1.77 (1.49-1.95)	2.62 (2.26-2.90)	3.67 (2.93-4.42)	4.42 (3.76-5.95)	386
12-19 years	99-00	1.60 (1.34-1.91)	1.45 (1.21-1.81)	2.58 (1.98-3.92)	4.83 (3.44-6.16)	6.16 (4.43-10.6)	681
	01-02	2.09 (1.72-2.55)	2.24 (1.92-2.66)	3.97 (3.30-4.72)	6.33 (5.62-7.89)	10.3 (7.65-15.2)	822
	07-08	1.19 (1.05-1.34)	1.20 (1.05-1.33)	1.85 (1.61-2.22)	2.66 (2.32-3.62)	4.00 (2.70-5.77)	388
	09-10	.757 (.675-.850)	.861 (.766-.935)	1.34 (1.15-1.55)	2.27 (1.55-2.68)	2.67 (2.13-4.21)	401
20-59 years	99-00	1.41 (1.23-1.62)	1.33 (1.12-1.58)	2.37 (1.87-3.01)	4.29 (3.53-5.56)	6.42 (5.11-9.02)	832
	01-02	1.49 (1.30-1.71)	1.64 (1.39-1.88)	3.11 (2.60-3.91)	5.51 (4.33-7.23)	7.44 (5.80-11.0)	1113
	07-08	1.19 (1.09-1.30)	1.22 (1.10-1.33)	2.04 (1.78-2.32)	3.42 (2.93-3.96)	4.84 (3.96-6.31)	1180
	09-10	.710 (.644-.784)	.875 (.813-.943)	1.47 (1.35-1.62)	2.27 (1.99-2.66)	3.20 (2.75-3.64)	1309
60 years and older	01-02	1.84 (1.55-2.18)	2.15 (1.71-2.60)	4.08 (3.61-4.84)	7.43 (6.50-8.50)	11.2 (7.95-13.5)	501
	07-08	1.61 (1.43-1.81)	1.68 (1.48-1.92)	2.88 (2.38-3.46)	4.46 (3.87-4.91)	5.59 (4.64-7.03)	633
	09-10	.963 (.838-1.11)	1.18 (1.01-1.34)	2.03 (1.87-2.19)	3.14 (2.73-4.02)	4.36 (3.47-5.36)	651
<b>Gender</b>							
Males	99-00	1.48 (1.27-1.72)	1.44 (1.19-1.68)	2.54 (2.05-3.38)	4.95 (3.84-6.54)	7.63 (5.65-11.0)	972
	01-02	1.75 (1.51-2.02)	1.93 (1.66-2.24)	3.61 (3.01-4.22)	6.33 (5.08-8.88)	11.3 (7.54-13.5)	1416
	07-08	1.24 (1.13-1.35)	1.29 (1.15-1.46)	2.12 (1.87-2.34)	3.44 (3.03-3.78)	4.41 (3.82-4.97)	1292
	09-10	.769 (.712-.831)	.930 (.863-.988)	1.55 (1.39-1.70)	2.54 (2.18-2.80)	3.41 (3.01-3.93)	1343
Females	99-00	1.69 (1.42-2.01)	1.51 (1.25-1.85)	2.97 (2.25-4.02)	5.63 (4.27-7.39)	8.44 (5.79-13.3)	1022
	01-02	1.75 (1.52-2.02)	1.96 (1.61-2.30)	3.96 (3.16-4.78)	6.58 (5.37-7.95)	8.98 (7.07-11.8)	1593
	07-08	1.42 (1.30-1.55)	1.40 (1.29-1.53)	2.43 (2.22-2.70)	4.18 (3.73-4.74)	5.77 (4.76-7.03)	1294
	09-10	.855 (.765-.954)	1.04 (.951-1.14)	1.76 (1.60-1.96)	2.79 (2.40-3.18)	3.68 (3.18-4.10)	1404
<b>Race/ethnicity</b>							
Mexican Americans	99-00	1.46 (1.20-1.77)	1.44 (1.05-1.93)	2.39 (2.09-2.96)	3.86 (3.24-5.09)	5.85 (3.88-9.57)	697
	01-02	1.86 (1.64-2.10)	2.06 (1.85-2.30)	3.79 (3.23-4.46)	6.52 (5.73-7.58)	8.71 (7.68-11.0)	744
	07-08	1.15 (.895-1.46)	1.18 (.941-1.50)	1.97 (1.55-2.38)	3.04 (2.31-4.41)	4.41 (2.92-7.11)	499
	09-10	.796 (.680-.930)	.959 (.821-1.07)	1.58 (1.39-1.76)	2.61 (2.25-2.99)	3.46 (3.16-4.01)	602
Non-Hispanic blacks	99-00	1.47 (1.09-1.99)	1.33 (.936-1.94)	2.86 (1.58-5.05)	5.91 (4.05-8.93)	9.02 (5.91-13.7)	521
	01-02	1.58 (1.19-2.08)	1.95 (1.56-2.48)	3.53 (2.84-4.28)	5.60 (4.68-6.40)	7.21 (5.83-9.11)	775
	07-08	1.25 (1.05-1.49)	1.24 (1.03-1.47)	2.25 (1.86-2.86)	3.91 (3.13-4.68)	5.39 (4.12-8.30)	573
	09-10	.694 (.613-.786)	.813 (.698-.981)	1.41 (1.28-1.62)	2.28 (2.00-2.55)	2.93 (2.55-3.50)	504
Non-Hispanic whites	99-00	1.66 (1.45-1.91)	1.55 (1.31-1.83)	2.93 (2.09-3.97)	5.56 (4.21-6.75)	8.44 (6.25-12.3)	602
	01-02	1.81 (1.55-2.11)	2.00 (1.65-2.35)	3.91 (3.03-4.91)	6.94 (5.24-9.22)	10.6 (7.76-12.6)	1266
	07-08	1.33 (1.22-1.45)	1.37 (1.26-1.53)	2.31 (2.02-2.54)	3.76 (3.40-4.03)	4.73 (4.35-5.68)	1084
	09-10	.837 (.750-.934)	1.01 (.919-1.12)	1.73 (1.55-1.93)	2.75 (2.40-3.14)	3.64 (3.10-4.36)	1200

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Chlorpyrifos\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Chlorpyrifos_BiomonitoringSummary.html)

## Urinary Diethylphosphate (DEP) (1999 – 2008)

Metabolite of Several Organophosphorus Insecticides

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	<b>1.03</b> (.670-1.58)	<b>1.20</b> (.750-1.70)	<b>3.20</b> (2.30-4.80)	<b>7.60</b> (5.00-12.0)	<b>13.0</b> (7.70-23.0)	1949
	01-02	*	< LOD	<b>2.90</b> (2.50-3.26)	<b>6.68</b> (5.78-7.52)	<b>10.6</b> (9.14-12.0)	3018
	03-04	*	< LOD	<b>4.56</b> (3.57-5.83)	<b>10.2</b> (9.00-11.5)	<b>15.5</b> (13.5-16.8)	2453
	05-06	*	< LOD	<b>1.46</b> (.780-2.17)	<b>7.01</b> (5.67-8.94)	<b>13.3</b> (10.2-16.0)	2635
	07-08	*	< LOD	<b>2.48</b> (1.44-3.33)	<b>8.74</b> (7.51-10.3)	<b>15.3</b> (13.1-17.8)	2591
Age group 6-11 years	99-00	<b>1.32</b> (.757-2.29)	<b>1.50</b> (.860-2.60)	<b>4.50</b> (2.10-7.90)	<b>11.0</b> (4.80-24.0)	<b>16.0</b> (8.50-36.0)	471
	01-02	*	<b>.290</b> (<LOD-1.04)	<b>3.45</b> (2.36-4.47)	<b>9.56</b> (6.33-18.0)	<b>20.0</b> (9.44-38.2)	576
	03-04	*	< LOD	<b>5.13</b> (2.48-7.94)	<b>10.9</b> (8.08-15.9)	<b>16.1</b> (10.9-18.5)	308
	05-06	*	< LOD	<b>1.45</b> (<LOD-4.51)	<b>8.21</b> (4.85-13.4)	<b>13.5</b> (8.36-20.4)	350
	07-08	*	< LOD	<b>4.31</b> (.420-6.49)	<b>12.9</b> (9.14-17.7)	<b>20.2</b> (11.9-37.5)	385
12-19 years	99-00	<b>1.21</b> (.758-1.94)	<b>1.40</b> (.970-2.10)	<b>3.70</b> (2.40-5.50)	<b>8.00</b> (4.70-19.0)	<b>20.0</b> (8.00-27.0)	664
	01-02	*	< LOD	<b>2.86</b> (1.96-3.95)	<b>7.58</b> (5.71-9.15)	<b>11.0</b> (9.35-12.4)	822
	03-04	*	<b>.530</b> (<LOD-2.32)	<b>5.80</b> (4.34-7.67)	<b>14.8</b> (9.12-19.8)	<b>20.8</b> (14.8-32.7)	701
	05-06	*	< LOD	<b>.460</b> (<LOD-3.69)	<b>9.47</b> (4.67-14.1)	<b>14.4</b> (10.2-22.4)	718
	07-08	*	< LOD	<b>3.81</b> (<LOD-5.42)	<b>10.7</b> (7.76-14.2)	<b>23.3</b> (11.3-35.6)	391
20-59 years	99-00	<b>.955</b> (.623-1.47)	<b>1.10</b> (.700-1.60)	<b>3.00</b> (1.80-4.80)	<b>7.30</b> (4.70-11.0)	<b>11.0</b> (6.80-22.0)	814
	01-02	*	< LOD	<b>2.71</b> (2.34-3.12)	<b>5.79</b> (5.05-7.21)	<b>10.4</b> (7.43-12.3)	1122
	03-04	*	< LOD	<b>4.37</b> (3.02-5.81)	<b>9.74</b> (8.35-11.3)	<b>14.2</b> (11.5-16.2)	922
	05-06	*	< LOD	<b>1.13</b> (<LOD-2.17)	<b>6.15</b> (4.51-8.24)	<b>11.5</b> (8.23-15.5)	1092
	07-08	*	< LOD	<b>1.55</b> (.470-2.48)	<b>7.54</b> (6.10-8.98)	<b>14.0</b> (9.62-15.7)	1178
60 years and older	01-02	*	<b>.440</b> (<LOD-1.63)	<b>3.30</b> (2.63-4.51)	<b>7.06</b> (5.17-8.69)	<b>9.41</b> (8.31-10.6)	498
	03-04	*	<b>1.80</b> (<LOD-2.98)	<b>4.73</b> (3.98-5.91)	<b>10.0</b> (8.09-11.3)	<b>13.6</b> (10.6-16.7)	522
	05-06	*	< LOD	<b>2.69</b> (1.71-3.95)	<b>8.33</b> (6.60-12.0)	<b>16.3</b> (12.0-18.7)	475
	07-08	*	< LOD	<b>3.55</b> (2.80-5.31)	<b>9.86</b> (7.53-14.2)	<b>17.1</b> (12.6-22.1)	637
Gender Males	99-00	<b>1.11</b> (.717-1.73)	<b>1.20</b> (.810-1.70)	<b>3.80</b> (2.50-5.00)	<b>8.00</b> (5.00-19.0)	<b>19.0</b> (7.20-30.0)	952
	01-02	*	< LOD	<b>3.21</b> (2.72-3.56)	<b>6.99</b> (5.83-7.71)	<b>11.5</b> (9.36-12.1)	1420
	03-04	*	< LOD	<b>5.01</b> (3.90-6.50)	<b>11.0</b> (10.1-12.7)	<b>16.2</b> (14.3-18.8)	1198
	05-06	*	< LOD	<b>.770</b> (<LOD-1.71)	<b>6.82</b> (5.14-9.54)	<b>13.4</b> (9.36-16.1)	1246
	07-08	*	< LOD	<b>1.95</b> (<LOD-3.34)	<b>9.39</b> (7.90-11.8)	<b>17.0</b> (13.7-21.5)	1295
Females	99-00	<b>.954</b> (.599-1.52)	<b>1.20</b> (.620-1.70)	<b>2.90</b> (1.90-4.80)	<b>7.50</b> (4.60-11.0)	<b>11.0</b> (7.40-16.0)	997
	01-02	*	<b>.290</b> (<LOD-.790)	<b>2.63</b> (2.22-3.03)	<b>6.21</b> (4.59-8.64)	<b>10.2</b> (7.52-14.7)	1598
	03-04	*	<b>.110</b> (<LOD-2.29)	<b>4.29</b> (3.21-5.80)	<b>9.38</b> (7.95-10.7)	<b>13.3</b> (11.2-15.9)	1255
	05-06	*	< LOD	<b>2.15</b> (1.27-2.76)	<b>7.23</b> (5.79-9.32)	<b>12.9</b> (9.64-16.0)	1389
	07-08	*	< LOD	<b>2.76</b> (1.69-3.62)	<b>7.76</b> (6.23-10.7)	<b>14.5</b> (10.7-18.8)	1296

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, and 07-08 are 0.2, 0.2, 0.1, 0.37, and 0.37 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/OP-DPM\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/OP-DPM_BiomonitoringSummary.html)

## Urinary Diethylphosphate (DEP) (1999 – 2008)

*Metabolite of Several Organophosphorus Insecticides*

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00	<b>1.22</b> (.740-2.01)	<b>1.20</b> (.840-1.80)	<b>4.10</b> (2.20-7.00)	<b>11.0</b> (6.40-19.0)	<b>18.0</b> (12.0-27.0)	672
	01-02	*	<b>.600</b> (<LOD-1.49)	<b>3.07</b> (2.22-3.83)	<b>6.26</b> (5.00-7.82)	<b>11.2</b> (7.82-12.3)	763
	03-04	*	<b>1.18</b> (<LOD-2.97)	<b>5.81</b> (3.99-7.59)	<b>11.0</b> (8.48-16.1)	<b>16.9</b> (12.1-24.0)	581
	05-06	*	< LOD	< LOD	<b>6.30</b> (1.57-11.6)	<b>14.9</b> (5.72-33.5)	695
	07-08	*	< LOD	<b>1.63</b> (<LOD-3.88)	<b>8.36</b> (6.44-9.61)	<b>14.8</b> (8.85-25.1)	501
	Non-Hispanic blacks	99-00	<b>1.56</b> (1.13-2.14)	<b>1.60</b> (1.40-1.80)	<b>4.30</b> (2.90-5.80)	<b>10.0</b> (5.60-18.0)	<b>18.0</b> (8.00-27.0)
Non-Hispanic blacks	01-02	*	<b>1.03</b> (<LOD-2.33)	<b>4.81</b> (3.48-6.52)	<b>9.98</b> (7.39-13.3)	<b>15.1</b> (9.81-23.4)	756
	03-04	*	<b>1.04</b> (<LOD-3.28)	<b>6.29</b> (5.05-8.44)	<b>11.9</b> (9.92-15.5)	<b>16.2</b> (14.1-22.5)	628
	05-06	*	< LOD	<b>2.10</b> (<LOD-4.57)	<b>8.87</b> (6.52-12.0)	<b>14.3</b> (11.2-19.1)	723
	07-08	*	< LOD	<b>3.92</b> (2.67-5.19)	<b>11.3</b> (9.44-14.0)	<b>19.5</b> (14.1-22.0)	574
	Non-Hispanic whites	99-00	<b>.981</b> (.579-1.66)	<b>1.10</b> (.490-2.10)	<b>3.30</b> (2.20-4.90)	<b>7.70</b> (4.70-14.0)	<b>14.0</b> (7.60-25.0)
Non-Hispanic whites	01-02	*	< LOD	<b>2.63</b> (2.21-3.13)	<b>5.79</b> (5.05-7.35)	<b>9.90</b> (8.38-11.7)	1253
	03-04	*	< LOD	<b>4.25</b> (3.12-5.77)	<b>9.74</b> (8.37-11.3)	<b>14.4</b> (12.4-16.0)	1055
	05-06	*	< LOD	<b>1.50</b> (.900-2.27)	<b>6.82</b> (5.08-9.74)	<b>13.3</b> (8.37-16.9)	1007
	07-08	*	< LOD	<b>2.14</b> (1.27-3.03)	<b>7.57</b> (6.57-8.97)	<b>14.5</b> (11.4-16.5)	1086

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, and 07-08 are 0.2, 0.2, 0.1, 0.37, and 0.37 respectively.

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### Biomonitoring Summary

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## Urinary Diethylphosphate (DEP) (creatinine corrected) (1999 – 2008)

Metabolite of Several Organophosphorus Insecticides

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	<b>.924</b> (.608-1.41)	<b>.920</b> (.570-1.40)	<b>2.73</b> (1.68-4.60)	<b>7.94</b> (4.40-12.2)	<b>12.2</b> (8.00-19.6)	1949
	01-02	*	< LOD	<b>2.56</b> (2.17-2.85)	<b>5.36</b> (4.75-6.06)	<b>8.72</b> (7.19-10.3)	3017
	03-04	*	< LOD	<b>4.64</b> (3.82-5.79)	<b>9.18</b> (7.85-10.8)	<b>13.1</b> (10.5-16.1)	2450
	05-06	*	< LOD	<b>2.23</b> (1.49-3.09)	<b>7.72</b> (6.26-9.36)	<b>13.5</b> (11.0-19.0)	2634
	07-08	*	< LOD	<b>3.20</b> (2.37-4.12)	<b>8.86</b> (7.52-10.7)	<b>15.7</b> (11.9-19.8)	2589
<b>Age group</b>							
6-11 years	99-00	<b>1.43</b> (.870-2.34)	<b>1.47</b> (1.02-2.41)	<b>3.94</b> (2.20-8.57)	<b>10.5</b> (4.55-20.8)	<b>16.6</b> (10.5-32.7)	471
	01-02	*	<b>.886</b> (<LOD-1.76)	<b>4.02</b> (2.87-5.25)	<b>8.85</b> (6.88-15.6)	<b>18.4</b> (9.40-28.8)	576
	03-04	*	< LOD	<b>6.10</b> (3.79-9.03)	<b>11.9</b> (9.54-15.2)	<b>16.1</b> (11.9-28.3)	308
	05-06	*	< LOD	<b>3.09</b> (<LOD-6.77)	<b>9.50</b> (5.67-17.6)	<b>20.7</b> (9.50-26.5)	350
	07-08	*	< LOD	<b>4.67</b> (2.01-6.96)	<b>17.2</b> (13.1-20.3)	<b>28.2</b> (19.3-34.8)	385
12-19 years	99-00	<b>.818</b> (.533-1.26)	<b>.790</b> (.560-1.25)	<b>2.35</b> (1.37-3.75)	<b>5.44</b> (2.82-14.4)	<b>12.4</b> (4.66-34.2)	664
	01-02	*	< LOD	<b>2.05</b> (1.54-2.67)	<b>4.40</b> (3.40-5.28)	<b>7.28</b> (5.28-9.75)	821
	03-04	*	<b>.438</b> (<LOD-2.05)	<b>4.47</b> (3.90-5.43)	<b>10.1</b> (7.10-13.5)	<b>14.7</b> (9.82-26.4)	699
	05-06	*	< LOD	<b>1.27</b> (<LOD-2.81)	<b>6.74</b> (4.24-9.87)	<b>11.7</b> (6.98-16.6)	718
	07-08	*	< LOD	<b>2.86</b> (<LOD-4.53)	<b>8.56</b> (5.70-17.0)	<b>17.0</b> (8.05-23.0)	389
20-59 years	99-00	<b>.883</b> (.574-1.36)	<b>.860</b> (.500-1.35)	<b>2.66</b> (1.54-4.95)	<b>7.37</b> (4.32-12.1)	<b>12.1</b> (8.00-17.5)	814
	01-02	*	< LOD	<b>2.28</b> (2.01-2.56)	<b>4.75</b> (3.92-5.83)	<b>7.37</b> (5.93-9.72)	1122
	03-04	*	< LOD	<b>4.29</b> (2.98-5.71)	<b>8.35</b> (6.09-11.3)	<b>11.9</b> (9.02-14.7)	921
	05-06	*	< LOD	<b>1.92</b> (<LOD-2.95)	<b>6.64</b> (5.22-9.25)	<b>12.3</b> (9.25-19.4)	1091
	07-08	*	< LOD	<b>2.38</b> (1.81-3.27)	<b>7.45</b> (6.11-9.43)	<b>11.4</b> (9.22-15.8)	1178
60+ years	01-02	*	<b>1.00</b> (<LOD-1.88)	<b>3.29</b> (2.74-4.14)	<b>6.52</b> (4.92-8.21)	<b>9.82</b> (7.05-14.4)	498
	03-04	*	<b>2.39</b> (<LOD-3.35)	<b>5.65</b> (4.36-7.50)	<b>9.44</b> (8.38-10.5)	<b>13.3</b> (10.5-18.2)	522
	05-06	*	< LOD	<b>3.75</b> (2.30-5.14)	<b>9.88</b> (7.72-12.6)	<b>19.3</b> (12.6-26.6)	475
	07-08	*	< LOD	<b>5.28</b> (4.03-6.23)	<b>11.8</b> (9.36-14.4)	<b>17.7</b> (13.2-21.9)	637
<b>Gender</b>							
Males	99-00	<b>.855</b> (.566-1.29)	<b>.820</b> (.510-1.34)	<b>2.61</b> (1.76-4.03)	<b>7.69</b> (4.41-12.1)	<b>12.2</b> (6.94-23.8)	952
	01-02	*	< LOD	<b>2.20</b> (1.86-2.64)	<b>4.49</b> (3.92-5.31)	<b>7.50</b> (5.79-9.10)	1420
	03-04	*	< LOD	<b>4.20</b> (3.28-5.30)	<b>8.35</b> (7.10-10.1)	<b>12.0</b> (9.33-14.7)	1197
	05-06	*	< LOD	<b>1.16</b> (<LOD-2.25)	<b>6.24</b> (4.58-7.63)	<b>10.0</b> (7.60-17.8)	1246
	07-08	*	< LOD	<b>2.17</b> (<LOD-3.23)	<b>8.14</b> (6.35-10.7)	<b>13.6</b> (9.79-18.6)	1294
Females	99-00	<b>.996</b> (.620-1.60)	<b>.960</b> (.540-1.62)	<b>2.81</b> (1.45-5.85)	<b>8.00</b> (4.00-13.0)	<b>12.1</b> (6.67-19.6)	997
	01-02	*	<b>.778</b> (<LOD-1.31)	<b>2.81</b> (2.44-3.33)	<b>6.49</b> (4.95-7.76)	<b>9.61</b> (7.12-13.6)	1597
	03-04	*	<b>.636</b> (<LOD-2.84)	<b>5.06</b> (4.03-6.86)	<b>9.85</b> (8.25-11.8)	<b>13.8</b> (10.9-20.3)	1253
	05-06	*	< LOD	<b>3.50</b> (2.43-4.11)	<b>9.36</b> (6.91-11.8)	<b>16.5</b> (12.4-22.3)	1388
	07-08	*	< LOD	<b>4.09</b> (2.80-4.91)	<b>9.46</b> (8.43-11.5)	<b>16.5</b> (13.1-20.9)	1295

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

## Urinary Diethylphosphate (DEP) (creatinine corrected) (1999 – 2008)

*Metabolite of Several Organophosphorus Insecticides*

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Race/ethnicity</b>							
Mexican Americans	99-00	<b>1.09</b> (.633-1.89)	<b>1.05</b> (.650-1.98)	<b>3.78</b> (2.11-6.46)	<b>9.84</b> (5.66-15.7)	<b>15.7</b> (8.61-29.0)	672
	01-02	*	<b>.891</b> (<LOD-1.41)	<b>2.39</b> (1.77-3.14)	<b>5.17</b> (4.10-6.53)	<b>8.04</b> (6.40-10.9)	763
	03-04	*	<b>1.07</b> (<LOD-2.79)	<b>4.94</b> (3.30-7.01)	<b>9.94</b> (7.89-13.3)	<b>16.6</b> (10.1-22.4)	580
	05-06	*	< LOD	< LOD	<b>6.26</b> (3.71-10.1)	<b>14.9</b> (5.75-37.3)	695
	07-08	*	< LOD	<b>3.19</b> (<LOD-4.27)	<b>8.56</b> (6.00-10.3)	<b>13.3</b> (9.77-15.9)	500
Non-Hispanic blacks	99-00	<b>1.07</b> (.773-1.47)	<b>1.18</b> (.830-1.54)	<b>2.61</b> (1.89-3.47)	<b>5.98</b> (3.94-9.56)	<b>11.9</b> (5.98-22.2)	509
	01-02	*	<b>.797</b> (<LOD-1.62)	<b>2.98</b> (2.57-3.61)	<b>6.91</b> (5.17-8.69)	<b>9.58</b> (7.82-12.1)	755
	03-04	*	<b>.741</b> (<LOD-2.21)	<b>4.25</b> (3.46-5.36)	<b>8.30</b> (6.57-10.7)	<b>11.7</b> (10.5-13.2)	627
	05-06	*	< LOD	<b>1.92</b> (<LOD-3.58)	<b>7.08</b> (5.16-9.35)	<b>11.4</b> (8.91-12.3)	722
	07-08	*	< LOD	<b>3.33</b> (2.33-4.15)	<b>8.72</b> (7.27-10.2)	<b>16.7</b> (11.5-19.4)	573
Non-Hispanic whites	99-00	<b>.932</b> (.549-1.58)	<b>.900</b> (.430-1.68)	<b>2.87</b> (1.51-5.88)	<b>8.57</b> (4.40-14.4)	<b>13.0</b> (8.21-23.8)	595
	01-02	*	< LOD	<b>2.52</b> (2.08-2.95)	<b>5.26</b> (4.57-5.93)	<b>8.26</b> (6.61-10.8)	1253
	03-04	*	< LOD	<b>4.65</b> (3.73-5.87)	<b>9.12</b> (7.79-11.2)	<b>12.7</b> (10.1-15.7)	1054
	05-06	*	< LOD	<b>2.50</b> (1.74-3.30)	<b>7.72</b> (6.24-9.25)	<b>13.9</b> (10.0-19.5)	1007
	07-08	*	< LOD	<b>3.10</b> (2.19-4.18)	<b>8.44</b> (6.84-9.74)	<b>13.6</b> (10.9-17.5)	1086

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

## Urinary Dimethylphosphate (DMP)

Metabolite of Several Organophosphorus Insecticides

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	.740 (<LOD-1.40)	2.90 (2.10-4.00)	7.90 (6.20-8.90)	14.0 (10.0-19.0)	1949
	01-02	*	< LOD	3.32 (2.90-3.74)	8.40 (7.11-9.23)	13.4 (11.4-14.9)	3017
	03-04	*	< LOD	4.15 (3.39-4.94)	9.54 (7.46-11.9)	15.1 (12.8-18.2)	2494
	05-06	*	< LOD	5.21 (4.15-6.56)	17.2 (13.8-20.5)	29.6 (24.3-35.2)	2635
	07-08	*	< LOD	7.91 (6.64-9.07)	20.8 (18.2-24.4)	35.6 (30.3-39.4)	2593
Age group 6-11 years	99-00	1.58 (1.15-2.18)	1.10 (.580-2.20)	4.40 (2.80-6.80)	10.0 (7.80-21.0)	22.0 (15.0-33.0)	471
	01-02	*	.970 (<LOD-2.00)	5.04 (3.31-7.66)	12.2 (9.10-15.1)	18.3 (12.6-41.7)	576
	03-04	*	< LOD	4.53 (3.34-5.96)	11.0 (5.62-17.9)	16.2 (7.46-28.3)	310
	05-06	*	< LOD	9.92 (3.24-20.0)	27.1 (16.5-46.6)	46.6 (27.1-63.0)	350
	07-08	*	< LOD	12.5 (7.22-16.4)	29.7 (20.3-39.1)	43.3 (29.7-62.7)	385
12-19 years	99-00	*	.670 (<LOD-1.80)	3.80 (2.50-4.90)	9.90 (6.20-18.0)	22.0 (13.0-29.0)	664
	01-02	*	.670 (<LOD-1.31)	4.27 (3.41-5.35)	9.27 (7.80-12.3)	14.7 (11.8-21.3)	822
	03-04	*	1.20 (<LOD-2.27)	4.61 (3.47-6.72)	10.9 (7.90-15.0)	20.9 (12.5-26.8)	717
	05-06	*	< LOD	7.32 (1.35-12.4)	22.6 (16.1-36.1)	44.0 (27.6-54.0)	718
	07-08	*	< LOD	10.0 (7.22-14.5)	25.5 (16.8-35.6)	36.2 (25.5-49.6)	391
20-59 years	99-00	*	.680 (<LOD-1.30)	2.70 (1.80-3.70)	6.60 (5.70-8.10)	9.70 (8.80-14.0)	814
	01-02	*	< LOD	2.95 (2.35-3.41)	6.95 (5.80-8.82)	11.5 (9.66-13.7)	1121
	03-04	*	< LOD	3.75 (2.84-4.88)	8.52 (6.86-10.7)	14.1 (10.8-17.5)	938
	05-06	*	< LOD	4.09 (2.45-6.03)	13.8 (9.82-19.8)	24.6 (19.8-32.8)	1092
	07-08	*	< LOD	6.07 (4.26-7.69)	18.0 (13.6-22.6)	30.3 (23.2-37.9)	1180
60 years and older	01-02	*	.700 (<LOD-1.50)	3.68 (2.91-4.56)	8.93 (6.79-10.7)	14.4 (9.60-19.1)	498
	03-04	*	2.04 (<LOD-2.63)	4.60 (3.83-5.15)	11.3 (7.68-13.4)	16.3 (12.4-19.4)	529
	05-06	*	< LOD	6.75 (4.75-9.32)	16.8 (11.7-22.1)	26.3 (18.9-38.8)	475
	07-08	*	< LOD	10.8 (8.64-13.0)	24.9 (19.2-32.4)	40.5 (32.5-47.4)	637
Gender Males	99-00	*	.670 (<LOD-1.30)	2.90 (2.20-4.00)	7.90 (6.00-9.30)	18.0 (10.0-24.0)	952
	01-02	*	< LOD	3.49 (2.90-4.15)	8.40 (6.95-10.3)	12.8 (11.3-14.7)	1420
	03-04	*	< LOD	4.03 (3.30-4.91)	8.49 (6.82-11.9)	15.1 (11.3-20.0)	1221
	05-06	*	< LOD	4.10 (2.37-6.40)	15.9 (12.4-20.9)	28.1 (22.3-36.7)	1246
	07-08	*	< LOD	7.75 (6.50-9.63)	20.8 (17.6-26.6)	36.1 (27.0-47.4)	1295
Females	99-00	*	.790 (<LOD-1.60)	2.90 (2.00-4.20)	7.80 (5.70-9.00)	11.0 (9.00-18.0)	997
	01-02	*	< LOD	3.06 (2.63-3.63)	8.38 (6.56-9.63)	13.7 (10.9-17.6)	1597
	03-04	*	1.08 (<LOD-1.92)	4.29 (3.31-5.28)	10.4 (7.64-12.9)	14.8 (13.3-18.0)	1273
	05-06	*	< LOD	6.40 (5.04-7.21)	18.7 (14.6-20.8)	30.9 (24.6-41.1)	1389
	07-08	*	< LOD	7.91 (6.18-9.36)	20.6 (16.5-25.5)	34.2 (26.6-41.5)	1298

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, and 07-08 are 0.58, 0.5, 0.5, 0.47, and 0.47 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/OP-DPM\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/OP-DPM_BiomonitoringSummary.html)



## Urinary Dimethylphosphate (DMP)

Metabolite of Several Organophosphorus Insecticides

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00	*	<b>1.10</b> (<LOD-1.80)	<b>3.80</b> (2.70-5.30)	<b>9.60</b> (6.00-16.0)	<b>16.0</b> (8.90-31.0)	672
	01-02	*	<b>.710</b> (<LOD-1.52)	<b>3.34</b> (2.45-4.42)	<b>9.13</b> (7.29-10.7)	<b>14.4</b> (11.0-20.6)	763
	03-04	*	< LOD	<b>4.37</b> (3.12-6.86)	<b>10.3</b> (7.85-17.4)	<b>22.3</b> (9.61-31.6)	610
	05-06	*	< LOD	<b>2.65</b> (<LOD-6.47)	<b>18.9</b> (13.3-27.9)	<b>39.0</b> (30.0-47.2)	695
	07-08	*	< LOD	<b>6.85</b> (3.69-8.82)	<b>20.9</b> (14.1-26.4)	<b>35.6</b> (26.3-49.4)	501
Non-Hispanic blacks	99-00	<b>1.42</b> (1.16-1.74)	<b>1.00</b> (.650-1.50)	<b>3.60</b> (2.50-5.50)	<b>8.90</b> (6.90-15.0)	<b>21.0</b> (14.0-24.0)	509
	01-02	*	<b>.890</b> (<LOD-2.20)	<b>4.71</b> (3.68-6.62)	<b>10.7</b> (8.54-13.9)	<b>19.4</b> (14.7-22.8)	755
	03-04	*	< LOD	<b>5.28</b> (4.18-6.37)	<b>10.8</b> (8.33-12.5)	<b>15.8</b> (12.2-23.4)	631
	05-06	*	< LOD	<b>9.16</b> (2.74-15.1)	<b>22.7</b> (18.2-33.7)	<b>42.5</b> (27.3-61.9)	723
	07-08	*	< LOD	<b>8.67</b> (6.43-11.1)	<b>23.7</b> (18.3-28.6)	<b>38.0</b> (27.7-48.1)	574
Non-Hispanic whites	99-00	*	< LOD	<b>2.90</b> (1.80-4.20)	<b>7.90</b> (5.90-9.00)	<b>11.0</b> (9.00-18.0)	595
	01-02	*	< LOD	<b>3.13</b> (2.49-3.58)	<b>7.79</b> (6.67-9.22)	<b>12.5</b> (10.3-14.7)	1253
	03-04	*	< LOD	<b>3.95</b> (3.23-4.91)	<b>8.83</b> (6.56-12.5)	<b>14.8</b> (11.9-20.0)	1061
	05-06	*	< LOD	<b>5.04</b> (3.60-6.75)	<b>15.3</b> (11.8-20.5)	<b>27.8</b> (20.8-36.7)	1007
	07-08	*	< LOD	<b>7.46</b> (6.27-9.03)	<b>20.7</b> (17.5-25.5)	<b>35.6</b> (28.7-39.1)	1088

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, and 07-08 are 0.58, 0.5, 0.5, 0.47, and 0.47 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/OP-DPM\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/OP-DPM_BiomonitoringSummary.html)

## Urinary Dimethylphosphate (DMP) (creatinine corrected) (1999 – 2008)

Metabolite of Several Organophosphorus Insecticides

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	<b>.810</b> (<LOD-1.15)	<b>2.93</b> (2.11-3.92)	<b>8.50</b> (6.96-10.4)	<b>16.1</b> (13.3-17.6)	1949
	01-02	*	< LOD	<b>3.16</b> (2.69-3.59)	<b>8.00</b> (7.12-9.28)	<b>12.9</b> (11.5-15.0)	3016
	03-04	*	< LOD	<b>4.05</b> (3.50-5.15)	<b>9.96</b> (8.78-11.2)	<b>15.0</b> (13.0-18.1)	2491
	05-06	*	< LOD	<b>5.97</b> (4.75-7.43)	<b>18.0</b> (15.9-20.5)	<b>27.9</b> (24.0-32.7)	2634
	07-08	*	< LOD	<b>9.10</b> (8.08-10.2)	<b>20.0</b> (18.0-24.2)	<b>33.6</b> (28.8-40.2)	2591
<b>Age group</b>							
6-11 years	99-00	<b>1.71</b> (1.29-2.27)	<b>1.38</b> (.890-2.38)	<b>4.48</b> (2.88-7.89)	<b>16.7</b> (8.21-21.2)	<b>22.1</b> (19.2-30.1)	471
	01-02	*	<b>1.93</b> (<LOD-2.97)	<b>5.99</b> (4.32-8.28)	<b>12.9</b> (9.34-18.5)	<b>20.6</b> (13.3-34.8)	576
	03-04	*	< LOD	<b>6.87</b> (3.80-9.00)	<b>13.9</b> (9.68-19.3)	<b>19.6</b> (13.9-25.9)	310
	05-06	*	< LOD	<b>12.4</b> (6.71-21.9)	<b>41.2</b> (23.4-62.2)	<b>71.5</b> (37.9-107)	350
	07-08	*	< LOD	<b>15.6</b> (10.8-21.6)	<b>35.3</b> (27.6-39.2)	<b>54.3</b> (36.5-67.1)	385
12-19 years	99-00	*	<b>.590</b> (<LOD-.950)	<b>2.28</b> (1.70-2.80)	<b>7.78</b> (4.16-14.4)	<b>16.0</b> (8.70-35.3)	664
	01-02	*	<b>.913</b> (<LOD-1.27)	<b>3.29</b> (2.76-3.78)	<b>6.29</b> (5.51-7.30)	<b>9.83</b> (7.94-14.2)	821
	03-04	*	<b>1.00</b> (<LOD-1.68)	<b>4.16</b> (3.37-5.07)	<b>8.81</b> (7.78-10.2)	<b>12.7</b> (10.3-17.7)	715
	05-06	*	< LOD	<b>5.89</b> (2.00-10.1)	<b>18.1</b> (13.9-24.0)	<b>28.9</b> (19.9-37.9)	718
	07-08	*	< LOD	<b>9.10</b> (5.62-10.9)	<b>19.9</b> (15.5-22.5)	<b>26.1</b> (19.8-27.2)	389
20-59 years	99-00	*	<b>.760</b> (<LOD-1.12)	<b>2.88</b> (1.89-3.99)	<b>8.11</b> (5.89-10.3)	<b>14.6</b> (10.4-16.8)	814
	01-02	*	< LOD	<b>2.55</b> (2.05-3.03)	<b>6.92</b> (5.85-8.00)	<b>11.5</b> (9.38-13.6)	1121
	03-04	*	< LOD	<b>3.77</b> (2.72-4.55)	<b>8.78</b> (6.68-10.5)	<b>13.5</b> (11.2-15.6)	937
	05-06	*	< LOD	<b>4.71</b> (3.22-6.50)	<b>16.3</b> (13.3-18.7)	<b>24.0</b> (19.9-27.6)	1091
	07-08	*	< LOD	<b>7.32</b> (6.02-8.62)	<b>17.2</b> (13.0-20.0)	<b>28.2</b> (19.3-40.7)	1180
60+ years	01-02	*	<b>1.46</b> (<LOD-2.00)	<b>4.31</b> (3.44-5.39)	<b>10.6</b> (7.92-12.0)	<b>14.3</b> (11.8-18.5)	498
	03-04	*	<b>2.19</b> (<LOD-2.69)	<b>5.88</b> (4.65-7.51)	<b>12.3</b> (9.79-14.8)	<b>17.4</b> (13.0-24.2)	529
	05-06	*	< LOD	<b>9.16</b> (6.36-11.1)	<b>19.7</b> (13.7-26.4)	<b>30.5</b> (22.0-46.2)	475
	07-08	*	< LOD	<b>12.9</b> (10.5-15.3)	<b>29.9</b> (20.9-38.5)	<b>45.5</b> (30.5-80.3)	637
<b>Gender</b>							
Males	99-00	*	<b>.620</b> (<LOD-.940)	<b>2.38</b> (1.86-3.18)	<b>7.58</b> (4.64-11.6)	<b>15.2</b> (9.74-19.5)	952
	01-02	*	< LOD	<b>2.77</b> (2.32-3.19)	<b>7.06</b> (5.44-8.80)	<b>11.2</b> (9.70-12.7)	1420
	03-04	*	< LOD	<b>3.27</b> (2.55-3.94)	<b>8.58</b> (6.79-10.4)	<b>12.5</b> (10.5-15.4)	1220
	05-06	*	< LOD	<b>4.15</b> (2.16-5.95)	<b>14.7</b> (11.1-18.0)	<b>21.9</b> (18.9-26.9)	1246
	07-08	*	< LOD	<b>7.08</b> (5.54-8.54)	<b>17.5</b> (15.1-20.4)	<b>28.0</b> (21.2-35.4)	1294
Females	99-00	*	<b>1.00</b> (<LOD-1.71)	<b>3.63</b> (2.30-5.19)	<b>9.12</b> (7.82-11.7)	<b>16.4</b> (11.7-19.7)	997
	01-02	*	< LOD	<b>3.50</b> (2.86-4.49)	<b>9.09</b> (7.83-10.8)	<b>15.0</b> (12.5-17.8)	1596
	03-04	*	<b>1.67</b> (<LOD-2.25)	<b>5.28</b> (4.05-6.49)	<b>11.2</b> (9.65-13.8)	<b>18.1</b> (14.8-20.6)	1271
	05-06	*	< LOD	<b>8.22</b> (6.99-9.20)	<b>22.0</b> (17.7-24.9)	<b>37.9</b> (27.0-47.2)	1388
	07-08	*	< LOD	<b>10.7</b> (9.10-12.4)	<b>24.3</b> (19.5-28.2)	<b>38.6</b> (27.2-54.6)	1297

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

## Urinary Dimethylphosphate (DMP) (creatinine corrected) (1999 – 2008)

*Metabolite of Several Organophosphorus Insecticides*

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Race/ethnicity</b>							
Mexican Americans	99-00	*	<b>1.06</b> (<LOD-1.55)	<b>3.89</b> (2.54-5.45)	<b>9.41</b> (7.69-11.5)	<b>16.7</b> (11.7-23.6)	672
	01-02	*	<b>.947</b> (<LOD-1.35)	<b>3.18</b> (2.54-3.80)	<b>8.44</b> (6.24-10.9)	<b>14.3</b> (11.4-16.2)	763
	03-04	*	< LOD	<b>4.16</b> (2.57-6.30)	<b>12.3</b> (7.50-16.5)	<b>18.8</b> (15.3-21.5)	609
	05-06	*	< LOD	<b>4.27</b> (<LOD-8.50)	<b>19.1</b> (14.9-22.7)	<b>29.9</b> (23.8-39.0)	695
	07-08	*	< LOD	<b>7.47</b> (5.57-9.46)	<b>19.9</b> (16.8-24.7)	<b>29.8</b> (24.7-33.4)	500
Non-Hispanic blacks	99-00	<b>.973</b> (.780-1.21)	<b>.690</b> (.530-1.06)	<b>2.67</b> (1.89-3.77)	<b>7.07</b> (5.09-11.4)	<b>14.0</b> (10.6-19.1)	509
	01-02	*	<b>.851</b> (<LOD-1.34)	<b>3.36</b> (2.68-4.22)	<b>7.63</b> (6.35-9.18)	<b>13.2</b> (10.1-14.9)	754
	03-04	*	< LOD	<b>3.70</b> (2.84-4.48)	<b>7.52</b> (6.59-8.89)	<b>12.7</b> (8.89-19.3)	630
	05-06	*	< LOD	<b>5.89</b> (2.56-8.89)	<b>18.7</b> (13.1-26.4)	<b>29.9</b> (24.0-38.7)	722
	07-08	*	< LOD	<b>6.75</b> (4.80-8.65)	<b>20.1</b> (15.5-25.1)	<b>30.7</b> (24.2-37.7)	573
Non-Hispanic whites	99-00	*	< LOD	<b>3.15</b> (1.97-4.32)	<b>8.73</b> (5.89-13.3)	<b>15.8</b> (10.0-21.2)	595
	01-02	*	< LOD	<b>3.12</b> (2.50-3.76)	<b>8.30</b> (6.91-10.0)	<b>13.6</b> (11.2-16.9)	1253
	03-04	*	< LOD	<b>4.05</b> (3.49-5.64)	<b>10.2</b> (8.83-11.8)	<b>14.8</b> (12.1-19.2)	1060
	05-06	*	< LOD	<b>5.97</b> (4.53-8.08)	<b>17.7</b> (15.2-20.6)	<b>26.3</b> (23.3-29.3)	1007
	07-08	*	< LOD	<b>9.33</b> (7.92-10.8)	<b>20.0</b> (17.5-24.2)	<b>35.1</b> (27.2-43.9)	1088

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

## Urinary Diethylthiophosphate (DETP) (1999 – 2008)

Metabolite of Several Organophosphorus Insecticides

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	<b>.500</b> (<LOD-.690)	<b>.760</b> (.620-1.10)	<b>1.40</b> (1.10-1.80)	<b>2.20</b> (1.70-2.80)	1949
	01-02	<b>.484</b> (.381-.615)	<b>.630</b> (.450-.930)	<b>1.53</b> (1.33-1.80)	<b>2.57</b> (2.28-3.01)	<b>3.94</b> (3.26-4.94)	3016
	03-04	*	< LOD	<b>.830</b> (.710-.960)	<b>1.83</b> (1.51-2.30)	<b>3.00</b> (2.39-3.78)	2422
	05-06	*	< LOD	<b>.620</b> (<LOD-.710)	<b>1.43</b> (1.17-1.84)	<b>2.55</b> (1.94-3.37)	2634
	07-08	*	< LOD	<b>1.00</b> (.880-1.16)	<b>2.18</b> (1.75-2.75)	<b>4.35</b> (2.95-6.01)	2590
Age group 6-11 years	99-00	*	<b>.600</b> (<LOD-.810)	<b>.910</b> (.720-1.30)	<b>1.70</b> (1.20-3.20)	<b>3.20</b> (1.70-7.30)	471
	01-02	<b>.453</b> (.350-.585)	<b>.550</b> (.350-.850)	<b>1.58</b> (1.33-2.04)	<b>2.75</b> (2.22-3.38)	<b>4.08</b> (2.95-5.16)	575
	03-04	*	< LOD	<b>.820</b> (.580-.970)	<b>1.45</b> (1.05-2.16)	<b>2.18</b> (1.45-4.13)	296
	05-06	*	< LOD	<b>.700</b> (<LOD-.950)	<b>1.38</b> (1.03-2.05)	<b>2.15</b> (1.37-4.06)	350
	07-08	*	< LOD	<b>1.18</b> (.990-1.42)	<b>2.93</b> (2.06-5.58)	<b>6.44</b> (2.87-13.2)	385
12-19 years	99-00	*	<b>.210</b> (<LOD-.710)	<b>.780</b> (.600-1.20)	<b>1.50</b> (1.20-2.30)	<b>2.30</b> (1.60-4.30)	664
	01-02	<b>.505</b> (.388-.657)	<b>.690</b> (.440-.960)	<b>1.61</b> (1.32-1.94)	<b>2.57</b> (2.23-3.39)	<b>4.08</b> (2.73-5.86)	822
	03-04	*	<b>.260</b> (<LOD-.400)	<b>.930</b> (.750-1.13)	<b>2.14</b> (1.75-2.89)	<b>3.27</b> (2.69-4.83)	690
	05-06	*	< LOD	<b>.700</b> (<LOD-.920)	<b>1.42</b> (1.07-1.94)	<b>2.46</b> (1.47-4.42)	717
	07-08	*	< LOD	<b>1.04</b> (.880-1.45)	<b>2.20</b> (1.58-3.11)	<b>4.02</b> (2.16-7.07)	390
20-59 years	99-00	*	<b>.490</b> (<LOD-.670)	<b>.740</b> (.600-.930)	<b>1.30</b> (.990-1.80)	<b>2.00</b> (1.50-2.60)	814
	01-02	<b>.449</b> (.340-.592)	<b>.540</b> (.380-.880)	<b>1.45</b> (1.19-1.79)	<b>2.46</b> (2.11-3.17)	<b>3.83</b> (2.96-5.34)	1122
	03-04	*	< LOD	<b>.800</b> (.650-.960)	<b>1.76</b> (1.37-2.32)	<b>2.65</b> (2.31-3.89)	919
	05-06	*	< LOD	<b>.600</b> (<LOD-.680)	<b>1.42</b> (1.12-1.77)	<b>2.45</b> (1.82-3.31)	1092
	07-08	*	< LOD	<b>.930</b> (.780-1.22)	<b>2.16</b> (1.68-2.76)	<b>4.20</b> (2.76-5.92)	1179
60 years and older	01-02	<b>.662</b> (.571-.768)	<b>1.00</b> (.740-1.14)	<b>1.77</b> (1.50-2.10)	<b>2.81</b> (2.44-3.46)	<b>4.45</b> (2.93-8.31)	497
	03-04	*	<b>.310</b> (<LOD-.520)	<b>.890</b> (.740-1.05)	<b>1.99</b> (1.52-2.67)	<b>3.72</b> (2.19-6.81)	517
	05-06	*	< LOD	<b>.660</b> (<LOD-.840)	<b>1.62</b> (1.25-2.31)	<b>3.20</b> (2.04-4.18)	475
	07-08	*	< LOD	<b>.980</b> (.860-1.16)	<b>2.04</b> (1.60-3.01)	<b>4.25</b> (2.76-5.40)	636
Gender Males	99-00	*	<b>.510</b> (<LOD-.700)	<b>.790</b> (.680-1.10)	<b>1.50</b> (1.20-2.20)	<b>2.70</b> (1.90-4.10)	952
	01-02	<b>.495</b> (.393-.623)	<b>.660</b> (.470-.900)	<b>1.53</b> (1.37-1.82)	<b>2.68</b> (2.28-3.34)	<b>3.96</b> (3.07-5.85)	1419
	03-04	*	<b>.250</b> (<LOD-.380)	<b>.890</b> (.780-1.04)	<b>2.20</b> (1.65-2.41)	<b>3.15</b> (2.42-4.29)	1174
	05-06	*	< LOD	<b>.590</b> (<LOD-.720)	<b>1.48</b> (1.15-1.97)	<b>2.61</b> (1.89-3.58)	1246
	07-08	*	< LOD	<b>1.03</b> (.890-1.25)	<b>2.49</b> (1.82-3.29)	<b>4.79</b> (3.44-5.92)	1293
Females	99-00	*	< LOD	<b>.720</b> (.570-1.00)	<b>1.30</b> (.910-1.60)	<b>1.70</b> (1.30-3.20)	997
	01-02	<b>.474</b> (.360-.624)	<b>.620</b> (.410-.960)	<b>1.51</b> (1.22-1.86)	<b>2.49</b> (2.15-3.04)	<b>3.94</b> (2.82-5.27)	1597
	03-04	*	< LOD	<b>.770</b> (.600-.930)	<b>1.59</b> (1.24-2.08)	<b>2.67</b> (2.07-3.81)	1248
	05-06	*	< LOD	<b>.630</b> (.580-.710)	<b>1.43</b> (1.14-1.77)	<b>2.42</b> (1.78-3.52)	1388
	07-08	*	< LOD	<b>.960</b> (.840-1.14)	<b>2.00</b> (1.60-2.50)	<b>4.01</b> (2.41-6.59)	1297

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, and 07-08 are 0.09, 0.1, 0.2, 0.56, and 0.56 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/OP-DPM\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/OP-DPM_BiomonitoringSummary.html)

## Urinary Diethylthiophosphate (DETP) (1999 – 2008)

*Metabolite of Several Organophosphorus Insecticides*

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00	*	<b>.570</b> (<LOD-.780)	<b>.840</b> (.740-.980)	<b>1.50</b> (1.20-1.90)	<b>2.20</b> (2.00-2.90)	672
	01-02	<b>.549</b> (.403-.749)	<b>.710</b> (.470-.960)	<b>1.40</b> (1.04-1.97)	<b>2.63</b> (2.06-3.14)	<b>3.98</b> (2.75-5.21)	763
	03-04	*	<b>.250</b> (<LOD-.380)	<b>.970</b> (.720-1.52)	<b>2.35</b> (1.69-3.83)	<b>4.19</b> (2.38-8.80)	584
	05-06	*	< LOD	<b>.700</b> (<LOD-.900)	<b>1.42</b> (.980-2.48)	<b>2.72</b> (1.42-4.48)	695
	07-08	*	< LOD	<b>.970</b> (.830-1.15)	<b>1.98</b> (1.60-2.65)	<b>3.46</b> (2.78-4.46)	500
Non-Hispanic blacks	99-00	<b>.343</b> (.201-.584)	<b>.570</b> (<LOD-.750)	<b>.820</b> (.690-1.20)	<b>1.80</b> (1.30-3.20)	<b>3.60</b> (2.00-4.80)	509
	01-02	<b>.755</b> (.589-.966)	<b>1.17</b> (.740-1.46)	<b>1.85</b> (1.73-1.99)	<b>3.54</b> (2.95-3.87)	<b>5.27</b> (3.89-6.74)	755
	03-04	<b>.466</b> (.384-.564)	<b>.430</b> (.210-.710)	<b>1.08</b> (.930-1.29)	<b>2.32</b> (1.74-2.70)	<b>3.25</b> (2.55-4.83)	605
	05-06	*	< LOD	<b>.850</b> (.640-1.18)	<b>1.74</b> (1.43-2.27)	<b>2.96</b> (2.09-4.20)	722
	07-08	*	< LOD	<b>1.23</b> (.890-1.40)	<b>2.85</b> (2.05-4.12)	<b>4.81</b> (4.00-6.59)	574
Non-Hispanic whites	99-00	*	<b>.160</b> (<LOD-.700)	<b>.740</b> (.580-1.10)	<b>1.30</b> (.960-1.90)	<b>1.90</b> (1.50-2.80)	595
	01-02	<b>.464</b> (.344-.626)	<b>.600</b> (.410-.950)	<b>1.53</b> (1.27-1.83)	<b>2.46</b> (2.15-3.17)	<b>3.75</b> (2.82-5.54)	1252
	03-04	*	< LOD	<b>.750</b> (.610-.890)	<b>1.75</b> (1.33-2.20)	<b>2.68</b> (2.20-3.78)	1044
	05-06	*	< LOD	<b>.600</b> (<LOD-.690)	<b>1.42</b> (1.04-1.99)	<b>2.56</b> (1.82-3.70)	1007
	07-08	*	< LOD	<b>.910</b> (.820-1.04)	<b>1.80</b> (1.56-2.46)	<b>3.52</b> (2.20-5.61)	1087

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, and 07-08 are 0.09, 0.1, 0.2, 0.56, and 0.56 respectively.

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## Urinary Diethylthiophosphate (DETP) (creatinine corrected) (1999 – 2008)

Metabolite of Several Organophosphorus Insecticides

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	<b>.250</b> (<LOD-.480)	<b>.710</b> (.460-1.07)	<b>1.72</b> (1.17-2.32)	<b>2.64</b> (2.08-3.06)	1949
	01-02	<b>.496</b> (.388-.636)	<b>.569</b> (.403-.789)	<b>1.42</b> (1.16-1.79)	<b>3.11</b> (2.58-3.82)	<b>4.88</b> (3.78-6.65)	3015
	03-04	*	< LOD	<b>.740</b> (.667-.839)	<b>1.59</b> (1.32-2.05)	<b>2.87</b> (2.22-3.77)	2420
	05-06	*	< LOD	<b>.956</b> (<LOD-1.09)	<b>1.88</b> (1.67-2.21)	<b>2.89</b> (2.35-3.37)	2633
	07-08	*	< LOD	<b>1.24</b> (1.15-1.37)	<b>2.46</b> (1.98-3.11)	<b>3.92</b> (3.05-5.12)	2588
<b>Age group</b>							
6-11 years	99-00	*	<b>.470</b> (<LOD-.870)	<b>1.08</b> (.800-1.32)	<b>1.75</b> (1.44-2.36)	<b>2.45</b> (2.04-5.32)	471
	01-02	<b>.591</b> (.471-.742)	<b>.636</b> (.397-1.05)	<b>1.63</b> (1.31-1.94)	<b>3.22</b> (2.72-4.16)	<b>5.70</b> (3.84-6.80)	575
	03-04	*	< LOD	<b>.869</b> (.592-1.09)	<b>1.57</b> (1.08-2.67)	<b>2.67</b> (1.57-4.05)	296
	05-06	*	< LOD	<b>1.23</b> (<LOD-1.33)	<b>1.95</b> (1.60-2.86)	<b>3.97</b> (1.95-5.88)	350
	07-08	*	< LOD	<b>1.89</b> (1.32-2.09)	<b>3.74</b> (2.46-5.55)	<b>6.54</b> (3.49-16.0)	385
12-19 years	99-00	*	<b>.180</b> (<LOD-.400)	<b>.510</b> (.320-.820)	<b>1.07</b> (.720-1.61)	<b>1.97</b> (1.07-3.92)	664
	01-02	<b>.393</b> (.300-.515)	<b>.534</b> (.313-.735)	<b>1.23</b> (.978-1.53)	<b>2.19</b> (1.61-3.07)	<b>3.14</b> (2.25-3.97)	821
	03-04	*	<b>.300</b> (<LOD-.354)	<b>.645</b> (.559-.734)	<b>1.49</b> (1.16-1.60)	<b>1.97</b> (1.57-2.43)	689
	05-06	*	< LOD	<b>.710</b> (<LOD-.889)	<b>1.35</b> (1.00-2.03)	<b>2.21</b> (1.35-3.33)	717
	07-08	*	< LOD	<b>.902</b> (.692-1.15)	<b>1.78</b> (1.15-3.32)	<b>3.32</b> (1.68-5.48)	388
20-59 years	99-00	*	<b>.250</b> (<LOD-.460)	<b>.680</b> (.440-1.08)	<b>1.79</b> (1.08-2.39)	<b>2.75</b> (2.02-3.22)	814
	01-02	<b>.447</b> (.335-.597)	<b>.494</b> (.316-.742)	<b>1.32</b> (.986-1.71)	<b>2.87</b> (2.08-3.95)	<b>4.69</b> (3.20-7.81)	1122
	03-04	*	< LOD	<b>.700</b> (.550-.875)	<b>1.47</b> (1.11-2.23)	<b>2.82</b> (2.02-3.81)	918
	05-06	*	< LOD	<b>.913</b> (<LOD-1.13)	<b>1.84</b> (1.65-2.11)	<b>2.86</b> (2.25-3.33)	1091
	07-08	*	< LOD	<b>1.24</b> (1.09-1.40)	<b>2.27</b> (1.79-3.07)	<b>3.51</b> (2.59-4.78)	1179
60+ years	01-02	<b>.821</b> (.708-.952)	<b>.971</b> (.849-1.10)	<b>2.25</b> (1.81-2.66)	<b>3.97</b> (3.33-5.06)	<b>5.51</b> (4.79-8.07)	497
	03-04	*	<b>.491</b> (<LOD-.560)	<b>.933</b> (.814-1.17)	<b>2.14</b> (1.46-3.00)	<b>3.92</b> (2.28-8.15)	517
	05-06	*	< LOD	<b>1.11</b> (<LOD-1.38)	<b>2.50</b> (1.67-3.11)	<b>3.80</b> (2.86-8.71)	475
	07-08	*	< LOD	<b>1.32</b> (1.20-1.58)	<b>2.91</b> (2.25-3.38)	<b>4.49</b> (3.05-9.80)	636
<b>Gender</b>							
Males	99-00	*	<b>.270</b> (<LOD-.470)	<b>.670</b> (.520-.840)	<b>1.34</b> (1.08-2.17)	<b>2.67</b> (1.67-3.23)	952
	01-02	<b>.410</b> (.319-.526)	<b>.517</b> (.342-.721)	<b>1.22</b> (1.02-1.41)	<b>2.46</b> (1.71-3.18)	<b>3.67</b> (2.70-4.71)	1419
	03-04	*	<b>.276</b> (<LOD-.326)	<b>.667</b> (.560-.804)	<b>1.49</b> (1.15-1.91)	<b>2.87</b> (1.74-3.72)	1173
	05-06	*	< LOD	<b>.773</b> (<LOD-.907)	<b>1.42</b> (1.21-2.00)	<b>2.35</b> (1.90-3.27)	1246
	07-08	*	< LOD	<b>1.02</b> (.943-1.09)	<b>1.94</b> (1.60-2.39)	<b>3.22</b> (2.50-4.42)	1292
Females	99-00	*	< LOD	<b>.790</b> (.380-1.50)	<b>1.89</b> (1.07-2.52)	<b>2.52</b> (1.89-3.75)	997
	01-02	<b>.597</b> (.457-.779)	<b>.647</b> (.423-.961)	<b>1.77</b> (1.34-2.50)	<b>3.82</b> (2.93-5.14)	<b>6.57</b> (4.34-9.28)	1596
	03-04	*	< LOD	<b>.821</b> (.700-.946)	<b>1.76</b> (1.34-2.29)	<b>3.02</b> (2.25-4.33)	1247
	05-06	*	< LOD	<b>1.17</b> (1.03-1.38)	<b>2.21</b> (1.83-2.50)	<b>3.18</b> (2.50-4.47)	1387
	07-08	*	< LOD	<b>1.47</b> (1.28-1.72)	<b>2.86</b> (2.29-3.51)	<b>4.48</b> (3.30-5.73)	1296

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

## Urinary Diethylthiophosphate (DETP) (creatinine corrected) (1999 – 2008)

*Metabolite of Several Organophosphorus Insecticides*

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Race/ethnicity</b>							
Mexican Americans	99-00	*	<b>.330</b> (<LOD-.790)	<b>.830</b> (.550-1.20)	<b>1.69</b> (1.20-2.43)	<b>2.71</b> (1.75-3.78)	672
	01-02	<b>.520</b> (.390-.693)	<b>.570</b> (.416-.824)	<b>1.30</b> (1.05-1.74)	<b>2.58</b> (1.82-3.72)	<b>3.82</b> (2.77-6.43)	763
	03-04	*	<b>.329</b> (<LOD-.414)	<b>.824</b> (.555-1.22)	<b>2.03</b> (1.26-3.63)	<b>3.74</b> (2.47-6.18)	584
	05-06	*	< LOD	<b>.907</b> (<LOD-1.10)	<b>1.74</b> (1.35-2.07)	<b>2.86</b> (2.02-4.00)	695
	07-08	*	< LOD	<b>1.20</b> (.989-1.32)	<b>2.20</b> (1.83-2.86)	<b>3.32</b> (2.59-5.11)	499
Non-Hispanic blacks	99-00	<b>.234</b> (.136-.403)	<b>.310</b> (<LOD-.580)	<b>.720</b> (.510-.850)	<b>1.39</b> (1.03-2.10)	<b>2.91</b> (1.49-4.24)	509
	01-02	<b>.556</b> (.457-.676)	<b>.726</b> (.565-.938)	<b>1.50</b> (1.34-1.70)	<b>2.80</b> (2.35-3.30)	<b>4.00</b> (3.29-4.99)	754
	03-04	<b>.321</b> (.270-.381)	<b>.313</b> (.231-.407)	<b>.699</b> (.561-.831)	<b>1.45</b> (1.09-1.75)	<b>2.64</b> (1.71-3.64)	604
	05-06	*	< LOD	<b>.720</b> (.606-.824)	<b>1.48</b> (1.24-1.73)	<b>2.45</b> (1.76-3.19)	721
	07-08	*	< LOD	<b>1.07</b> (.880-1.21)	<b>2.40</b> (1.85-2.89)	<b>4.12</b> (3.19-5.67)	573
Non-Hispanic whites	99-00	*	<b>.230</b> (<LOD-.550)	<b>.710</b> (.390-1.22)	<b>1.88</b> (1.05-2.58)	<b>2.64</b> (2.08-3.07)	595
	01-02	<b>.506</b> (.373-.687)	<b>.579</b> (.368-.850)	<b>1.51</b> (1.18-2.00)	<b>3.38</b> (2.64-4.35)	<b>5.83</b> (3.95-7.81)	1252
	03-04	*	< LOD	<b>.735</b> (.636-.848)	<b>1.52</b> (1.20-2.07)	<b>2.69</b> (2.07-3.97)	1043
	05-06	*	< LOD	<b>1.00</b> (<LOD-1.21)	<b>2.00</b> (1.73-2.27)	<b>3.08</b> (2.50-3.74)	1007
	07-08	*	< LOD	<b>1.24</b> (1.07-1.39)	<b>2.28</b> (1.71-3.30)	<b>3.49</b> (2.56-4.60)	1087

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.



## Urinary Dimethylthiophosphate (DMTP) (1999 – 2008)

Metabolite of Several Organophosphorus Insecticides

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	<b>1.82</b> (1.36-2.44)	<b>2.70</b> (1.40-4.10)	<b>11.0</b> (8.40-16.0)	<b>38.0</b> (25.0-41.0)	<b>48.0</b> (38.0-62.0)	1948
	01-02	*	<b>.580</b> (<LOD-1.45)	<b>4.23</b> (3.10-5.88)	<b>17.5</b> (13.0-22.7)	<b>32.9</b> (27.2-45.3)	3016
	03-04	<b>2.25</b> (1.98-2.56)	<b>2.03</b> (1.73-2.37)	<b>6.36</b> (5.11-7.34)	<b>19.6</b> (16.2-21.5)	<b>35.3</b> (27.4-45.3)	2494
	05-06	<b>1.96</b> (1.74-2.20)	<b>1.71</b> (1.43-1.94)	<b>5.34</b> (4.49-6.08)	<b>14.2</b> (10.5-20.8)	<b>28.2</b> (22.1-36.0)	2631
	07-08	<b>2.28</b> (1.97-2.64)	<b>2.10</b> (1.77-2.44)	<b>5.90</b> (4.94-7.01)	<b>18.3</b> (13.5-23.0)	<b>36.8</b> (27.8-45.7)	2591
Age group 6-11 years	99-00	<b>2.72</b> (1.93-3.85)	<b>4.20</b> (2.50-7.20)	<b>20.0</b> (13.0-29.0)	<b>40.0</b> (38.0-52.0)	<b>62.0</b> (40.0-92.0)	471
	01-02	*	<b>1.46</b> (.600-2.69)	<b>8.33</b> (5.75-14.0)	<b>28.4</b> (19.7-41.4)	<b>45.7</b> (28.5-74.5)	575
	03-04	<b>2.79</b> (2.25-3.45)	<b>2.67</b> (1.81-3.88)	<b>6.95</b> (5.64-8.58)	<b>19.4</b> (10.5-27.4)	<b>30.9</b> (19.4-76.5)	310
	05-06	<b>2.70</b> (2.25-3.26)	<b>2.38</b> (1.76-3.33)	<b>8.21</b> (4.96-11.8)	<b>21.4</b> (12.7-40.7)	<b>40.7</b> (18.3-90.4)	349
	07-08	<b>3.43</b> (2.88-4.09)	<b>3.50</b> (2.69-4.10)	<b>9.90</b> (7.14-13.9)	<b>32.0</b> (19.1-45.7)	<b>52.5</b> (36.7-67.4)	385
12-19 years	99-00	<b>2.53</b> (1.64-3.92)	<b>3.70</b> (1.70-6.80)	<b>16.0</b> (11.0-31.0)	<b>38.0</b> (33.0-58.0)	<b>69.0</b> (38.0-260)	664
	01-02	*	<b>1.04</b> (<LOD-2.12)	<b>4.83</b> (3.35-6.48)	<b>20.8</b> (12.2-27.9)	<b>34.9</b> (23.6-54.7)	822
	03-04	<b>2.21</b> (1.81-2.70)	<b>1.83</b> (1.46-2.16)	<b>5.91</b> (4.04-8.78)	<b>18.7</b> (12.2-33.9)	<b>47.1</b> (22.2-80.8)	717
	05-06	<b>2.51</b> (2.00-3.16)	<b>2.53</b> (1.90-3.02)	<b>6.44</b> (4.91-8.77)	<b>21.7</b> (13.1-28.2)	<b>38.5</b> (25.3-79.2)	717
	07-08	<b>2.10</b> (1.68-2.61)	<b>1.82</b> (1.53-2.31)	<b>5.18</b> (3.55-7.48)	<b>13.6</b> (8.16-27.9)	<b>31.5</b> (12.4-54.5)	391
20-59 years	99-00	<b>1.59</b> (1.17-2.16)	<b>2.30</b> (.830-3.80)	<b>9.10</b> (7.10-13.0)	<b>38.0</b> (19.0-39.0)	<b>39.0</b> (38.0-58.0)	813
	01-02	*	< LOD	<b>3.32</b> (2.29-4.96)	<b>13.6</b> (9.50-20.0)	<b>30.0</b> (20.5-45.3)	1121
	03-04	<b>1.98</b> (1.71-2.30)	<b>1.78</b> (1.48-2.18)	<b>5.11</b> (4.31-6.53)	<b>16.7</b> (12.1-20.8)	<b>28.5</b> (24.1-40.0)	938
	05-06	<b>1.72</b> (1.50-1.97)	<b>1.37</b> (1.20-1.73)	<b>4.25</b> (3.68-5.22)	<b>12.4</b> (8.37-19.6)	<b>26.6</b> (16.4-37.9)	1092
	07-08	<b>2.03</b> (1.68-2.46)	<b>1.90</b> (1.46-2.39)	<b>5.18</b> (4.24-6.09)	<b>13.3</b> (10.4-19.2)	<b>30.6</b> (21.4-44.6)	1179
60 years and older	01-02	*	<b>.860</b> (<LOD-2.16)	<b>5.85</b> (3.33-9.56)	<b>19.6</b> (13.0-27.9)	<b>32.9</b> (22.7-51.0)	498
	03-04	<b>3.18</b> (2.47-4.08)	<b>2.64</b> (2.16-3.81)	<b>9.63</b> (6.32-15.5)	<b>25.0</b> (15.5-45.3)	<b>45.3</b> (20.9-119)	529
	05-06	<b>2.18</b> (1.81-2.63)	<b>2.03</b> (1.46-2.68)	<b>6.38</b> (4.62-8.23)	<b>14.0</b> (9.72-20.9)	<b>25.2</b> (18.2-37.6)	473
	07-08	<b>2.91</b> (2.37-3.58)	<b>2.57</b> (1.99-3.18)	<b>9.19</b> (5.54-13.0)	<b>26.2</b> (19.4-32.5)	<b>42.7</b> (30.5-54.1)	636
Gender Males	99-00	<b>2.10</b> (1.48-2.98)	<b>3.50</b> (2.20-4.80)	<b>14.0</b> (8.00-24.0)	<b>38.0</b> (21.0-49.0)	<b>42.0</b> (38.0-53.0)	952
	01-02	*	<b>.690</b> (<LOD-1.52)	<b>4.44</b> (3.32-6.48)	<b>18.3</b> (12.7-25.6)	<b>31.1</b> (25.0-43.3)	1420
	03-04	<b>2.30</b> (1.95-2.70)	<b>2.15</b> (1.70-2.53)	<b>6.42</b> (4.90-7.75)	<b>18.8</b> (13.3-22.5)	<b>30.0</b> (23.3-45.3)	1221
	05-06	<b>1.88</b> (1.64-2.14)	<b>1.61</b> (1.28-1.94)	<b>5.38</b> (3.96-6.38)	<b>13.1</b> (9.59-20.9)	<b>28.7</b> (19.5-41.7)	1243
	07-08	<b>2.33</b> (2.00-2.71)	<b>2.15</b> (1.85-2.50)	<b>5.98</b> (4.78-7.26)	<b>16.7</b> (11.8-24.7)	<b>31.5</b> (21.2-48.9)	1293
Females	99-00	<b>1.59</b> (1.23-2.06)	<b>2.00</b> (.690-3.60)	<b>9.70</b> (7.30-14.0)	<b>38.0</b> (26.0-39.0)	<b>52.0</b> (38.0-110)	996
	01-02	*	<b>.430</b> (<LOD-1.45)	<b>3.81</b> (2.68-5.85)	<b>16.0</b> (10.9-22.7)	<b>35.2</b> (25.0-46.1)	1596
	03-04	<b>2.21</b> (1.92-2.55)	<b>1.95</b> (1.68-2.29)	<b>6.27</b> (4.93-7.39)	<b>20.4</b> (16.4-24.0)	<b>36.7</b> (27.7-47.8)	1273
	05-06	<b>2.04</b> (1.79-2.33)	<b>1.75</b> (1.46-2.13)	<b>5.23</b> (4.49-6.10)	<b>15.6</b> (10.9-20.8)	<b>28.1</b> (20.8-37.9)	1388
	07-08	<b>2.24</b> (1.88-2.66)	<b>1.99</b> (1.57-2.52)	<b>5.85</b> (4.92-7.31)	<b>18.7</b> (13.4-26.0)	<b>37.7</b> (27.0-50.1)	1298

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, and 07-08 are 0.18, 0.4, 0.5, 0.55, and 0.55 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

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### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/OP-DPM\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/OP-DPM_BiomonitoringSummary.html)



## Urinary Dimethylthiophosphate (DMTP) (1999 – 2008)

*Metabolite of Several Organophosphorus Insecticides*

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00	1.79 (1.05-3.05)	2.00 (.530-4.40)	11.0 (6.70-17.0)	39.0 (32.0-62.0)	140 (46.0-230)	671
	01-02	*	< LOD	3.93 (3.05-5.06)	15.1 (11.1-19.1)	35.6 (22.7-46.0)	763
	03-04	2.41 (1.88-3.09)	2.54 (1.41-3.98)	6.43 (4.90-8.02)	17.2 (12.0-22.3)	28.9 (19.2-39.8)	610
	05-06	2.37 (2.07-2.71)	2.26 (1.95-2.68)	5.65 (4.86-6.44)	16.4 (12.9-21.4)	28.3 (23.3-41.4)	693
	07-08	2.10 (1.83-2.42)	1.98 (1.63-2.31)	5.18 (4.17-6.61)	13.6 (11.5-20.0)	31.0 (20.0-43.5)	501
Non-Hispanic blacks	99-00	2.13 (1.57-2.88)	3.60 (2.10-4.70)	12.0 (8.80-18.0)	38.0 (20.0-41.0)	41.0 (37.0-110)	509
	01-02	1.54 (1.15-2.07)	1.18 (.580-1.97)	5.21 (3.11-8.25)	20.0 (13.4-27.2)	39.1 (25.9-62.8)	755
	03-04	2.13 (1.83-2.48)	1.85 (1.65-2.20)	5.44 (3.87-8.28)	20.4 (15.8-24.9)	31.1 (24.9-51.9)	631
	05-06	1.94 (1.63-2.31)	1.63 (1.23-2.02)	5.21 (3.93-7.18)	16.8 (13.3-21.6)	28.4 (21.5-40.6)	723
	07-08	2.12 (1.89-2.38)	1.97 (1.64-2.26)	5.63 (4.15-6.94)	20.8 (12.9-23.9)	33.5 (26.3-47.6)	573
Non-Hispanic whites	99-00	1.77 (1.23-2.53)	2.70 (.830-4.40)	11.0 (7.50-17.0)	38.0 (17.0-53.0)	48.0 (38.0-69.0)	595
	01-02	*	.540 (<LOD-1.71)	4.21 (2.77-6.48)	18.8 (10.9-25.4)	33.1 (26.6-46.5)	1252
	03-04	2.31 (2.00-2.66)	2.07 (1.73-2.41)	6.51 (5.12-7.85)	19.8 (15.4-23.3)	36.7 (27.4-47.8)	1061
	05-06	1.94 (1.67-2.26)	1.76 (1.40-1.99)	5.33 (4.32-6.19)	13.6 (9.80-22.1)	28.9 (20.2-42.8)	1005
	07-08	2.22 (1.83-2.69)	1.96 (1.57-2.48)	5.84 (4.70-7.68)	17.1 (12.4-24.3)	37.3 (25.9-48.7)	1088

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, and 07-08 are 0.18, 0.4, 0.5, 0.55, and 0.55 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/OP-DPM\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/OP-DPM_BiomonitoringSummary.html)

## Urinary Dimethylthiophosphate (DMTP) (creatinine corrected) (1999 – 2008)

Metabolite of Several Organophosphorus Insecticides

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	<b>1.64</b> (1.22-2.20)	<b>2.12</b> (1.22-3.35)	<b>9.57</b> (6.59-15.8)	<b>32.0</b> (23.9-41.1)	<b>51.0</b> (39.0-70.1)	1948
	01-02	*	<b>.933</b> (<LOD-1.40)	<b>4.08</b> (2.65-6.06)	<b>14.6</b> (11.5-20.5)	<b>28.9</b> (24.7-39.4)	3015
	03-04	<b>2.21</b> (1.92-2.55)	<b>1.98</b> (1.69-2.38)	<b>5.96</b> (5.07-7.16)	<b>19.1</b> (14.8-22.4)	<b>32.6</b> (25.8-41.9)	2491
	05-06	<b>1.99</b> (1.76-2.26)	<b>1.75</b> (1.56-1.90)	<b>5.00</b> (4.16-6.24)	<b>16.8</b> (11.8-22.1)	<b>30.0</b> (24.1-38.3)	2630
	07-08	<b>2.34</b> (2.05-2.66)	<b>2.00</b> (1.77-2.31)	<b>5.91</b> (4.88-7.09)	<b>17.5</b> (13.9-23.2)	<b>33.7</b> (25.7-45.9)	2589
<b>Age group</b>							
6-11 years	99-00	<b>2.95</b> (2.25-3.86)	<b>5.32</b> (3.75-6.33)	<b>19.1</b> (12.2-28.0)	<b>47.0</b> (32.1-60.3)	<b>66.1</b> (50.9-95.0)	471
	01-02	*	<b>2.16</b> (1.32-3.12)	<b>10.6</b> (7.84-13.6)	<b>28.7</b> (18.8-45.0)	<b>48.1</b> (33.4-71.1)	575
	03-04	<b>3.40</b> (2.70-4.28)	<b>3.41</b> (2.40-4.17)	<b>7.91</b> (6.43-12.2)	<b>25.2</b> (16.7-34.2)	<b>36.1</b> (25.4-67.7)	310
	05-06	<b>3.35</b> (2.67-4.21)	<b>2.78</b> (2.03-3.66)	<b>9.26</b> (5.67-15.1)	<b>33.4</b> (16.8-54.3)	<b>71.5</b> (28.7-161)	349
	07-08	<b>4.35</b> (3.78-5.01)	<b>4.26</b> (3.36-4.75)	<b>14.1</b> (9.35-16.6)	<b>32.8</b> (23.8-45.4)	<b>51.3</b> (41.1-77.9)	385
12-19 years	99-00	<b>1.71</b> (1.07-2.75)	<b>2.14</b> (.890-4.83)	<b>13.5</b> (6.46-22.6)	<b>36.0</b> (25.6-51.4)	<b>61.5</b> (41.7-109)	664
	01-02	*	<b>.933</b> (<LOD-1.57)	<b>3.56</b> (2.38-5.57)	<b>12.2</b> (8.96-16.0)	<b>22.5</b> (13.2-34.7)	821
	03-04	<b>1.66</b> (1.37-2.03)	<b>1.52</b> (1.19-1.82)	<b>4.38</b> (3.29-5.66)	<b>13.3</b> (9.94-20.5)	<b>26.5</b> (15.5-36.0)	715
	05-06	<b>1.89</b> (1.54-2.33)	<b>1.81</b> (1.38-2.33)	<b>4.55</b> (3.47-6.17)	<b>14.3</b> (8.75-27.5)	<b>32.9</b> (14.3-51.4)	717
	07-08	<b>1.62</b> (1.27-2.06)	<b>1.46</b> (1.19-1.74)	<b>4.14</b> (3.12-5.52)	<b>11.1</b> (5.52-20.5)	<b>20.5</b> (9.61-32.2)	389
20-59 years	99-00	<b>1.47</b> (1.07-2.02)	<b>1.90</b> (.870-3.11)	<b>8.09</b> (5.19-14.6)	<b>27.0</b> (19.8-37.6)	<b>47.5</b> (34.2-70.1)	813
	01-02	*	< LOD	<b>3.16</b> (1.99-4.62)	<b>11.9</b> (7.79-17.2)	<b>25.2</b> (15.9-37.0)	1121
	03-04	<b>1.88</b> (1.61-2.19)	<b>1.67</b> (1.45-1.94)	<b>4.88</b> (4.20-5.68)	<b>13.9</b> (10.3-19.7)	<b>30.3</b> (19.7-38.2)	937
	05-06	<b>1.72</b> (1.52-1.96)	<b>1.46</b> (1.28-1.65)	<b>4.18</b> (3.14-4.99)	<b>13.2</b> (9.30-21.9)	<b>25.4</b> (21.4-30.3)	1091
	07-08	<b>2.02</b> (1.73-2.36)	<b>1.79</b> (1.52-2.05)	<b>4.53</b> (3.90-5.90)	<b>13.2</b> (9.47-17.2)	<b>26.7</b> (17.1-41.8)	1179
60+ years	01-02	*	<b>1.39</b> (<LOD-2.40)	<b>6.38</b> (3.68-9.97)	<b>24.0</b> (14.9-35.2)	<b>45.5</b> (26.5-69.7)	498
	03-04	<b>3.86</b> (2.99-4.97)	<b>3.18</b> (2.46-4.84)	<b>11.2</b> (7.10-18.6)	<b>29.2</b> (18.6-47.9)	<b>48.2</b> (24.9-113)	529
	05-06	<b>2.61</b> (2.12-3.20)	<b>2.40</b> (1.75-2.75)	<b>7.66</b> (5.71-11.3)	<b>19.2</b> (12.1-31.1)	<b>35.3</b> (20.5-56.4)	473
	07-08	<b>3.56</b> (2.79-4.55)	<b>3.05</b> (2.31-4.13)	<b>10.6</b> (6.86-14.8)	<b>31.8</b> (17.7-50.2)	<b>54.2</b> (34.1-87.5)	636
<b>Gender</b>							
Males	99-00	<b>1.61</b> (1.11-2.34)	<b>2.39</b> (1.27-3.51)	<b>9.27</b> (6.00-16.9)	<b>28.9</b> (19.0-40.4)	<b>41.1</b> (34.9-52.9)	952
	01-02	*	<b>.778</b> (<LOD-1.14)	<b>3.82</b> (2.65-4.98)	<b>13.6</b> (10.0-17.8)	<b>25.2</b> (17.2-37.6)	1420
	03-04	<b>1.88</b> (1.58-2.23)	<b>1.76</b> (1.51-2.12)	<b>4.87</b> (3.87-6.31)	<b>14.4</b> (9.18-20.4)	<b>25.7</b> (17.7-36.9)	1220
	05-06	<b>1.59</b> (1.37-1.86)	<b>1.33</b> (1.14-1.57)	<b>4.06</b> (2.85-5.27)	<b>13.1</b> (8.56-20.5)	<b>26.0</b> (17.2-34.2)	1243
	07-08	<b>1.93</b> (1.68-2.21)	<b>1.62</b> (1.42-1.94)	<b>4.36</b> (3.77-5.50)	<b>14.2</b> (10.4-17.7)	<b>25.9</b> (18.2-39.7)	1292
Females	99-00	<b>1.66</b> (1.26-2.18)	<b>2.01</b> (.870-3.33)	<b>10.0</b> (6.67-16.2)	<b>34.9</b> (26.2-47.1)	<b>70.1</b> (39.0-118)	996
	01-02	*	<b>1.08</b> (<LOD-1.65)	<b>4.44</b> (2.55-7.02)	<b>17.4</b> (11.9-24.8)	<b>38.0</b> (27.4-51.6)	1595
	03-04	<b>2.60</b> (2.23-3.02)	<b>2.24</b> (1.83-2.63)	<b>7.11</b> (5.54-10.2)	<b>22.8</b> (18.9-28.7)	<b>41.6</b> (29.2-58.9)	1271
	05-06	<b>2.47</b> (2.16-2.83)	<b>2.19</b> (1.83-2.44)	<b>6.07</b> (4.74-8.34)	<b>20.7</b> (13.8-25.6)	<b>36.7</b> (26.1-46.2)	1387
	07-08	<b>2.81</b> (2.40-3.29)	<b>2.50</b> (2.07-2.93)	<b>7.40</b> (5.83-8.83)	<b>21.9</b> (16.7-27.4)	<b>41.2</b> (27.4-60.8)	1297

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

## Urinary Dimethylthiophosphate (DMTP) (creatinine corrected) (1999 – 2008)

*Metabolite of Several Organophosphorus Insecticides*

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00	<b>1.60</b> (.899-2.86)	<b>1.83</b> (.680-4.23)	<b>10.4</b> (5.95-16.9)	<b>37.0</b> (23.1-63.1)	<b>112</b> (40.5-190)	671
	01-02	*	< LOD	<b>3.55</b> (2.65-4.68)	<b>13.8</b> (9.88-22.9)	<b>30.4</b> (22.9-47.2)	763
	03-04	<b>2.20</b> (1.65-2.94)	<b>2.24</b> (1.70-3.00)	<b>5.95</b> (4.14-8.68)	<b>15.7</b> (10.7-20.1)	<b>24.5</b> (18.9-36.9)	609
	05-06	<b>2.24</b> (1.96-2.55)	<b>2.14</b> (1.89-2.40)	<b>5.19</b> (4.33-6.18)	<b>14.7</b> (10.9-20.0)	<b>28.4</b> (21.5-36.3)	693
	07-08	<b>2.14</b> (1.92-2.38)	<b>1.88</b> (1.61-2.22)	<b>4.84</b> (4.08-6.48)	<b>13.2</b> (10.0-18.6)	<b>26.2</b> (18.6-34.1)	500
Non-Hispanic blacks	99-00	<b>1.45</b> (1.03-2.06)	<b>1.75</b> (1.17-3.06)	<b>8.48</b> (4.36-13.4)	<b>25.5</b> (15.4-39.3)	<b>54.4</b> (25.5-97.6)	509
	01-02	<b>1.13</b> (.889-1.44)	<b>1.00</b> (.693-1.23)	<b>3.62</b> (2.29-5.41)	<b>12.4</b> (9.17-17.5)	<b>23.3</b> (17.4-43.1)	754
	03-04	<b>1.46</b> (1.28-1.67)	<b>1.22</b> (1.06-1.37)	<b>3.90</b> (2.77-5.34)	<b>12.7</b> (8.09-18.7)	<b>26.0</b> (14.6-38.7)	630
	05-06	<b>1.40</b> (1.14-1.71)	<b>1.12</b> (.938-1.37)	<b>3.58</b> (2.63-5.06)	<b>12.0</b> (8.44-19.3)	<b>25.6</b> (17.4-31.2)	722
	07-08	<b>1.61</b> (1.45-1.80)	<b>1.38</b> (1.22-1.61)	<b>4.26</b> (3.41-5.20)	<b>14.7</b> (10.7-18.8)	<b>27.5</b> (20.9-37.4)	572
Non-Hispanic whites	99-00	<b>1.68</b> (1.16-2.43)	<b>2.22</b> (.870-3.51)	<b>9.40</b> (5.58-17.0)	<b>33.3</b> (20.6-49.4)	<b>52.9</b> (39.0-71.1)	595
	01-02	*	<b>.966</b> (<LOD-1.61)	<b>4.22</b> (2.41-7.00)	<b>15.9</b> (11.6-24.1)	<b>33.1</b> (24.8-45.4)	1252
	03-04	<b>2.40</b> (2.05-2.81)	<b>2.12</b> (1.75-2.53)	<b>6.27</b> (5.10-8.10)	<b>20.0</b> (15.3-25.7)	<b>36.2</b> (25.7-52.7)	1060
	05-06	<b>2.09</b> (1.80-2.42)	<b>1.78</b> (1.56-2.06)	<b>5.14</b> (4.02-6.91)	<b>16.8</b> (11.3-23.4)	<b>30.0</b> (23.4-38.3)	1005
	07-08	<b>2.40</b> (1.99-2.90)	<b>2.04</b> (1.67-2.57)	<b>6.00</b> (4.64-7.49)	<b>16.9</b> (13.0-25.3)	<b>37.6</b> (23.1-54.2)	1088

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

## Urinary Diethyldithiophosphate (DEDTP) (1999 – 2008)

Metabolite of Several Organophosphorus Insecticides

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	.090 (<LOD-.140)	.210 (.140-.290)	.470 (.380-.640)	.870 (.640-1.10)	1949
	01-02	*	< LOD	< LOD	.610 (.410-.780)	.890 (.710-1.32)	3013
	03-04	*	< LOD	< LOD	< LOD	.290 (.160-.510)	2494
	05-06	*	< LOD	< LOD	< LOD	< LOD	2420
	07-08	*	< LOD	< LOD	< LOD	< LOD	2585
<b>Age group</b>							
6-11 years	99-00	*	.090 (<LOD-.160)	.190 (.130-.280)	.430 (.300-.650)	.850 (.470-1.00)	471
	01-02	*	< LOD	< LOD	.630 (.380-.870)	.940 (.690-1.42)	576
	03-04	*	< LOD	< LOD	< LOD	.540 (<LOD-.650)	310
	05-06	*	< LOD	< LOD	< LOD	< LOD	317
	07-08	*	< LOD	< LOD	< LOD	< LOD	383
12-19 years	99-00	*	.080 (<LOD-.180)	.260 (.120-.350)	.640 (.420-.840)	.930 (.720-1.30)	664
	01-02	*	< LOD	< LOD	.560 (.330-.730)	.820 (.610-.990)	822
	03-04	*	< LOD	< LOD	.150 (<LOD-.350)	.450 (.370-.570)	717
	05-06	*	< LOD	< LOD	< LOD	< LOD	660
	07-08	*	< LOD	< LOD	< LOD	< LOD	390
20-59 years	99-00	*	.090 (<LOD-.130)	.210 (.130-.290)	.450 (.360-.640)	.900 (.610-1.10)	814
	01-02	*	< LOD	< LOD	.620 (.430-.760)	.830 (.700-1.32)	1118
	03-04	*	< LOD	< LOD	< LOD	.220 (<LOD-.580)	938
	05-06	*	< LOD	< LOD	< LOD	< LOD	1006
	07-08	*	< LOD	< LOD	< LOD	< LOD	1176
60 years and older	01-02	*	< LOD	< LOD	.630 (.360-1.08)	1.11 (.610-1.41)	497
	03-04	*	< LOD	< LOD	< LOD	.150 (<LOD-.550)	529
	05-06	*	< LOD	< LOD	< LOD	< LOD	437
	07-08	*	< LOD	< LOD	< LOD	< LOD	636
<b>Gender</b>							
Males	99-00	*	.090 (<LOD-.150)	.220 (.140-.310)	.490 (.380-.680)	.870 (.680-1.10)	952
	01-02	*	< LOD	< LOD	.600 (.380-.740)	.780 (.700-1.03)	1420
	03-04	*	< LOD	< LOD	< LOD	.390 (.160-.540)	1221
	05-06	*	< LOD	< LOD	< LOD	< LOD	1142
	07-08	*	< LOD	< LOD	< LOD	< LOD	1290
Females	99-00	*	.090 (<LOD-.130)	.190 (.110-.310)	.460 (.320-.840)	.870 (.440-1.40)	997
	01-02	*	< LOD	< LOD	.660 (.460-.880)	1.03 (.700-1.47)	1593
	03-04	*	< LOD	< LOD	< LOD	.230 (<LOD-.600)	1273
	05-06	*	< LOD	< LOD	< LOD	< LOD	1278
	07-08	*	< LOD	< LOD	< LOD	< LOD	1295

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, and 07-08 are 0.05, 0.1, 0.1, 0.39, and 0.39 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/OP-DPM\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/OP-DPM_BiomonitoringSummary.html)

## Urinary Diethyldithiophosphate (DEDTP) (1999 – 2008)

*Metabolite of Several Organophosphorus Insecticides*

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00	.130 (.099-.171)	.100 (.050-.200)	.310 (.230-.390)	.650 (.530-.860)	1.10 (.860-1.60)	672
	01-02	*	< LOD	.200 (<LOD-.520)	.720 (.410-1.12)	1.12 (.700-1.58)	763
	03-04	*	< LOD	< LOD	.110 (<LOD-.680)	.680 (.180-1.15)	610
	05-06	*	< LOD	< LOD	< LOD	< LOD	665
	07-08	*	< LOD	< LOD	< LOD	< LOD	495
Non-Hispanic blacks	99-00	.117 (.084-.162)	.090 (<LOD-.230)	.270 (.140-.410)	.560 (.400-.830)	.870 (.650-1.20)	509
	01-02	*	< LOD	< LOD	.620 (.440-.800)	.810 (.670-.930)	754
	03-04	*	< LOD	< LOD	< LOD	.250 (.110-.540)	631
	05-06	*	< LOD	< LOD	< LOD	< LOD	660
	07-08	*	< LOD	< LOD	< LOD	< LOD	574
Non-Hispanic whites	99-00	*	.080 (<LOD-.160)	.190 (.120-.290)	.450 (.310-.720)	.870 (.510-1.30)	595
	01-02	*	< LOD	< LOD	.610 (.350-.800)	.910 (.660-1.41)	1252
	03-04	*	< LOD	< LOD	< LOD	.240 (.120-.540)	1061
	05-06	*	< LOD	< LOD	< LOD	< LOD	917
	07-08	*	< LOD	< LOD	< LOD	< LOD	1087

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, and 07-08 are 0.05, 0.1, 0.1, 0.39, and 0.39 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/OP-DPM\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/OP-DPM_BiomonitoringSummary.html)

## Urinary Diethyldithiophosphate (DEDTP) (creatinine corrected) (1999 – 2008)

Metabolite of Several Organophosphorus Insecticides

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	.070 (<LOD-.110)	.200 (.140-.290)	.550 (.390-.700)	.860 (.670-1.14)	1949
	01-02	*	< LOD	< LOD	.604 (.389-.783)	1.08 (.768-1.52)	3012
	03-04	*	< LOD	< LOD	< LOD	.412 (.350-.507)	2491
	05-06	*	< LOD	< LOD	< LOD	< LOD	2419
	07-08	*	< LOD	< LOD	< LOD	< LOD	2583
<b>Age group</b>							
6-11 years	99-00	*	.100 (<LOD-.140)	.190 (.150-.270)	.570 (.410-.760)	1.03 (.570-1.58)	471
	01-02	*	< LOD	< LOD	.778 (.606-1.12)	1.36 (1.02-1.86)	576
	03-04	*	< LOD	< LOD	< LOD	.475 (<LOD-.967)	310
	05-06	*	< LOD	< LOD	< LOD	< LOD	317
	07-08	*	< LOD	< LOD	< LOD	< LOD	383
12-19 years	99-00	*	.050 (<LOD-.080)	.170 (.100-.220)	.440 (.230-.730)	.730 (.380-1.09)	664
	01-02	*	< LOD	< LOD	.359 (.250-.537)	.667 (.375-.987)	821
	03-04	*	< LOD	< LOD	.226 (<LOD-.259)	.333 (.241-.600)	715
	05-06	*	< LOD	< LOD	< LOD	< LOD	660
	07-08	*	< LOD	< LOD	< LOD	< LOD	388
20-59 years	99-00	*	.080 (<LOD-.110)	.210 (.140-.310)	.550 (.360-.730)	.860 (.650-1.20)	814
	01-02	*	< LOD	< LOD	.583 (.379-.740)	1.03 (.699-1.60)	1118
	03-04	*	< LOD	< LOD	< LOD	.400 (<LOD-.537)	937
	05-06	*	< LOD	< LOD	< LOD	< LOD	1005
	07-08	*	< LOD	< LOD	< LOD	< LOD	1176
60+ years	01-02	*	< LOD	< LOD	.833 (.368-1.28)	1.44 (.853-2.61)	497
	03-04	*	< LOD	< LOD	< LOD	.438 (<LOD-.700)	529
	05-06	*	< LOD	< LOD	< LOD	< LOD	437
	07-08	*	< LOD	< LOD	< LOD	< LOD	636
<b>Gender</b>							
Males	99-00	*	.070 (<LOD-.110)	.190 (.140-.230)	.410 (.340-.500)	.720 (.520-.940)	952
	01-02	*	< LOD	< LOD	.389 (.309-.658)	.768 (.637-1.01)	1420
	03-04	*	< LOD	< LOD	< LOD	.339 (.269-.412)	1220
	05-06	*	< LOD	< LOD	< LOD	< LOD	1142
	07-08	*	< LOD	< LOD	< LOD	< LOD	1289
Females	99-00	*	.090 (<LOD-.120)	.220 (.140-.360)	.670 (.410-.870)	.890 (.660-1.62)	997
	01-02	*	< LOD	< LOD	.733 (.527-1.03)	1.27 (.868-2.37)	1592
	03-04	*	< LOD	< LOD	< LOD	.500 (<LOD-.604)	1271
	05-06	*	< LOD	< LOD	< LOD	< LOD	1277
	07-08	*	< LOD	< LOD	< LOD	< LOD	1294

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

## Urinary Diethyldithiophosphate (DEDTP) (creatinine corrected) (1999 – 2008)

*Metabolite of Several Organophosphorus Insecticides*

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Race/ethnicity</b>							
Mexican Americans	99-00	<b>.116</b> (.084-.161)	<b>.090</b> (.060-.170)	<b>.300</b> (.190-.410)	<b>.810</b> (.570-.990)	<b>1.19</b> (.860-2.66)	672
	01-02	*	< LOD	<b>.292</b> (<LOD-.444)	<b>.845</b> (.487-1.24)	<b>1.29</b> (.901-1.67)	763
	03-04	*	< LOD	< LOD	<b>.318</b> (<LOD-.467)	<b>.579</b> (.404-.940)	609
	05-06	*	< LOD	< LOD	< LOD	< LOD	665
	07-08	*	< LOD	< LOD	< LOD	< LOD	494
Non-Hispanic blacks	99-00	<b>.080</b> (.057-.111)	<b>.070</b> (<LOD-.110)	<b>.170</b> (.110-.280)	<b>.450</b> (.300-.580)	<b>.700</b> (.500-1.02)	509
	01-02	*	< LOD	< LOD	<b>.456</b> (.362-.593)	<b>.769</b> (.541-1.07)	753
	03-04	*	< LOD	< LOD	< LOD	<b>.269</b> (.196-.368)	630
	05-06	*	< LOD	< LOD	< LOD	< LOD	659
	07-08	*	< LOD	< LOD	< LOD	< LOD	573
Non-Hispanic whites	99-00	*	<b>.070</b> (<LOD-.120)	<b>.200</b> (.140-.310)	<b>.560</b> (.380-.730)	<b>.880</b> (.600-1.38)	595
	01-02	*	< LOD	< LOD	<b>.583</b> (.368-.868)	<b>1.14</b> (.682-1.70)	1252
	03-04	*	< LOD	< LOD	< LOD	<b>.389</b> (.333-.523)	1060
	05-06	*	< LOD	< LOD	< LOD	< LOD	917
	07-08	*	< LOD	< LOD	< LOD	< LOD	1087

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

## Urinary Dimethyldithiophosphate (DMDTP) (1999 – 2008)

Metabolite of Several Organophosphorus Insecticides

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	2.30 (1.30-3.90)	13.0 (5.00-17.0)	19.0 (17.0-38.0)	1949
	01-02	*	< LOD	.920 (.330-1.30)	2.61 (2.04-3.45)	5.96 (4.41-7.90)	3015
	03-04	*	< LOD	.700 (.570-.920)	2.54 (1.64-3.87)	5.74 (3.63-9.85)	2458
	05-06	*	< LOD	< LOD	1.96 (1.41-2.59)	3.87 (2.77-6.09)	2635
	07-08	*	< LOD	< LOD	2.37 (1.93-2.93)	5.60 (4.62-6.79)	2571
<b>Age group</b>							
6-11 years	99-00	.691 (.425-1.12)	.740 (.080-1.80)	4.30 (2.40-8.60)	17.0 (6.90-37.0)	32.0 (17.0-44.0)	471
	01-02	*	< LOD	1.30 (.750-2.11)	3.53 (2.20-4.50)	7.33 (4.32-9.74)	575
	03-04	*	< LOD	.900 (.620-1.14)	2.94 (1.14-5.48)	5.48 (2.94-8.53)	306
	05-06	*	< LOD	< LOD	1.84 (.540-3.35)	3.69 (2.67-9.95)	350
	07-08	*	< LOD	.950 (<LOD-1.48)	3.80 (2.45-5.70)	6.66 (5.11-9.64)	379
12-19 years	99-00	*	< LOD	2.30 (1.40-4.50)	13.0 (5.40-20.0)	20.0 (17.0-38.0)	664
	01-02	*	< LOD	.830 (.400-1.14)	2.52 (1.85-3.07)	4.63 (3.59-5.83)	821
	03-04	*	< LOD	.580 (.350-.770)	1.46 (1.12-1.99)	2.67 (1.82-4.49)	699
	05-06	*	< LOD	< LOD	2.78 (1.51-3.76)	5.98 (3.03-11.5)	718
	07-08	*	< LOD	< LOD	1.45 (.810-2.03)	2.45 (1.65-3.93)	384
20-59 years	99-00	*	< LOD	2.10 (.840-3.60)	11.0 (4.00-17.0)	17.0 (7.70-50.0)	814
	01-02	*	< LOD	.840 (<LOD-1.31)	2.32 (1.70-3.40)	4.90 (2.90-9.52)	1122
	03-04	*	< LOD	.610 (.350-.800)	2.00 (1.36-3.63)	5.07 (3.62-8.62)	925
	05-06	*	< LOD	< LOD	1.71 (.880-2.36)	3.60 (2.40-5.18)	1092
	07-08	*	< LOD	< LOD	1.84 (1.34-2.32)	4.27 (2.84-6.79)	1172
60 years and older	01-02	*	< LOD	1.02 (.540-1.37)	3.57 (2.58-5.96)	8.16 (5.04-16.1)	497
	03-04	*	< LOD	1.39 (.720-2.34)	4.09 (2.35-13.4)	13.4 (3.36-33.3)	528
	05-06	*	< LOD	< LOD	2.13 (1.67-3.34)	5.12 (2.62-8.17)	475
	07-08	*	< LOD	1.03 (<LOD-1.99)	5.47 (4.31-6.33)	8.89 (6.33-12.2)	636
<b>Gender</b>							
Males	99-00	*	.110 (<LOD-.610)	2.30 (1.20-4.90)	16.0 (5.70-17.0)	19.0 (17.0-38.0)	952
	01-02	*	< LOD	.890 (.370-1.28)	2.59 (1.88-3.41)	5.96 (4.47-7.86)	1420
	03-04	*	< LOD	.680 (.360-1.01)	2.26 (1.14-4.45)	5.30 (3.20-10.2)	1209
	05-06	*	< LOD	< LOD	1.96 (.980-3.04)	4.33 (2.42-7.65)	1246
	07-08	*	< LOD	< LOD	2.38 (1.76-3.70)	5.70 (3.80-10.0)	1278
Females	99-00	*	< LOD	2.20 (1.10-3.90)	11.0 (4.20-17.0)	20.0 (13.0-40.0)	997
	01-02	*	< LOD	.960 (.250-1.37)	2.61 (1.96-3.68)	5.72 (3.79-9.87)	1595
	03-04	*	< LOD	.730 (.590-.970)	2.83 (1.99-3.96)	6.15 (3.91-11.3)	1249
	05-06	*	< LOD	< LOD	1.96 (1.49-2.59)	3.75 (2.90-4.60)	1389
	07-08	*	< LOD	< LOD	2.34 (1.79-3.12)	5.54 (4.06-6.69)	1293

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, and 07-08 are 0.08, 0.1, 0.1, 0.51, and 0.51 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/OP-DPM\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/OP-DPM_BiomonitoringSummary.html)



## Urinary Dimethyldithiophosphate (DMDTP) (1999 – 2008)

*Metabolite of Several Organophosphorus Insecticides*

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00	*	<b>.250</b> (<LOD-.870)	<b>1.90</b> (1.10-3.00)	<b>5.80</b> (4.10-9.70)	<b>12.0</b> (5.90-28.0)	672
	01-02	*	< LOD	<b>1.08</b> (.780-1.38)	<b>2.80</b> (2.19-3.54)	<b>4.93</b> (3.73-7.42)	763
	03-04	*	< LOD	<b>.730</b> (.360-1.21)	<b>2.11</b> (1.38-3.15)	<b>5.26</b> (2.31-6.94)	610
	05-06	*	< LOD	< LOD	<b>2.04</b> (1.62-2.96)	<b>5.12</b> (2.98-10.7)	695
	07-08	*	< LOD	< LOD	<b>1.63</b> (1.18-2.12)	<b>3.88</b> (2.12-6.07)	491
Non-Hispanic blacks	99-00	*	<b>.330</b> (<LOD-1.20)	<b>3.20</b> (1.40-7.00)	<b>14.0</b> (5.70-30.0)	<b>19.0</b> (17.0-39.0)	509
	01-02	*	< LOD	<b>.640</b> (<LOD-1.41)	<b>1.96</b> (1.36-4.15)	<b>4.42</b> (2.68-8.38)	755
	03-04	*	< LOD	<b>.590</b> (.310-.730)	<b>1.77</b> (1.05-3.33)	<b>4.77</b> (2.75-7.80)	604
	05-06	*	< LOD	< LOD	<b>2.15</b> (1.66-2.82)	<b>5.45</b> (2.82-8.39)	723
	07-08	*	< LOD	< LOD	<b>2.04</b> (1.54-2.65)	<b>4.27</b> (2.66-7.79)	568
Non-Hispanic whites	99-00	*	< LOD	<b>2.00</b> (.800-4.00)	<b>13.0</b> (3.90-20.0)	<b>20.0</b> (16.0-40.0)	595
	01-02	*	< LOD	<b>1.01</b> (.180-1.43)	<b>2.74</b> (1.94-4.18)	<b>6.72</b> (4.88-8.54)	1252
	03-04	*	< LOD	<b>.740</b> (.540-1.04)	<b>2.66</b> (1.55-4.56)	<b>5.89</b> (3.63-11.6)	1056
	05-06	*	< LOD	< LOD	<b>1.93</b> (1.23-2.65)	<b>3.60</b> (2.71-5.51)	1007
	07-08	*	< LOD	< LOD	<b>2.32</b> (1.75-3.28)	<b>5.60</b> (4.46-6.88)	1087

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, and 07-08 are 0.08, 0.1, 0.1, 0.51, and 0.51 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/OP-DPM\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/OP-DPM_BiomonitoringSummary.html)

## Urinary Dimethyldithiophosphate (DMDTP) (creatinine corrected) (1999 – 2008)

Metabolite of Several Organophosphorus Insecticides

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	1.88 (.970-3.86)	10.1 (5.31-18.3)	21.7 (12.8-33.7)	1949
	01-02	*	< LOD	.717 (.389-1.12)	2.80 (2.21-3.96)	6.84 (4.96-8.09)	3014
	03-04	*	< LOD	.572 (.411-.772)	2.62 (1.72-4.12)	6.40 (3.85-9.75)	2455
	05-06	*	< LOD	< LOD	2.18 (1.64-3.00)	4.62 (3.23-7.12)	2634
	07-08	*	< LOD	< LOD	2.63 (2.17-3.08)	6.12 (4.15-8.24)	2569
<b>Age group</b>							
6-11 years	99-00	.748 (.474-1.18)	.790 (.190-1.60)	4.07 (2.31-7.18)	16.2 (8.22-27.0)	30.8 (20.2-38.9)	471
	01-02	*	< LOD	1.36 (.805-2.31)	4.10 (2.67-6.24)	6.98 (4.40-12.8)	575
	03-04	*	< LOD	.962 (.584-1.57)	3.39 (2.29-6.15)	7.12 (4.48-7.55)	306
	05-06	*	< LOD	< LOD	2.57 (1.39-4.14)	4.50 (3.17-9.35)	350
	07-08	*	< LOD	1.50 (<LOD-1.95)	4.35 (3.05-6.59)	8.01 (4.75-12.9)	379
12-19 years	99-00	*	< LOD	1.52 (.620-3.47)	9.48 (4.04-16.8)	21.5 (9.48-42.3)	664
	01-02	*	< LOD	.543 (.306-.773)	2.02 (1.49-2.40)	3.13 (2.51-4.67)	820
	03-04	*	< LOD	.361 (.241-.584)	1.02 (.628-1.57)	2.46 (1.33-3.39)	697
	05-06	*	< LOD	< LOD	2.05 (1.16-3.56)	4.27 (2.30-8.66)	718
	07-08	*	< LOD	< LOD	1.16 (.782-1.85)	1.94 (1.39-3.79)	382
20-59 years	99-00	*	< LOD	1.71 (.850-3.56)	8.50 (4.00-19.1)	20.5 (8.57-40.7)	814
	01-02	*	< LOD	.605 (<LOD-1.05)	2.56 (1.64-4.03)	6.33 (3.96-8.17)	1122
	03-04	*	< LOD	.451 (.340-.583)	2.17 (1.10-3.64)	5.71 (2.47-10.1)	924
	05-06	*	< LOD	< LOD	1.90 (1.44-2.57)	3.69 (2.37-7.07)	1091
	07-08	*	< LOD	< LOD	1.99 (1.80-2.32)	4.15 (2.77-6.77)	1172
60+ years	01-02	*	< LOD	1.10 (.631-1.86)	4.89 (3.36-7.82)	13.4 (6.98-19.8)	497
	03-04	*	< LOD	1.55 (.765-2.48)	6.52 (2.73-13.3)	13.3 (5.44-23.0)	528
	05-06	*	< LOD	< LOD	3.22 (2.25-4.54)	6.53 (3.70-10.4)	475
	07-08	*	< LOD	1.72 (<LOD-2.58)	5.92 (3.29-8.44)	10.3 (7.25-18.4)	636
<b>Gender</b>							
Males	99-00	*	.150 (<LOD-.370)	1.79 (.840-3.97)	11.0 (4.62-17.4)	18.1 (7.51-44.7)	952
	01-02	*	< LOD	.628 (.333-.850)	2.39 (1.75-3.13)	5.37 (4.23-7.29)	1420
	03-04	*	< LOD	.467 (.280-.743)	2.03 (.990-3.56)	5.38 (2.29-8.25)	1208
	05-06	*	< LOD	< LOD	1.80 (1.14-3.17)	4.14 (2.18-7.15)	1246
	07-08	*	< LOD	< LOD	1.89 (1.44-2.71)	4.92 (2.77-8.44)	1277
Females	99-00	*	< LOD	2.06 (.940-4.00)	9.30 (4.96-25.5)	27.0 (9.66-47.5)	997
	01-02	*	< LOD	.831 (.412-1.50)	3.35 (2.50-4.96)	7.81 (5.29-11.9)	1594
	03-04	*	< LOD	.680 (.538-.887)	3.59 (2.41-5.18)	7.12 (4.13-13.1)	1247
	05-06	*	< LOD	< LOD	2.40 (2.00-3.18)	5.25 (3.18-7.60)	1388
	07-08	*	< LOD	< LOD	3.05 (2.44-4.00)	7.18 (4.22-11.1)	1292

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

## Urinary Dimethyldithiophosphate (DMDTP) (creatinine corrected) (1999 – 2008)

*Metabolite of Several Organophosphorus Insecticides*

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Race/ethnicity</b>							
Mexican Americans	99-00	*	<b>.270</b> (<LOD-.660)	<b>1.35</b> (.860-2.53)	<b>6.55</b> (3.83-11.8)	<b>16.7</b> (6.25-38.8)	672
	01-02	*	< LOD	<b>.833</b> (.589-1.15)	<b>2.72</b> (2.05-3.32)	<b>5.16</b> (3.69-7.83)	763
	03-04	*	< LOD	<b>.651</b> (.318-1.09)	<b>2.04</b> (1.10-3.74)	<b>4.50</b> (2.17-5.88)	609
	05-06	*	< LOD	< LOD	<b>2.40</b> (1.29-4.00)	<b>5.14</b> (3.45-10.5)	695
	07-08	*	< LOD	< LOD	<b>1.97</b> (1.50-2.77)	<b>4.30</b> (2.77-6.92)	490
Non-Hispanic blacks	99-00	*	<b>.250</b> (<LOD-.700)	<b>2.40</b> (.690-5.44)	<b>9.41</b> (4.81-17.8)	<b>17.9</b> (11.5-40.7)	509
	01-02	*	< LOD	<b>.403</b> (<LOD-.847)	<b>1.69</b> (.793-3.50)	<b>3.50</b> (2.19-5.91)	754
	03-04	*	< LOD	<b>.343</b> (.242-.477)	<b>1.07</b> (.727-1.84)	<b>3.21</b> (1.45-6.07)	603
	05-06	*	< LOD	< LOD	<b>1.80</b> (.990-3.89)	<b>4.95</b> (2.93-5.59)	722
	07-08	*	< LOD	< LOD	<b>1.79</b> (1.38-2.31)	<b>4.27</b> (2.44-6.16)	567
Non-Hispanic whites	99-00	*	< LOD	<b>1.77</b> (.780-4.02)	<b>11.4</b> (4.07-21.5)	<b>21.5</b> (11.4-34.8)	595
	01-02	*	< LOD	<b>.787</b> (.389-1.37)	<b>3.42</b> (2.48-5.24)	<b>7.75</b> (5.80-9.47)	1252
	03-04	*	< LOD	<b>.631</b> (.412-.897)	<b>3.06</b> (1.75-5.84)	<b>6.74</b> (4.42-12.0)	1055
	05-06	*	< LOD	< LOD	<b>2.16</b> (1.64-3.00)	<b>4.14</b> (2.91-7.59)	1007
	07-08	*	< LOD	< LOD	<b>2.74</b> (2.12-3.58)	<b>5.92</b> (4.00-9.71)	1087

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

## Urinary *trans*-3-(2,2-Dichlorovinyl)-2,2-dimethylcyclopropane carboxylic acid (1999 - 2010)

Metabolite of Cyfluthrin, *trans*-Cypermethrin, and *trans*-Permethrin

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	.560 (.480-.700)	1.40 (1.17-1.77)	3.42 (2.39-5.56)	1976
	01-02	*	< LOD	.430 (<LOD-.560)	1.18 (.930-1.64)	2.60 (1.85-3.58)	3033
	07-08	*	< LOD	< LOD	2.23 (1.58-3.30)	5.23 (3.87-7.05)	2576
	09-10	*	< LOD	< LOD	1.29 (.810-1.70)	5.42 (3.26-6.80)	2747
<b>Age group</b>							
6-11 years	99-00	*	< LOD	.970 (.700-1.66)	2.91 (1.76-4.19)	4.19 (2.97-11.7)	478
	01-02	*	< LOD	.470 (<LOD-.760)	1.39 (1.03-1.68)	2.50 (1.55-3.54)	576
	07-08	*	< LOD	< LOD	1.50 (.740-3.01)	4.01 (1.81-10.4)	384
	09-10	*	< LOD	< LOD	2.27 (<LOD-5.65)	8.64 (2.27-26.8)	386
12-19 years	99-00	*	< LOD	.710 (.520-.860)	2.07 (1.25-3.42)	4.28 (2.12-6.23)	675
	01-02	*	< LOD	.490 (<LOD-.670)	1.20 (.800-1.60)	2.01 (1.49-3.77)	826
	07-08	*	< LOD	< LOD	2.30 (1.13-3.73)	5.08 (2.36-7.61)	388
	09-10	*	< LOD	< LOD	< LOD	1.78 (1.05-2.50)	401
20-59 years	99-00	*	< LOD	.500 (.400-.620)	1.17 (.910-1.68)	2.94 (1.49-5.56)	823
	01-02	*	< LOD	< LOD	1.17 (.850-1.85)	2.56 (1.64-4.66)	1123
	07-08	*	< LOD	< LOD	2.15 (1.38-3.55)	5.36 (3.51-7.28)	1174
	09-10	*	< LOD	< LOD	1.13 (<LOD-1.83)	5.88 (3.24-7.71)	1309
60 years and older	01-02	*	< LOD	.460 (<LOD-.630)	1.13 (.760-2.44)	4.27 (1.20-6.49)	508
	07-08	*	< LOD	< LOD	2.33 (.850-4.26)	4.87 (2.75-9.01)	630
	09-10	*	< LOD	< LOD	1.66 (1.02-2.68)	6.09 (3.05-10.4)	651
<b>Gender</b>							
Males	99-00	*	< LOD	.560 (.500-.670)	1.28 (1.11-1.63)	2.25 (1.55-5.10)	961
	01-02	*	< LOD	.420 (<LOD-.500)	1.12 (.860-1.58)	2.44 (1.69-3.70)	1419
	07-08	*	< LOD	< LOD	2.20 (1.20-3.76)	5.29 (3.12-7.61)	1289
	09-10	*	< LOD	< LOD	1.12 (<LOD-1.83)	4.98 (2.88-7.03)	1343
Females	99-00	*	< LOD	.550 (.410-.820)	1.77 (1.07-3.08)	4.19 (3.08-6.81)	1015
	01-02	*	< LOD	.440 (<LOD-.630)	1.23 (.910-1.98)	2.62 (1.90-3.58)	1614
	07-08	*	< LOD	< LOD	2.27 (1.49-3.51)	5.08 (3.55-6.48)	1287
	09-10	*	< LOD	< LOD	1.33 (<LOD-2.12)	5.51 (2.87-9.82)	1404

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 07-08, and 09-10 are 0.4, 0.4, 0.6, and 0.6 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Cyfluthrin\\_Cypermethrin\\_Permethrin\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Cyfluthrin_Cypermethrin_Permethrin_BiomonitoringSummary.html)

## Urinary *trans*-3-(2,2-Dichlorovinyl)-2,2-dimethylcyclopropane carboxylic acid (1999 - 2010)

Metabolite of Cyfluthrin, trans-Cypermethrin, and trans-Permethrin

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00	*	< LOD	.470 (.410-.530)	1.23 (.830-1.60)	1.87 (1.49-3.35)	691
	01-02	*	< LOD	.410 (<LOD-.510)	.860 (.680-1.14)	1.57 (1.08-2.01)	767
	07-08	*	< LOD	< LOD	1.37 (<LOD-1.99)	2.89 (1.63-4.19)	495
	09-10	*	< LOD	< LOD	< LOD	2.32 (1.06-3.76)	602
Non-Hispanic blacks	99-00	*	< LOD	.780 (.490-1.13)	1.84 (1.08-4.69)	4.69 (1.41-14.5)	518
	01-02	*	< LOD	.590 (.490-.740)	1.26 (1.05-1.70)	2.25 (1.54-3.32)	764
	07-08	*	< LOD	< LOD	2.24 (1.26-3.30)	4.25 (3.38-8.10)	569
	09-10	*	< LOD	< LOD	1.78 (<LOD-4.06)	5.14 (2.59-8.69)	504
Non-Hispanic whites	99-00	*	< LOD	.560 (.460-.730)	1.41 (1.14-2.14)	3.89 (2.14-6.43)	595
	01-02	*	< LOD	.410 (<LOD-.580)	1.18 (.850-1.85)	2.64 (1.85-4.27)	1278
	07-08	*	< LOD	< LOD	2.24 (1.38-3.76)	5.23 (3.96-6.48)	1082
	09-10	*	< LOD	< LOD	1.29 (.690-1.88)	6.13 (3.24-9.30)	1200

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 07-08, and 09-10 are 0.4, 0.4, 0.6, and 0.6 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Cyfluthrin\\_Cypermethrin\\_Permethrin\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Cyfluthrin_Cypermethrin_Permethrin_BiomonitoringSummary.html)

## Urinary *trans*-3-(2,2-Dichlorovinyl)-2,2-dimethylcyclopropane carboxylic acid (creatinine corrected) (1999 - 2010)

Metabolite of Cyfluthrin, *trans*-Cypermethrin, and *trans*-Permethrin

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	.700 (.609-.778)	1.56 (1.33-1.87)	2.65 (2.15-3.89)	1976
	01-02	*	< LOD	.737 (<LOD-.796)	1.47 (1.32-1.87)	2.62 (2.31-3.11)	3031
	07-08	*	< LOD	< LOD	2.90 (2.21-3.81)	5.15 (4.20-6.40)	2574
	09-10	*	< LOD	< LOD	2.10 (1.91-2.47)	4.37 (3.73-5.83)	2747
<b>Age group</b>							
6-11 years	99-00	*	< LOD	1.31 (.718-1.74)	2.37 (1.56-5.07)	5.60 (1.91-11.3)	478
	01-02	*	< LOD	.903 (<LOD-1.13)	2.16 (1.40-2.61)	2.87 (2.34-3.44)	576
	07-08	*	< LOD	< LOD	2.46 (2.07-3.46)	4.18 (2.47-9.69)	384
	09-10	*	< LOD	< LOD	2.61 (<LOD-5.87)	6.85 (2.61-38.8)	386
12-19 years	99-00	*	< LOD	.525 (.438-.727)	1.42 (.824-2.19)	2.19 (1.34-4.31)	675
	01-02	*	< LOD	.528 (<LOD-.657)	.966 (.800-1.29)	1.57 (1.07-2.60)	825
	07-08	*	< LOD	< LOD	2.06 (1.16-4.97)	5.51 (2.06-7.15)	386
	09-10	*	< LOD	< LOD	< LOD	1.83 (1.25-2.75)	401
20-59 years	99-00	*	< LOD	.700 (.571-.769)	1.33 (1.12-1.87)	2.39 (1.87-3.36)	823
	01-02	*	< LOD	< LOD	1.47 (1.22-2.00)	2.55 (2.07-3.11)	1123
	07-08	*	< LOD	< LOD	2.87 (2.15-3.82)	5.09 (3.83-6.81)	1174
	09-10	*	< LOD	< LOD	2.10 (<LOD-2.63)	4.37 (3.63-6.16)	1309
60 years and older	01-02	*	< LOD	.826 (<LOD-.933)	2.00 (1.22-2.80)	3.47 (2.15-6.57)	507
	07-08	*	< LOD	< LOD	3.50 (2.21-4.83)	5.85 (3.65-8.56)	630
	09-10	*	< LOD	< LOD	2.56 (2.00-3.72)	6.04 (3.82-13.7)	651
<b>Gender</b>							
Males	99-00	*	< LOD	.562 (.484-.667)	1.26 (1.07-1.42)	2.15 (1.47-2.74)	961
	01-02	*	< LOD	.529 (<LOD-.583)	1.09 (.966-1.35)	2.25 (1.57-2.57)	1419
	07-08	*	< LOD	< LOD	2.10 (1.36-3.47)	4.85 (3.20-5.95)	1288
	09-10	*	< LOD	< LOD	1.86 (<LOD-2.25)	3.98 (2.63-6.04)	1343
Females	99-00	*	< LOD	.875 (.718-1.11)	1.91 (1.48-2.39)	3.67 (2.30-6.28)	1015
	01-02	*	< LOD	.903 (<LOD-1.00)	1.90 (1.56-2.15)	3.03 (2.55-3.20)	1612
	07-08	*	< LOD	< LOD	3.50 (2.37-4.69)	6.23 (4.20-9.69)	1286
	09-10	*	< LOD	< LOD	2.48 (<LOD-2.95)	5.30 (3.54-8.27)	1404

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Cyfluthrin\\_Cypermethrin\\_Permethrin\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Cyfluthrin_Cypermethrin_Permethrin_BiomonitoringSummary.html)

## Urinary *trans*-3-(2,2-Dichlorovinyl)-2,2-dimethylcyclopropane carboxylic acid (creatinine corrected) (1999 - 2010)

Metabolite of Cyfluthrin, *trans*-Cypermethrin, and *trans*-Permethrin

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00	*	< LOD	.583 (.500-.745)	1.35 (1.02-1.65)	2.00 (1.56-2.80)	691
	01-02	*	< LOD	.573 (<LOD-.651)	1.08 (.909-1.22)	1.87 (1.39-2.15)	767
	07-08	*	< LOD	< LOD	1.87 (<LOD-2.94)	3.20 (2.07-4.16)	494
	09-10	*	< LOD	< LOD	< LOD	2.57 (2.02-3.50)	602
Non-Hispanic blacks	99-00	*	< LOD	.571 (.467-.739)	1.70 (.853-3.13)	3.36 (1.87-8.91)	518
	01-02	*	< LOD	.490 (.433-.571)	1.17 (.848-1.56)	2.37 (1.40-2.89)	763
	07-08	*	< LOD	< LOD	2.00 (1.56-2.63)	4.85 (2.31-8.30)	568
	09-10	*	< LOD	< LOD	1.75 (<LOD-2.25)	3.50 (2.13-6.13)	504
Non-Hispanic whites	99-00	*	< LOD	.757 (.695-.848)	1.64 (1.33-2.00)	3.31 (2.00-5.60)	595
	01-02	*	< LOD	.778 (<LOD-.848)	1.56 (1.34-2.00)	2.63 (2.30-3.16)	1277
	07-08	*	< LOD	< LOD	3.10 (2.21-4.20)	5.34 (4.46-7.21)	1082
	09-10	*	< LOD	< LOD	2.46 (1.91-3.00)	4.91 (3.73-7.83)	1200

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Cyfluthrin\\_Cypermethrin\\_Permethrin\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Cyfluthrin_Cypermethrin_Permethrin_BiomonitoringSummary.html)

## Urinary *cis*-3-(2,2-Dibromovinyl)-2,2-dimethylcyclopropane carboxylic acid (1999 - 2010)

Metabolite of Deltamethrin

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	< LOD	< LOD	< LOD	1698
	01-02	*	< LOD	< LOD	< LOD	< LOD	3048
	07-08	*	< LOD	< LOD	< LOD	< LOD	2583
	09-10	*	< LOD	< LOD	< LOD	< LOD	2746
<b>Age group</b>							
6-11 years	99-00	*	< LOD	< LOD	< LOD	< LOD	415
	01-02	*	< LOD	< LOD	< LOD	< LOD	580
	07-08	*	< LOD	< LOD	< LOD	< LOD	384
	09-10	*	< LOD	< LOD	< LOD	< LOD	386
12-19 years	99-00	*	< LOD	< LOD	< LOD	< LOD	570
	01-02	*	< LOD	< LOD	< LOD	< LOD	831
	07-08	*	< LOD	< LOD	< LOD	< LOD	389
	09-10	*	< LOD	< LOD	< LOD	< LOD	401
20-59 years	99-00	*	< LOD	< LOD	< LOD	< LOD	713
	01-02	*	< LOD	< LOD	< LOD	< LOD	1128
	07-08	*	< LOD	< LOD	< LOD	< LOD	1177
	09-10	*	< LOD	< LOD	< LOD	< LOD	1308
60 years and older	01-02	*	< LOD	< LOD	< LOD	< LOD	509
	07-08	*	< LOD	< LOD	< LOD	< LOD	633
	09-10	*	< LOD	< LOD	< LOD	< LOD	651
<b>Gender</b>							
Males	99-00	*	< LOD	< LOD	< LOD	< LOD	818
	01-02	*	< LOD	< LOD	< LOD	< LOD	1429
	07-08	*	< LOD	< LOD	< LOD	< LOD	1290
	09-10	*	< LOD	< LOD	< LOD	< LOD	1343
Females	99-00	*	< LOD	< LOD	< LOD	< LOD	880
	01-02	*	< LOD	< LOD	< LOD	< LOD	1619
	07-08	*	< LOD	< LOD	< LOD	< LOD	1293
	09-10	*	< LOD	< LOD	< LOD	< LOD	1403
<b>Race/ethnicity</b>							
Mexican Americans	99-00	*	< LOD	< LOD	< LOD	< LOD	578
	01-02	*	< LOD	< LOD	< LOD	< LOD	767
	07-08	*	< LOD	< LOD	< LOD	< LOD	500
	09-10	*	< LOD	< LOD	< LOD	< LOD	602
Non-Hispanic blacks	99-00	*	< LOD	< LOD	< LOD	< LOD	445
	01-02	*	< LOD	< LOD	< LOD	< LOD	776
	07-08	*	< LOD	< LOD	< LOD	< LOD	572
	09-10	*	< LOD	< LOD	< LOD	< LOD	503
Non-Hispanic whites	99-00	*	< LOD	< LOD	< LOD	< LOD	527
	01-02	*	< LOD	< LOD	< LOD	< LOD	1281
	07-08	*	< LOD	< LOD	< LOD	< LOD	1082
	09-10	*	< LOD	< LOD	< LOD	< LOD	1200

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 07-08, and 09-10 are 0.1, 0.1, 0.5, and 0.5 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Deltamethrin\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Deltamethrin_BiomonitoringSummary.html)



## Urinary *cis*-3-(2,2-Dibromovinyl)-2,2-dimethylcyclopropane carboxylic acid (creatinine corrected) (1999 - 2010)

Metabolite of Deltamethrin

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	< LOD	< LOD	< LOD	1698
	01-02	*	< LOD	< LOD	< LOD	< LOD	3046
	07-08	*	< LOD	< LOD	< LOD	< LOD	2581
	09-10	*	< LOD	< LOD	< LOD	< LOD	2746
<b>Age group</b>							
6-11 years	99-00	*	< LOD	< LOD	< LOD	< LOD	415
	01-02	*	< LOD	< LOD	< LOD	< LOD	580
	07-08	*	< LOD	< LOD	< LOD	< LOD	384
	09-10	*	< LOD	< LOD	< LOD	< LOD	386
12-19 years	99-00	*	< LOD	< LOD	< LOD	< LOD	570
	01-02	*	< LOD	< LOD	< LOD	< LOD	830
	07-08	*	< LOD	< LOD	< LOD	< LOD	387
	09-10	*	< LOD	< LOD	< LOD	< LOD	401
20-59 years	99-00	*	< LOD	< LOD	< LOD	< LOD	713
	01-02	*	< LOD	< LOD	< LOD	< LOD	1128
	07-08	*	< LOD	< LOD	< LOD	< LOD	1177
	09-10	*	< LOD	< LOD	< LOD	< LOD	1308
60 years and older	01-02	*	< LOD	< LOD	< LOD	< LOD	508
	07-08	*	< LOD	< LOD	< LOD	< LOD	633
	09-10	*	< LOD	< LOD	< LOD	< LOD	651
<b>Gender</b>							
Males	99-00	*	< LOD	< LOD	< LOD	< LOD	818
	01-02	*	< LOD	< LOD	< LOD	< LOD	1429
	07-08	*	< LOD	< LOD	< LOD	< LOD	1289
	09-10	*	< LOD	< LOD	< LOD	< LOD	1343
Females	99-00	*	< LOD	< LOD	< LOD	< LOD	880
	01-02	*	< LOD	< LOD	< LOD	< LOD	1617
	07-08	*	< LOD	< LOD	< LOD	< LOD	1292
	09-10	*	< LOD	< LOD	< LOD	< LOD	1403
<b>Race/ethnicity</b>							
Mexican Americans	99-00	*	< LOD	< LOD	< LOD	< LOD	578
	01-02	*	< LOD	< LOD	< LOD	< LOD	767
	07-08	*	< LOD	< LOD	< LOD	< LOD	499
	09-10	*	< LOD	< LOD	< LOD	< LOD	602
Non-Hispanic blacks	99-00	*	< LOD	< LOD	< LOD	< LOD	445
	01-02	*	< LOD	< LOD	< LOD	< LOD	775
	07-08	*	< LOD	< LOD	< LOD	< LOD	571
Non-Hispanic whites	99-10	*	< LOD	< LOD	< LOD	< LOD	503
	99-00	*	< LOD	< LOD	< LOD	< LOD	527
	01-02	*	< LOD	< LOD	< LOD	< LOD	1280
	07-08	*	< LOD	< LOD	< LOD	< LOD	1082
09-10	*	< LOD	< LOD	< LOD	< LOD	1200	

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Deltamethrin\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Deltamethrin_BiomonitoringSummary.html)

## Urinary 4-Fluoro-3-phenoxybenzoic acid (1999 - 2010)

Metabolite of Cyfluthrin

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	< LOD	< LOD	< LOD	1949
	01-02	*	< LOD	< LOD	< LOD	< LOD	3048
	07-08	*	< LOD	< LOD	< LOD	.140 (<LOD-.210)	2588
	09-10	*	< LOD	< LOD	< LOD	< LOD	2747
<b>Age group</b>							
6-11 years	99-00	*	< LOD	< LOD	< LOD	< LOD	473
	01-02	*	< LOD	< LOD	< LOD	< LOD	580
	07-08	*	< LOD	< LOD	< LOD	.120 (<LOD-.160)	385
	09-10	*	< LOD	< LOD	< LOD	< LOD	386
12-19 years	99-00	*	< LOD	< LOD	< LOD	< LOD	662
	01-02	*	< LOD	< LOD	< LOD	< LOD	831
	07-08	*	< LOD	< LOD	< LOD	< LOD	390
	09-10	*	< LOD	< LOD	< LOD	< LOD	401
20-59 years	99-00	*	< LOD	< LOD	< LOD	< LOD	814
	01-02	*	< LOD	< LOD	< LOD	< LOD	1128
	07-08	*	< LOD	< LOD	< LOD	.170 (<LOD-.290)	1180
	09-10	*	< LOD	< LOD	< LOD	< LOD	1309
60 years and older	01-02	*	< LOD	< LOD	< LOD	< LOD	509
	07-08	*	< LOD	< LOD	< LOD	.120 (<LOD-.260)	633
	09-10	*	< LOD	< LOD	< LOD	.220 (<LOD-.720)	651
<b>Gender</b>							
Males	99-00	*	< LOD	< LOD	< LOD	< LOD	950
	01-02	*	< LOD	< LOD	< LOD	< LOD	1429
	07-08	*	< LOD	< LOD	< LOD	.160 (<LOD-.270)	1293
	09-10	*	< LOD	< LOD	< LOD	< LOD	1343
Females	99-00	*	< LOD	< LOD	< LOD	< LOD	999
	01-02	*	< LOD	< LOD	< LOD	< LOD	1619
	07-08	*	< LOD	< LOD	< LOD	< LOD	1295
	09-10	*	< LOD	< LOD	< LOD	< LOD	1404
<b>Race/ethnicity</b>							
Mexican Americans	99-00	*	< LOD	< LOD	< LOD	< LOD	666
	01-02	*	< LOD	< LOD	< LOD	< LOD	767
	07-08	*	< LOD	< LOD	< LOD	.160 (<LOD-.240)	500
	09-10	*	< LOD	< LOD	< LOD	< LOD	602
Non-Hispanic blacks	99-00	*	< LOD	< LOD	< LOD	< LOD	517
	01-02	*	< LOD	< LOD	< LOD	< LOD	776
	07-08	*	< LOD	< LOD	< LOD	.140 (<LOD-.250)	574
	09-10	*	< LOD	< LOD	< LOD	.250 (<LOD-1.02)	504
Non-Hispanic whites	99-00	*	< LOD	< LOD	< LOD	< LOD	594
	01-02	*	< LOD	< LOD	< LOD	< LOD	1281
	07-08	*	< LOD	< LOD	< LOD	.140 (<LOD-.210)	1084
	09-10	*	< LOD	< LOD	< LOD	< LOD	1200

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 07-08, and 09-10 are 0.2, 0.2, 0.1, and 0.1 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Cyfluthrin\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Cyfluthrin_BiomonitoringSummary.html)

## Urinary 4-Fluoro-3-phenoxybenzoic acid (creatinine corrected) (1999 - 2010)

Metabolite of Cyfluthrin

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	< LOD	< LOD	< LOD	1949
	01-02	*	< LOD	< LOD	< LOD	< LOD	3046
	07-08	*	< LOD	< LOD	< LOD	.350 (<LOD-.412)	2586
	09-10	*	< LOD	< LOD	< LOD	< LOD	2747
<b>Age group</b>							
6-11 years	99-00	*	< LOD	< LOD	< LOD	< LOD	473
	01-02	*	< LOD	< LOD	< LOD	< LOD	580
	07-08	*	< LOD	< LOD	< LOD	.374 (<LOD-.412)	385
	09-10	*	< LOD	< LOD	< LOD	< LOD	386
12-19 years	99-00	*	< LOD	< LOD	< LOD	< LOD	662
	01-02	*	< LOD	< LOD	< LOD	< LOD	830
	07-08	*	< LOD	< LOD	< LOD	< LOD	388
	09-10	*	< LOD	< LOD	< LOD	< LOD	401
20-59 years	99-00	*	< LOD	< LOD	< LOD	< LOD	814
	01-02	*	< LOD	< LOD	< LOD	< LOD	1128
	07-08	*	< LOD	< LOD	< LOD	.368 (<LOD-.467)	1180
	09-10	*	< LOD	< LOD	< LOD	< LOD	1309
60 years and older	01-02	*	< LOD	< LOD	< LOD	< LOD	508
	07-08	*	< LOD	< LOD	< LOD	.389 (<LOD-.476)	633
	09-10	*	< LOD	< LOD	< LOD	.467 (<LOD-.700)	651
<b>Gender</b>							
Males	99-00	*	< LOD	< LOD	< LOD	< LOD	950
	01-02	*	< LOD	< LOD	< LOD	< LOD	1429
	07-08	*	< LOD	< LOD	< LOD	.233 (<LOD-.280)	1292
	09-10	*	< LOD	< LOD	< LOD	< LOD	1343
Females	99-00	*	< LOD	< LOD	< LOD	< LOD	999
	01-02	*	< LOD	< LOD	< LOD	< LOD	1617
	07-08	*	< LOD	< LOD	< LOD	< LOD	1294
	09-10	*	< LOD	< LOD	< LOD	< LOD	1404
<b>Race/ethnicity</b>							
Mexican Americans	99-00	*	< LOD	< LOD	< LOD	< LOD	666
	01-02	*	< LOD	< LOD	< LOD	< LOD	767
	07-08	*	< LOD	< LOD	< LOD	.333 (<LOD-.414)	499
	09-10	*	< LOD	< LOD	< LOD	< LOD	602
Non-Hispanic blacks	99-00	*	< LOD	< LOD	< LOD	< LOD	517
	01-02	*	< LOD	< LOD	< LOD	< LOD	775
	07-08	*	< LOD	< LOD	< LOD	.235 (<LOD-.292)	573
	09-10	*	< LOD	< LOD	< LOD	.333 (<LOD-.788)	504
Non-Hispanic whites	99-00	*	< LOD	< LOD	< LOD	< LOD	594
	01-02	*	< LOD	< LOD	< LOD	< LOD	1280
	07-08	*	< LOD	< LOD	< LOD	.368 (<LOD-.438)	1084
	09-10	*	< LOD	< LOD	< LOD	< LOD	1200

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Cyfluthrin\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Cyfluthrin_BiomonitoringSummary.html)

## Urinary 3-Phenoxybenzoic acid (1999 - 2010)

Metabolite of Cypermethrin, Deltamethrin, and Permethrin

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	.292 (.247-.345)	.250 (.190-.320)	.730 (.590-.850)	1.75 (1.49-2.16)	4.33 (2.62-6.30)	1998
	01-02	.318 (.275-.368)	.270 (.220-.340)	.700 (.570-.810)	1.73 (1.49-2.16)	3.54 (2.69-5.25)	3048
	07-08	.401 (.350-.460)	.390 (.340-.450)	1.10 (.870-1.39)	3.22 (2.55-4.19)	6.63 (4.99-8.24)	2454
	09-10	.418 (.389-.449)	.400 (.350-.460)	1.06 (.970-1.19)	3.12 (2.69-3.77)	6.50 (5.57-8.04)	2723
Age group 6-11 years	99-00	.417 (.292-.595)	.320 (.210-.490)	1.12 (.700-1.60)	4.18 (2.02-6.54)	8.63 (3.89-71.1)	483
	01-02	.325 (.260-.406)	.300 (.200-.420)	.760 (.570-1.05)	1.81 (1.42-2.78)	3.38 (2.25-4.12)	580
	07-08	.397 (.339-.464)	.360 (.280-.410)	1.13 (.780-1.55)	3.40 (2.19-5.87)	9.88 (3.40-17.3)	371
	09-10	.549 (.389-.774)	.480 (.350-.700)	1.43 (1.00-2.15)	4.43 (2.80-8.04)	8.51 (4.12-39.4)	383
12-19 years	99-00	.336 (.265-.427)	.290 (.200-.440)	.870 (.620-1.04)	1.93 (1.49-2.90)	4.33 (1.83-11.1)	682
	01-02	.353 (.288-.434)	.300 (.250-.390)	.800 (.560-1.13)	1.86 (1.48-2.35)	3.45 (2.14-6.69)	831
	07-08	.393 (.273-.565)	.360 (.200-.640)	1.15 (.720-1.83)	2.96 (2.11-6.73)	7.42 (2.96-12.1)	361
	09-10	.403 (.346-.470)	.410 (.310-.510)	.970 (.810-1.29)	2.25 (1.80-3.19)	3.92 (2.55-5.85)	398
20-59 years	99-00	.267 (.227-.314)	.230 (.160-.300)	.640 (.510-.820)	1.49 (1.25-1.78)	3.21 (2.04-5.41)	833
	01-02	.314 (.271-.364)	.270 (.220-.340)	.670 (.530-.780)	1.65 (1.27-2.34)	3.25 (2.51-6.16)	1128
	07-08	.427 (.376-.485)	.420 (.370-.470)	1.11 (.900-1.39)	3.38 (2.42-4.99)	6.65 (4.86-9.69)	1110
	09-10	.416 (.382-.454)	.390 (.330-.470)	1.07 (.930-1.23)	3.50 (2.67-4.45)	6.95 (5.57-9.31)	1296
60 years and older	01-02	.303 (.233-.394)	.250 (.180-.350)	.690 (.490-1.10)	2.03 (1.45-3.68)	5.16 (2.77-6.61)	509
	07-08	.335 (.270-.416)	.300 (.210-.470)	1.05 (.690-1.54)	2.68 (1.84-3.97)	4.70 (2.83-6.43)	612
	09-10	.382 (.343-.427)	.360 (.290-.450)	.980 (.860-1.17)	2.56 (2.07-2.88)	5.93 (3.21-8.95)	646
Gender Males	99-00	.273 (.226-.330)	.250 (.180-.330)	.710 (.570-.820)	1.49 (1.29-1.73)	2.41 (1.92-3.79)	974
	01-02	.326 (.281-.379)	.300 (.230-.360)	.690 (.570-.750)	1.60 (1.37-2.15)	3.23 (2.56-5.25)	1429
	07-08	.419 (.361-.487)	.430 (.370-.500)	1.11 (.830-1.48)	3.12 (2.15-4.58)	5.91 (4.19-7.56)	1215
	09-10	.421 (.391-.454)	.400 (.340-.450)	1.07 (.900-1.29)	3.21 (2.51-4.45)	6.50 (5.51-9.07)	1331
Females	99-00	.311 (.253-.384)	.250 (.190-.340)	.740 (.510-.990)	2.30 (1.63-3.36)	6.03 (3.27-11.8)	1024
	01-02	.311 (.260-.371)	.250 (.200-.320)	.730 (.550-.920)	1.81 (1.53-2.47)	3.76 (2.51-6.55)	1619
	07-08	.385 (.322-.462)	.360 (.290-.450)	1.07 (.820-1.42)	3.30 (2.32-5.30)	6.79 (5.15-9.69)	1239
	09-10	.415 (.366-.471)	.400 (.350-.480)	1.06 (.910-1.26)	2.92 (2.51-3.84)	6.50 (4.89-8.50)	1392
Race/ethnicity Mexican Americans	99-00	.260 (.230-.295)	.230 (.190-.270)	.600 (.430-.750)	1.35 (1.16-1.53)	2.18 (1.53-3.26)	697
	01-02	.290 (.233-.361)	.260 (.190-.350)	.650 (.490-.810)	1.26 (.860-2.17)	2.65 (1.50-3.44)	767
	07-08	.369 (.302-.451)	.400 (.280-.460)	.940 (.740-1.15)	2.27 (1.58-3.39)	3.62 (2.70-12.7)	476
	09-10	.371 (.316-.436)	.380 (.300-.480)	.830 (.750-1.02)	1.93 (1.55-2.53)	3.70 (2.53-4.81)	596
Non-Hispanic blacks	99-00	.454 (.352-.586)	.450 (.350-.610)	1.13 (.750-1.46)	2.32 (1.45-5.35)	5.35 (2.32-21.1)	524
	01-02	.507 (.430-.599)	.520 (.440-.630)	.980 (.840-1.20)	2.03 (1.72-2.52)	3.86 (3.05-5.84)	776
	07-08	.420 (.353-.501)	.430 (.320-.540)	1.12 (.770-1.66)	3.11 (2.44-4.26)	6.13 (4.12-8.39)	533
	09-10	.464 (.349-.616)	.500 (.360-.650)	1.29 (.790-1.94)	2.86 (2.07-4.59)	5.86 (3.42-8.50)	499
Non-Hispanic whites	99-00	.288 (.233-.355)	.240 (.160-.320)	.710 (.530-.850)	1.78 (1.41-3.05)	5.34 (2.62-8.43)	603
	01-02	.297 (.248-.355)	.240 (.190-.320)	.600 (.490-.780)	1.75 (1.46-2.34)	3.70 (2.52-6.16)	1281
	07-08	.394 (.329-.470)	.380 (.310-.450)	1.09 (.780-1.42)	3.38 (2.42-4.92)	6.53 (5.15-8.24)	1040
	09-10	.412 (.384-.441)	.370 (.330-.420)	1.06 (.920-1.19)	3.83 (2.82-4.46)	8.08 (5.93-11.1)	1192

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 07-08, and 09-10 are 0.1, 0.1, 0.1, and 0.1 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Cyhalothrin\\_Cypermethrin\\_Deltamethrin\\_Fenpropathrin\\_Permethrin\\_Tralomethrin\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Cyhalothrin_Cypermethrin_Deltamethrin_Fenpropathrin_Permethrin_Tralomethrin_BiomonitoringSummary.html)

## Urinary 3-Phenoxybenzoic acid (creatinine corrected) (1999 - 2010)

Metabolite of Cypermethrin, Deltamethrin, and Permethrin

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	.261 (.224-.304)	.246 (.203-.280)	.550 (.459-.629)	1.40 (1.13-1.73)	3.19 (2.16-4.55)	1998
	01-02	.324 (.284-.371)	.290 (.247-.336)	.600 (.512-.743)	1.54 (1.26-1.91)	3.35 (2.50-4.92)	3046
	07-08	.426 (.374-.485)	.384 (.333-.450)	1.02 (.886-1.19)	3.08 (2.31-4.04)	5.83 (4.52-7.51)	2452
	09-10	.438 (.409-.469)	.384 (.342-.432)	1.01 (.898-1.13)	2.88 (2.50-3.19)	5.44 (4.52-6.38)	2723
Age group 6-11 years	99-00	.450 (.299-.677)	.371 (.241-.592)	1.13 (.733-1.62)	3.97 (1.75-8.07)	9.91 (2.43-64.0)	483
	01-02	.423 (.335-.534)	.383 (.296-.500)	.864 (.594-1.35)	2.21 (1.61-2.95)	3.32 (2.64-5.40)	580
	07-08	.511 (.431-.605)	.448 (.363-.545)	1.20 (.886-1.83)	3.81 (2.13-7.27)	9.86 (3.81-15.7)	371
	09-10	.744 (.537-1.03)	.667 (.503-.838)	1.87 (1.30-2.60)	4.73 (2.88-9.57)	10.2 (4.48-51.9)	383
12-19 years	99-00	.227 (.178-.290)	.205 (.156-.269)	.486 (.379-.732)	1.37 (1.03-1.62)	2.52 (1.41-4.44)	682
	01-02	.274 (.229-.328)	.236 (.189-.313)	.539 (.424-.730)	1.11 (.864-1.63)	2.35 (1.36-6.19)	830
	07-08	.316 (.230-.434)	.281 (.191-.425)	.869 (.523-1.29)	3.13 (1.47-4.37)	5.41 (3.36-9.20)	359
	09-10	.347 (.302-.399)	.301 (.256-.397)	.733 (.575-.903)	1.53 (1.33-2.46)	2.64 (1.76-3.75)	398
20-59 years	99-00	.246 (.216-.278)	.239 (.200-.272)	.505 (.405-.590)	1.11 (.861-1.49)	2.53 (1.73-4.09)	833
	01-02	.311 (.271-.357)	.282 (.245-.328)	.552 (.444-.673)	1.44 (1.02-1.91)	3.22 (1.91-4.92)	1128
	07-08	.443 (.384-.510)	.401 (.353-.472)	1.01 (.867-1.16)	2.95 (2.22-4.04)	6.29 (4.18-8.05)	1110
	09-10	.419 (.389-.451)	.365 (.326-.421)	.993 (.826-1.10)	2.93 (2.35-3.62)	4.72 (4.17-6.15)	1296
60 years and older	01-02	.372 (.301-.462)	.319 (.241-.406)	.785 (.541-1.05)	2.16 (1.30-3.50)	4.65 (2.63-6.15)	508
	07-08	.418 (.351-.498)	.363 (.288-.473)	1.06 (.832-1.59)	3.11 (2.22-4.43)	4.93 (3.37-7.62)	612
	09-10	.455 (.417-.496)	.397 (.342-.455)	1.06 (.875-1.30)	2.88 (2.37-3.61)	5.44 (3.77-8.53)	646
Gender Males	99-00	.210 (.173-.253)	.195 (.152-.254)	.513 (.388-.582)	1.09 (.841-1.41)	1.72 (1.49-2.52)	974
	01-02	.269 (.233-.310)	.239 (.203-.280)	.500 (.429-.571)	1.27 (1.05-1.59)	2.95 (1.74-4.00)	1429
	07-08	.359 (.314-.411)	.333 (.291-.392)	.840 (.722-1.00)	2.58 (1.58-3.57)	4.42 (3.40-6.46)	1214
	09-10	.377 (.348-.409)	.323 (.295-.368)	.865 (.744-1.01)	2.48 (1.98-2.97)	4.72 (3.53-6.45)	1331
Females	99-00	.323 (.270-.387)	.273 (.235-.333)	.608 (.477-.743)	1.94 (1.35-3.00)	5.04 (3.19-6.90)	1024
	01-02	.388 (.331-.455)	.344 (.284-.408)	.737 (.563-.938)	1.84 (1.46-2.35)	4.43 (2.62-5.59)	1617
	07-08	.500 (.416-.601)	.433 (.355-.540)	1.28 (.995-1.60)	3.56 (2.40-4.93)	7.20 (5.15-9.57)	1238
	09-10	.505 (.453-.564)	.446 (.394-.500)	1.15 (1.00-1.33)	3.19 (2.54-3.73)	5.86 (4.58-8.90)	1392
Race/ethnicity Mexican Americans	99-00	.234 (.202-.272)	.219 (.187-.234)	.475 (.368-.594)	1.04 (.700-1.39)	1.67 (1.06-3.00)	697
	01-02	.274 (.230-.328)	.242 (.206-.316)	.512 (.404-.654)	1.03 (.750-1.67)	1.83 (1.15-2.75)	767
	07-08	.386 (.320-.466)	.379 (.287-.488)	.911 (.692-1.24)	1.94 (1.47-2.38)	3.16 (2.08-9.55)	475
	09-10	.390 (.341-.446)	.355 (.305-.438)	.696 (.631-.774)	1.62 (1.40-2.15)	3.22 (2.19-3.89)	596
Non-Hispanic blacks	99-00	.309 (.238-.401)	.268 (.224-.353)	.636 (.456-.935)	1.49 (1.05-3.43)	3.86 (1.51-7.25)	524
	01-02	.374 (.308-.455)	.357 (.290-.430)	.675 (.561-.817)	1.44 (1.20-2.31)	2.91 (2.03-3.76)	775
	07-08	.335 (.287-.391)	.320 (.269-.375)	.748 (.621-1.03)	2.30 (1.68-3.35)	4.62 (3.21-6.54)	532
	09-10	.352 (.281-.442)	.360 (.289-.436)	.865 (.587-1.21)	1.93 (1.48-2.59)	4.03 (2.43-4.91)	499
Non-Hispanic whites	99-00	.272 (.225-.329)	.250 (.200-.292)	.552 (.443-.667)	1.55 (1.09-2.27)	4.02 (2.07-5.49)	603
	01-02	.321 (.274-.377)	.281 (.238-.333)	.586 (.468-.811)	1.59 (1.26-2.19)	3.57 (2.25-5.59)	1280
	07-08	.438 (.369-.519)	.368 (.304-.488)	1.00 (.849-1.23)	3.41 (2.41-4.37)	6.29 (4.52-8.37)	1040
	09-10	.451 (.417-.488)	.388 (.328-.438)	1.07 (.889-1.25)	3.16 (2.63-3.71)	6.09 (4.69-9.08)	1192

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Cyhalothrin\\_Cypermethrin\\_Deltamethrin\\_Fenprothrin\\_Permethrin\\_Tralomethrin\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Cyhalothrin_Cypermethrin_Deltamethrin_Fenprothrin_Permethrin_Tralomethrin_BiomonitoringSummary.html)

## Urinary Antimony (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	.132 (.120-.145)	.130 (.120-.150)	.220 (.200-.230)	.330 (.300-.350)	.430 (.390-.470)	2276
	01-02	.134 (.126-.142)	.130 (.130-.140)	.190 (.180-.200)	.270 (.250-.310)	.350 (.320-.400)	2690
	03-04	*	.080 (<LOD-.090)	.130 (.120-.150)	.200 (.190-.220)	.280 (.250-.320)	2558
	05-06	.073 (.066-.081)	.070 (.070-.080)	.120 (.110-.140)	.220 (.180-.250)	.300 (.270-.360)	2576
	07-08	.061 (.057-.066)	.060 (.060-.060)	.100 (.090-.110)	.170 (.140-.200)	.240 (.220-.260)	2627
	09-10	.056 (.053-.059)	.050 (.050-.060)	.090 (.090-.100)	.170 (.140-.180)	.230 (.200-.280)	2847
	Age group	<b>6-11 years</b>					
99-00		.176 (.154-.200)	.190 (.160-.210)	.260 (.230-.280)	.350 (.300-.400)	.440 (.320-.600)	316
01-02		.146 (.134-.160)	.150 (.130-.160)	.200 (.180-.210)	.270 (.240-.330)	.340 (.280-.440)	368
03-04		.099 (.087-.114)	.100 (.070-.120)	.160 (.120-.200)	.240 (.190-.310)	.310 (.230-.330)	290
05-06		.075 (.063-.088)	.080 (.060-.090)	.110 (.090-.130)	.190 (.120-.260)	.240 (.170-.340)	355
07-08		.068 (.061-.077)	.070 (.060-.080)	.110 (.090-.130)	.170 (.150-.210)	.230 (.180-.280)	394
09-10		.069 (.061-.079)	.070 (.060-.080)	.120 (.100-.150)	.220 (.150-.260)	.260 (.230-.350)	378
<b>12-19 years</b>							
99-00		.158 (.141-.178)	.170 (.150-.180)	.240 (.210-.270)	.350 (.290-.420)	.460 (.350-.510)	663
01-02		.169 (.156-.184)	.160 (.150-.180)	.240 (.220-.260)	.350 (.320-.410)	.460 (.400-.500)	762
03-04		.105 (.095-.115)	.100 (.090-.120)	.150 (.140-.160)	.230 (.200-.270)	.290 (.250-.370)	725
05-06		.092 (.083-.101)	.090 (.080-.100)	.140 (.130-.160)	.240 (.200-.270)	.280 (.250-.320)	701
07-08		.079 (.069-.091)	.080 (.070-.090)	.130 (.110-.140)	.210 (.150-.230)	.230 (.210-.340)	376
09-10		.063 (.056-.071)	.060 (.050-.070)	.100 (.090-.120)	.180 (.150-.210)	.270 (.180-.370)	451
<b>20 years and older</b>							
99-00	.123 (.112-.137)	.120 (.110-.130)	.200 (.180-.220)	.310 (.290-.350)	.430 (.390-.470)	1297	
01-02	.128 (.119-.136)	.130 (.120-.130)	.180 (.170-.190)	.250 (.220-.300)	.330 (.280-.390)	1560	
03-04	*	.070 (<LOD-.080)	.120 (.100-.140)	.190 (.170-.210)	.270 (.220-.320)	1543	
05-06	.070 (.064-.078)	.070 (.060-.080)	.120 (.110-.140)	.220 (.180-.270)	.320 (.260-.420)	1520	
07-08	.058 (.054-.062)	.060 (.050-.060)	.090 (.090-.100)	.160 (.130-.190)	.240 (.210-.270)	1857	
09-10	.054 (.051-.057)	.050 (.050-.050)	.090 (.080-.090)	.150 (.140-.180)	.220 (.190-.270)	2018	
<b>Gender</b>							
<b>Males</b>							
99-00	.143 (.131-.157)	.150 (.130-.160)	.240 (.220-.260)	.350 (.330-.390)	.470 (.390-.570)	1132	
01-02	.145 (.136-.154)	.140 (.130-.150)	.200 (.190-.210)	.310 (.280-.330)	.390 (.350-.440)	1335	
03-04	.095 (.088-.103)	.090 (.080-.100)	.140 (.130-.160)	.220 (.200-.250)	.320 (.270-.350)	1281	
05-06	.085 (.076-.095)	.080 (.080-.090)	.140 (.120-.160)	.250 (.210-.290)	.350 (.260-.460)	1271	
07-08	.068 (.062-.076)	.070 (.060-.070)	.110 (.100-.120)	.210 (.170-.230)	.280 (.230-.340)	1327	
09-10	.060 (.055-.065)	.060 (.050-.070)	.100 (.090-.110)	.170 (.150-.200)	.250 (.200-.290)	1397	
<b>Females</b>							
99-00	.122 (.109-.137)	.120 (.110-.140)	.200 (.180-.220)	.300 (.280-.340)	.400 (.350-.460)	1144	
01-02	.125 (.117-.133)	.120 (.120-.130)	.180 (.160-.190)	.240 (.220-.280)	.320 (.260-.360)	1355	
03-04	*	< LOD	.120 (.090-.140)	.180 (.150-.220)	.230 (.190-.330)	1277	
05-06	.063 (.057-.071)	.060 (.050-.070)	.100 (.090-.120)	.180 (.150-.230)	.270 (.200-.330)	1305	
07-08	.055 (.052-.058)	.050 (.050-.060)	.090 (.080-.100)	.130 (.120-.150)	.200 (.170-.230)	1300	
09-10	.052 (.049-.056)	.050 (.040-.050)	.090 (.080-.090)	.150 (.130-.170)	.220 (.190-.270)	1450	

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.04, 0.04, 0.07, 0.032, 0.032, and 0.032 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Antimony\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Antimony_BiomonitoringSummary.html)



## Urinary Antimony (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00	.132 (.108-.161)	.140 (.120-.170)	.210 (.180-.240)	.300 (.260-.390)	.430 (.330-.560)	787
	01-02	.142 (.130-.154)	.130 (.130-.150)	.200 (.170-.230)	.260 (.240-.320)	.360 (.300-.400)	683
	03-04	.093 (.079-.110)	.090 (<LOD-.120)	.140 (.120-.160)	.190 (.160-.260)	.270 (.210-.330)	618
	05-06	.093 (.082-.105)	.090 (.080-.100)	.150 (.140-.170)	.250 (.210-.340)	.470 (.270-.850)	652
	07-08	.069 (.060-.079)	.070 (.060-.080)	.110 (.100-.120)	.190 (.150-.250)	.270 (.220-.390)	515
	09-10	.063 (.060-.067)	.060 (.060-.070)	.110 (.090-.120)	.170 (.150-.200)	.250 (.200-.270)	613
Non-Hispanic blacks	99-00	.175 (.148-.207)	.180 (.150-.200)	.260 (.230-.300)	.400 (.310-.490)	.490 (.410-.710)	554
	01-02	.180 (.164-.197)	.170 (.160-.190)	.250 (.220-.280)	.360 (.320-.410)	.460 (.370-.530)	667
	03-04	.108 (.098-.119)	.110 (.100-.120)	.160 (.150-.190)	.230 (.200-.280)	.310 (.250-.360)	723
	05-06	.088 (.077-.100)	.090 (.080-.100)	.140 (.130-.170)	.210 (.190-.250)	.280 (.240-.320)	692
	07-08	.085 (.079-.092)	.080 (.080-.090)	.130 (.120-.140)	.210 (.180-.250)	.290 (.250-.370)	589
	09-10	.073 (.065-.081)	.070 (.060-.080)	.120 (.110-.140)	.190 (.160-.250)	.280 (.220-.350)	544
Non-Hispanic whites	99-00	.128 (.115-.144)	.130 (.110-.140)	.210 (.190-.230)	.330 (.280-.350)	.400 (.360-.500)	768
	01-02	.126 (.117-.135)	.130 (.120-.130)	.180 (.170-.190)	.250 (.230-.300)	.340 (.310-.390)	1132
	03-04	*	.070 (<LOD-.080)	.130 (.110-.140)	.190 (.170-.210)	.280 (.230-.320)	1074
	05-06	.069 (.062-.077)	.070 (.060-.080)	.110 (.100-.130)	.210 (.170-.260)	.300 (.240-.380)	1041
	07-08	.057 (.052-.063)	.060 (.050-.060)	.090 (.080-.110)	.150 (.130-.200)	.230 (.190-.260)	1095
	09-10	.053 (.050-.057)	.050 (.040-.050)	.090 (.080-.090)	.160 (.130-.190)	.230 (.190-.280)	1225

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.04, 0.04, 0.07, 0.032, 0.032, and 0.032 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Antimony\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Antimony_BiomonitoringSummary.html)

## Urinary Antimony (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	<b>.047</b> (.042-.052)	<b>.083</b> (.075-.091)	<b>.144</b> (.125-.158)	<b>.188</b> (.169-.222)	2504
	13-14	<b>.043</b> (.039-.048)	<b>.041</b> (.036-.046)	<b>.076</b> (.069-.086)	<b>.130</b> (.120-.144)	<b>.189</b> (.170-.214)	2664
<b>Age group</b>							
6-11 years	11-12	<b>.064</b> (.059-.069)	<b>.059</b> (.049-.072)	<b>.108</b> (.094-.124)	<b>.169</b> (.152-.188)	<b>.206</b> (.182-.257)	399
	13-14	<b>.052</b> (.045-.060)	<b>.053</b> (.046-.065)	<b>.096</b> (.089-.105)	<b>.151</b> (.128-.172)	<b>.228</b> (.168-.254)	402
12-19 years	11-12	<b>.065</b> (.057-.073)	<b>.065</b> (.048-.081)	<b>.106</b> (.098-.126)	<b>.173</b> (.137-.202)	<b>.218</b> (.166-.283)	390
	13-14	<b>.051</b> (.043-.061)	<b>.051</b> (.041-.062)	<b>.088</b> (.070-.112)	<b>.138</b> (.121-.166)	<b>.203</b> (.152-.235)	451
20 years and older	11-12	*	<b>.044</b> (<LOD-.051)	<b>.076</b> (.066-.087)	<b>.129</b> (.112-.152)	<b>.171</b> (.158-.228)	1715
	13-14	<b>.042</b> (.038-.045)	<b>.039</b> (.033-.043)	<b>.071</b> (.065-.079)	<b>.128</b> (.116-.137)	<b>.184</b> (.161-.215)	1811
<b>Gender</b>							
Males	11-12	<b>.057</b> (.052-.063)	<b>.052</b> (.044-.061)	<b>.089</b> (.080-.100)	<b>.152</b> (.124-.169)	<b>.196</b> (.169-.259)	1262
	13-14	<b>.048</b> (.044-.052)	<b>.046</b> (.041-.051)	<b>.082</b> (.072-.094)	<b>.145</b> (.129-.161)	<b>.213</b> (.182-.230)	1318
Females	11-12	*	<b>.043</b> (<LOD-.049)	<b>.074</b> (.068-.082)	<b>.131</b> (.122-.149)	<b>.182</b> (.166-.218)	1242
	13-14	<b>.040</b> (.036-.044)	<b>.036</b> (.030-.043)	<b>.070</b> (.062-.078)	<b>.122</b> (.105-.132)	<b>.169</b> (.146-.200)	1346
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>.056</b> (.051-.062)	<b>.053</b> (.044-.062)	<b>.086</b> (.075-.091)	<b>.134</b> (.110-.164)	<b>.174</b> (.149-.261)	317
	13-14	<b>.048</b> (.038-.060)	<b>.047</b> (.033-.057)	<b>.082</b> (.066-.106)	<b>.172</b> (.109-.248)	<b>.252</b> (.170-.432)	453
Non-Hispanic blacks	11-12	<b>.070</b> (.063-.079)	<b>.068</b> (.062-.074)	<b>.110</b> (.096-.125)	<b>.182</b> (.148-.229)	<b>.254</b> (.200-.354)	669
	13-14	<b>.065</b> (.056-.075)	<b>.066</b> (.060-.070)	<b>.111</b> (.097-.128)	<b>.189</b> (.146-.225)	<b>.245</b> (.218-.303)	581
Non-Hispanic whites	11-12	*	<b>.044</b> (<LOD-.049)	<b>.081</b> (.069-.095)	<b>.143</b> (.118-.159)	<b>.180</b> (.159-.231)	820
	13-14	<b>.041</b> (.037-.045)	<b>.037</b> (.032-.043)	<b>.071</b> (.063-.079)	<b>.118</b> (.104-.130)	<b>.167</b> (.143-.184)	985
All Hispanics	11-12	*	<b>.046</b> (<LOD-.053)	<b>.079</b> (.066-.088)	<b>.128</b> (.110-.149)	<b>.174</b> (.149-.208)	573
	13-14	<b>.047</b> (.040-.055)	<b>.045</b> (.038-.052)	<b>.079</b> (.069-.096)	<b>.155</b> (.116-.218)	<b>.231</b> (.178-.318)	701
Asians	11-12	*	<b>&lt; LOD</b>	<b>.066</b> (.054-.075)	<b>.103</b> (.075-.145)	<b>.145</b> (.100-.194)	353
	13-14	*	<b>.027</b> (<LOD-.036)	<b>.052</b> (.045-.061)	<b>.080</b> (.065-.098)	<b>.099</b> (.083-.169)	292

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.041 and 0.022.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Antimony\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Antimony_BiomonitoringSummary.html)



## Urinary Antimony (creatinine corrected) (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	.124 (.108-.143)	.119 (.102-.143)	.185 (.164-.214)	.276 (.233-.333)	.385 (.333-.430)	2276
	01-02	.126 (.119-.134)	.120 (.115-.126)	.173 (.162-.188)	.267 (.242-.300)	.364 (.320-.414)	2689
	03-04	*	.080 (<LOD-.086)	.135 (.119-.143)	.208 (.192-.230)	.277 (.250-.294)	2558
	05-06	.072 (.068-.077)	.070 (.060-.070)	.100 (.100-.110)	.160 (.150-.190)	.230 (.190-.290)	2576
	07-08	.064 (.060-.068)	.060 (.060-.060)	.090 (.080-.100)	.140 (.140-.160)	.200 (.170-.230)	2627
	09-10	.060 (.056-.064)	.060 (.050-.060)	.090 (.080-.090)	.140 (.120-.160)	.200 (.180-.230)	2847
	Age group	<b>6-11 years</b>					
99-00		.191 (.147-.248)	.185 (.156-.220)	.250 (.200-.417)	.447 (.271-.741)	.741 (.333-1.30)	316
01-02		.178 (.159-.200)	.173 (.150-.193)	.228 (.200-.272)	.338 (.265-.480)	.471 (.313-.727)	368
03-04		.116 (.103-.130)	.118 (.098-.136)	.167 (.146-.187)	.256 (.194-.317)	.333 (.250-.500)	290
05-06		.092 (.081-.104)	.090 (.080-.110)	.130 (.110-.150)	.180 (.150-.210)	.220 (.180-.270)	355
07-08		.089 (.079-.100)	.090 (.070-.100)	.120 (.110-.140)	.200 (.150-.240)	.300 (.200-.370)	394
09-10		.094 (.084-.106)	.090 (.080-.100)	.140 (.120-.160)	.200 (.170-.250)	.280 (.220-.320)	378
<b>12-19 years</b>							
99-00		.121 (.104-.140)	.120 (.095-.146)	.176 (.146-.207)	.259 (.206-.310)	.310 (.228-.421)	663
01-02		.121 (.112-.131)	.115 (.106-.127)	.160 (.138-.186)	.224 (.199-.245)	.266 (.244-.310)	762
03-04		.075 (.068-.082)	.068 (.061-.077)	.100 (.092-.113)	.156 (.126-.173)	.193 (.172-.255)	725
05-06		.070 (.065-.076)	.070 (.060-.080)	.100 (.090-.110)	.140 (.120-.150)	.170 (.150-.250)	701
07-08		.062 (.054-.070)	.060 (.050-.070)	.090 (.070-.100)	.120 (.100-.160)	.160 (.110-.240)	376
09-10		.059 (.053-.066)	.060 (.050-.060)	.090 (.070-.100)	.130 (.110-.170)	.180 (.150-.220)	451
<b>20 years and older</b>							
99-00	.118 (.104-.135)	.111 (.097-.135)	.175 (.149-.209)	.263 (.227-.320)	.352 (.320-.391)	1297	
01-02	.122 (.115-.129)	.115 (.108-.121)	.167 (.153-.181)	.265 (.241-.300)	.364 (.318-.405)	1559	
03-04	*	.079 (<LOD-.087)	.135 (.116-.145)	.209 (.195-.233)	.278 (.250-.294)	1543	
05-06	.070 (.066-.075)	.060 (.060-.070)	.100 (.090-.110)	.170 (.150-.190)	.250 (.190-.300)	1520	
07-08	.062 (.058-.066)	.060 (.050-.060)	.090 (.080-.100)	.140 (.130-.160)	.200 (.160-.240)	1857	
09-10	.057 (.053-.061)	.050 (.050-.060)	.080 (.080-.090)	.130 (.120-.140)	.190 (.160-.220)	2018	
<b>Gender</b>							
<b>Males</b>							
99-00	.112 (.099-.127)	.109 (.095-.127)	.164 (.146-.181)	.226 (.204-.268)	.320 (.235-.391)	1132	
01-02	.114 (.107-.123)	.108 (.103-.115)	.153 (.138-.171)	.228 (.205-.250)	.333 (.281-.438)	1334	
03-04	.080 (.076-.084)	.075 (.069-.081)	.122 (.111-.132)	.192 (.173-.209)	.253 (.230-.278)	1281	
05-06	.070 (.064-.077)	.060 (.060-.070)	.100 (.090-.120)	.160 (.130-.220)	.250 (.170-.310)	1271	
07-08	.061 (.057-.066)	.060 (.050-.060)	.090 (.080-.100)	.140 (.130-.160)	.210 (.160-.260)	1327	
09-10	.055 (.050-.060)	.050 (.050-.060)	.080 (.070-.100)	.130 (.120-.150)	.190 (.160-.210)	1397	
<b>Females</b>							
99-00	.137 (.117-.161)	.131 (.108-.164)	.213 (.176-.247)	.320 (.263-.417)	.429 (.357-.485)	1144	
01-02	.139 (.131-.148)	.132 (.124-.140)	.196 (.178-.211)	.295 (.267-.317)	.371 (.333-.444)	1355	
03-04	*	< LOD	.143 (.125-.161)	.225 (.188-.261)	.288 (.250-.333)	1277	
05-06	.074 (.070-.078)	.070 (.070-.070)	.110 (.100-.110)	.170 (.150-.190)	.220 (.180-.300)	1305	
07-08	.067 (.062-.071)	.060 (.060-.070)	.100 (.090-.100)	.140 (.130-.160)	.200 (.160-.230)	1300	
09-10	.064 (.060-.069)	.060 (.060-.070)	.090 (.090-.100)	.150 (.130-.170)	.220 (.180-.260)	1450	

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Antimony\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Antimony_BiomonitoringSummary.html)

## Urinary Antimony (creatinine corrected) (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Race/ethnicity</b>							
Mexican Americans	99-00	<b>.120</b> (.107-.135)	<b>.114</b> (.105-.129)	<b>.167</b> (.148-.203)	<b>.250</b> (.209-.315)	<b>.333</b> (.280-.357)	787
	01-02	<b>.138</b> (.128-.149)	<b>.130</b> (.117-.143)	<b>.182</b> (.159-.203)	<b>.269</b> (.229-.308)	<b>.338</b> (.308-.429)	682
	03-04	<b>.086</b> (.076-.098)	<b>.082</b> (<LOD-.092)	<b>.129</b> (.107-.151)	<b>.189</b> (.154-.238)	<b>.238</b> (.185-.321)	618
	05-06	<b>.087</b> (.076-.099)	<b>.080</b> (.070-.080)	<b>.120</b> (.110-.130)	<b>.190</b> (.150-.310)	<b>.370</b> (.200-.800)	652
	07-08	<b>.069</b> (.059-.081)	<b>.060</b> (.050-.080)	<b>.100</b> (.080-.120)	<b>.160</b> (.130-.180)	<b>.200</b> (.160-.360)	515
	09-10	<b>.066</b> (.063-.071)	<b>.060</b> (.060-.060)	<b>.100</b> (.080-.110)	<b>.160</b> (.130-.190)	<b>.240</b> (.190-.280)	613
Non-Hispanic blacks	99-00	<b>.114</b> (.099-.133)	<b>.112</b> (.098-.130)	<b>.163</b> (.144-.183)	<b>.236</b> (.195-.338)	<b>.343</b> (.255-.425)	554
	01-02	<b>.123</b> (.113-.134)	<b>.115</b> (.106-.127)	<b>.163</b> (.150-.181)	<b>.233</b> (.208-.267)	<b>.300</b> (.248-.373)	667
	03-04	<b>.078</b> (.071-.085)	<b>.074</b> (.069-.082)	<b>.109</b> (.096-.124)	<b>.170</b> (.148-.192)	<b>.222</b> (.179-.257)	723
	05-06	<b>.064</b> (.058-.071)	<b>.060</b> (.050-.070)	<b>.090</b> (.080-.090)	<b>.130</b> (.120-.150)	<b>.190</b> (.150-.220)	692
	07-08	<b>.062</b> (.059-.066)	<b>.060</b> (.050-.070)	<b>.090</b> (.080-.090)	<b>.140</b> (.120-.160)	<b>.180</b> (.160-.220)	589
	09-10	<b>.058</b> (.053-.063)	<b>.060</b> (.050-.060)	<b>.080</b> (.070-.090)	<b>.130</b> (.110-.160)	<b>.170</b> (.150-.190)	544
Non-Hispanic whites	99-00	<b>.129</b> (.109-.152)	<b>.125</b> (.102-.152)	<b>.195</b> (.167-.225)	<b>.298</b> (.239-.352)	<b>.400</b> (.333-.444)	768
	01-02	<b>.127</b> (.117-.138)	<b>.120</b> (.113-.130)	<b>.176</b> (.159-.198)	<b>.280</b> (.241-.317)	<b>.380</b> (.318-.471)	1132
	03-04	*	<b>.081</b> (<LOD-.089)	<b>.139</b> (.124-.147)	<b>.217</b> (.200-.238)	<b>.286</b> (.253-.333)	1074
	05-06	<b>.072</b> (.068-.077)	<b>.070</b> (.060-.070)	<b>.110</b> (.100-.110)	<b>.170</b> (.150-.190)	<b>.230</b> (.190-.280)	1041
	07-08	<b>.064</b> (.060-.069)	<b>.060</b> (.050-.070)	<b>.090</b> (.080-.100)	<b>.140</b> (.140-.160)	<b>.210</b> (.170-.230)	1095
	09-10	<b>.060</b> (.055-.065)	<b>.060</b> (.050-.060)	<b>.090</b> (.080-.100)	<b>.140</b> (.120-.170)	<b>.200</b> (.170-.250)	1225

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Antimony\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Antimony_BiomonitoringSummary.html)

## Urinary Antimony (creatinine corrected) (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	<b>.059</b> (.055-.063)	<b>.092</b> (.085-.100)	<b>.152</b> (.135-.171)	<b>.223</b> (.181-.261)	2502
	13-14	<b>.050</b> (.046-.055)	<b>.047</b> (.044-.051)	<b>.073</b> (.068-.079)	<b>.114</b> (.103-.127)	<b>.160</b> (.145-.172)	2663
<b>Age group</b>							
6-11 years	11-12	<b>.091</b> (.081-.102)	<b>.091</b> (.078-.100)	<b>.130</b> (.116-.147)	<b>.206</b> (.153-.283)	<b>.308</b> (.218-.340)	398
	13-14	<b>.077</b> (.068-.088)	<b>.076</b> (.067-.084)	<b>.114</b> (.098-.133)	<b>.177</b> (.154-.193)	<b>.225</b> (.191-.238)	402
12-19 years	11-12	<b>.062</b> (.055-.069)	<b>.058</b> (.051-.067)	<b>.085</b> (.070-.106)	<b>.147</b> (.115-.181)	<b>.222</b> (.122-.373)	390
	13-14	<b>.046</b> (.041-.053)	<b>.047</b> (.039-.052)	<b>.064</b> (.057-.071)	<b>.103</b> (.084-.115)	<b>.144</b> (.109-.172)	451
20 years and older	11-12	*	<b>.056</b> (<LOD-.060)	<b>.088</b> (.078-.097)	<b>.145</b> (.127-.171)	<b>.215</b> (.179-.240)	1714
	13-14	<b>.049</b> (.044-.053)	<b>.046</b> (.043-.049)	<b>.070</b> (.064-.076)	<b>.104</b> (.095-.115)	<b>.151</b> (.130-.170)	1810
<b>Gender</b>							
Males	11-12	<b>.054</b> (.050-.058)	<b>.051</b> (.048-.057)	<b>.078</b> (.071-.089)	<b>.132</b> (.120-.151)	<b>.186</b> (.161-.224)	1261
	13-14	<b>.048</b> (.043-.053)	<b>.045</b> (.040-.049)	<b>.068</b> (.061-.076)	<b>.114</b> (.099-.123)	<b>.163</b> (.145-.177)	1317
Females	11-12	*	<b>.066</b> (<LOD-.071)	<b>.104</b> (.094-.112)	<b>.165</b> (.145-.193)	<b>.226</b> (.183-.303)	1241
	13-14	<b>.053</b> (.048-.057)	<b>.050</b> (.046-.055)	<b>.077</b> (.071-.084)	<b>.114</b> (.104-.133)	<b>.156</b> (.145-.171)	1346
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>.063</b> (.059-.067)	<b>.061</b> (.057-.064)	<b>.089</b> (.079-.100)	<b>.133</b> (.121-.153)	<b>.183</b> (.150-.246)	317
	13-14	<b>.055</b> (.046-.066)	<b>.049</b> (.043-.057)	<b>.076</b> (.063-.099)	<b>.138</b> (.107-.172)	<b>.196</b> (.137-.381)	453
Non-Hispanic blacks	11-12	<b>.055</b> (.049-.060)	<b>.052</b> (.047-.058)	<b>.077</b> (.069-.088)	<b>.121</b> (.104-.147)	<b>.175</b> (.140-.232)	669
	13-14	<b>.049</b> (.046-.053)	<b>.048</b> (.044-.052)	<b>.068</b> (.064-.073)	<b>.110</b> (.095-.122)	<b>.164</b> (.133-.221)	581
Non-Hispanic whites	11-12	*	<b>.060</b> (<LOD-.067)	<b>.097</b> (.088-.108)	<b>.161</b> (.135-.183)	<b>.224</b> (.181-.273)	818
	13-14	<b>.050</b> (.044-.056)	<b>.047</b> (.042-.053)	<b>.075</b> (.068-.081)	<b>.113</b> (.098-.127)	<b>.156</b> (.133-.171)	984
All Hispanics	11-12	*	<b>.058</b> (<LOD-.065)	<b>.085</b> (.073-.097)	<b>.132</b> (.113-.161)	<b>.181</b> (.153-.214)	573
	13-14	<b>.052</b> (.047-.059)	<b>.047</b> (.043-.054)	<b>.076</b> (.065-.089)	<b>.137</b> (.107-.164)	<b>.196</b> (.143-.326)	701
Asians	11-12	*	<b>&lt; LOD</b>	<b>.087</b> (.072-.107)	<b>.153</b> (.132-.177)	<b>.215</b> (.171-.290)	353
	13-14	*	<b>.047</b> (<LOD-.050)	<b>.067</b> (.060-.077)	<b>.114</b> (.087-.145)	<b>.160</b> (.133-.201)	292

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Antimony\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Antimony_BiomonitoringSummary.html)

## Urinary Total Arsenic (2003 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg /L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	<b>8.30</b> (7.19-9.57)	<b>7.70</b> (6.90-8.90)	<b>16.0</b> (14.1-18.7)	<b>37.4</b> (31.6-43.5)	<b>65.4</b> (48.7-83.3)	2557
	05-06	<b>9.29</b> (8.05-10.7)	<b>8.65</b> (7.48-9.99)	<b>17.1</b> (14.9-20.6)	<b>41.1</b> (33.3-49.7)	<b>66.7</b> (53.7-87.0)	2576
	07-08	<b>8.10</b> (7.44-8.83)	<b>7.49</b> (6.90-8.12)	<b>14.9</b> (13.2-17.0)	<b>33.3</b> (29.8-38.7)	<b>50.8</b> (42.3-65.1)	2605
	09-10	<b>9.28</b> (8.47-10.2)	<b>8.15</b> (7.20-8.98)	<b>18.0</b> (15.3-20.8)	<b>44.6</b> (39.0-55.1)	<b>85.6</b> (64.7-114)	2860
<b>Age group</b>							
6-11 years	03-04	<b>7.08</b> (5.66-8.84)	<b>6.80</b> (5.90-7.70)	<b>10.9</b> (8.90-14.2)	<b>24.6</b> (13.8-61.8)	<b>46.9</b> (17.5-178)	290
	05-06	<b>7.19</b> (5.81-8.90)	<b>6.96</b> (5.32-8.88)	<b>11.5</b> (9.19-16.0)	<b>19.6</b> (13.1-51.5)	<b>34.1</b> (19.6-58.5)	355
	07-08	<b>6.85</b> (5.98-7.83)	<b>6.40</b> (5.74-7.23)	<b>10.8</b> (9.75-12.3)	<b>22.5</b> (16.9-34.7)	<b>41.0</b> (21.1-52.8)	390
	09-10	<b>6.63</b> (5.74-7.66)	<b>5.94</b> (5.14-7.19)	<b>10.8</b> (9.37-12.5)	<b>26.0</b> (18.2-33.4)	<b>37.7</b> (27.8-65.6)	378
12-19 years	03-04	<b>8.55</b> (7.34-9.97)	<b>8.10</b> (6.80-9.40)	<b>15.2</b> (12.2-17.8)	<b>30.5</b> (23.1-40.4)	<b>46.1</b> (32.9-62.5)	725
	05-06	<b>8.19</b> (6.87-9.77)	<b>7.92</b> (6.37-9.50)	<b>14.0</b> (11.6-18.1)	<b>28.2</b> (22.9-32.9)	<b>41.9</b> (32.7-48.0)	701
	07-08	<b>7.09</b> (6.17-8.14)	<b>6.87</b> (5.88-7.86)	<b>11.4</b> (9.41-13.7)	<b>20.4</b> (16.1-26.6)	<b>38.2</b> (21.6-53.3)	373
	09-10	<b>6.45</b> (5.58-7.47)	<b>6.11</b> (5.26-6.89)	<b>10.8</b> (8.59-13.7)	<b>25.9</b> (16.2-32.9)	<b>38.8</b> (27.8-55.1)	454
20 years and older	03-04	<b>8.41</b> (7.25-9.77)	<b>7.90</b> (7.00-9.10)	<b>17.0</b> (15.0-19.7)	<b>40.5</b> (34.9-46.2)	<b>66.2</b> (51.2-93.1)	1542
	05-06	<b>9.76</b> (8.43-11.3)	<b>9.12</b> (7.85-10.4)	<b>18.9</b> (15.8-22.9)	<b>44.2</b> (35.2-56.1)	<b>71.4</b> (57.7-98.3)	1520
	07-08	<b>8.43</b> (7.70-9.22)	<b>7.94</b> (7.09-8.67)	<b>16.2</b> (14.5-18.6)	<b>35.2</b> (30.4-42.3)	<b>59.0</b> (44.2-75.6)	1842
	09-10	<b>10.2</b> (9.14-11.3)	<b>8.75</b> (7.95-9.81)	<b>20.4</b> (17.2-24.1)	<b>52.1</b> (42.4-66.1)	<b>93.1</b> (74.2-127)	2028
<b>Gender</b>							
Males	03-04	<b>9.50</b> (8.34-10.8)	<b>8.90</b> (7.70-9.80)	<b>17.6</b> (15.2-20.1)	<b>41.6</b> (32.5-52.8)	<b>65.8</b> (48.7-95.4)	1281
	05-06	<b>10.1</b> (8.61-11.8)	<b>8.95</b> (8.05-10.0)	<b>18.3</b> (15.5-22.9)	<b>40.8</b> (31.0-52.6)	<b>63.7</b> (46.4-78.7)	1271
	07-08	<b>9.25</b> (8.28-10.3)	<b>8.50</b> (7.37-9.53)	<b>17.0</b> (14.6-19.4)	<b>36.0</b> (32.1-44.2)	<b>62.5</b> (44.3-84.6)	1318
	09-10	<b>10.1</b> (9.06-11.3)	<b>8.80</b> (7.80-9.75)	<b>20.4</b> (16.1-23.9)	<b>47.4</b> (42.1-64.1)	<b>89.1</b> (71.6-114)	1401
Females	03-04	<b>7.30</b> (6.02-8.84)	<b>6.90</b> (5.90-8.30)	<b>15.0</b> (11.3-19.5)	<b>33.4</b> (26.5-41.7)	<b>60.5</b> (40.8-77.1)	1276
	05-06	<b>8.60</b> (7.38-10.0)	<b>8.18</b> (6.64-9.97)	<b>15.9</b> (13.7-19.9)	<b>41.5</b> (32.2-53.7)	<b>72.6</b> (54.8-122)	1305
	07-08	<b>7.14</b> (6.51-7.82)	<b>6.54</b> (6.09-7.14)	<b>12.7</b> (11.6-14.4)	<b>30.1</b> (26.0-34.0)	<b>49.1</b> (40.1-57.5)	1287
	09-10	<b>8.55</b> (7.44-9.83)	<b>7.63</b> (6.45-8.62)	<b>15.8</b> (13.1-19.9)	<b>41.5</b> (31.7-55.5)	<b>81.5</b> (54.3-132)	1459
<b>Race/ethnicity</b>							
Mexican Americans	03-04	<b>9.29</b> (8.12-10.6)	<b>9.20</b> (8.10-10.3)	<b>16.2</b> (13.5-19.9)	<b>34.4</b> (24.0-60.5)	<b>68.2</b> (41.3-111)	618
	05-06	<b>9.55</b> (8.54-10.7)	<b>9.11</b> (7.99-10.3)	<b>15.6</b> (14.0-17.1)	<b>29.2</b> (21.4-56.8)	<b>67.6</b> (41.7-81.4)	652
	07-08	<b>8.98</b> (8.13-9.92)	<b>8.84</b> (7.80-9.48)	<b>15.4</b> (12.3-19.7)	<b>35.2</b> (25.0-46.0)	<b>53.0</b> (44.2-77.4)	510
	09-10	<b>8.47</b> (7.30-9.84)	<b>7.96</b> (6.87-9.08)	<b>13.9</b> (11.3-17.7)	<b>34.7</b> (25.0-53.2)	<b>60.9</b> (49.3-78.7)	613
Non-Hispanic blacks	03-04	<b>11.6</b> (9.50-14.1)	<b>10.4</b> (7.90-11.8)	<b>21.5</b> (14.9-34.4)	<b>43.5</b> (36.2-61.8)	<b>78.0</b> (43.6-141)	722
	05-06	<b>11.0</b> (8.60-14.0)	<b>9.55</b> (6.99-13.3)	<b>21.9</b> (14.9-28.9)	<b>44.9</b> (31.1-71.4)	<b>82.3</b> (49.2-164)	692
	07-08	<b>10.5</b> (9.40-11.7)	<b>9.21</b> (8.22-10.4)	<b>18.4</b> (16.1-21.5)	<b>42.4</b> (32.9-52.8)	<b>65.6</b> (45.5-112)	585
	09-10	<b>10.9</b> (9.46-12.5)	<b>9.26</b> (7.70-11.4)	<b>21.7</b> (17.6-24.2)	<b>49.1</b> (32.2-81.7)	<b>84.8</b> (51.3-174)	546
Non-Hispanic whites	03-04	<b>7.12</b> (6.13-8.27)	<b>7.00</b> (6.10-7.90)	<b>13.7</b> (11.3-15.8)	<b>29.0</b> (22.6-35.9)	<b>53.1</b> (38.4-65.6)	1074
	05-06	<b>8.66</b> (7.20-10.4)	<b>8.05</b> (6.52-9.66)	<b>16.3</b> (13.4-20.6)	<b>40.8</b> (29.4-50.2)	<b>58.5</b> (46.0-88.0)	1041
	07-08	<b>6.98</b> (6.31-7.71)	<b>6.46</b> (5.93-7.29)	<b>12.4</b> (11.3-14.3)	<b>28.3</b> (21.6-32.6)	<b>42.1</b> (32.3-50.0)	1088
	09-10	<b>8.18</b> (7.46-8.96)	<b>7.24</b> (6.46-8.21)	<b>14.8</b> (12.7-17.4)	<b>38.9</b> (31.7-44.4)	<b>66.3</b> (49.3-88.7)	1224

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08 and 09-10 are 0.74, 0.74, 0.74, and 0.74 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Arsenic\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Arsenic\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html)

## Urinary Total Arsenic (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg As/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>6.85</b> (5.85-8.02)	<b>6.09</b> (5.22-7.12)	<b>13.0</b> (10.9-16.6)	<b>32.0</b> (25.9-39.0)	<b>52.5</b> (41.9-66.2)	2504
	13-14	<b>6.29</b> (5.58-7.08)	<b>5.82</b> (5.10-6.69)	<b>11.7</b> (10.5-13.2)	<b>26.6</b> (23.7-30.1)	<b>46.0</b> (37.5-56.1)	2662
<b>Age group</b>							
6-11 years	11-12	<b>6.02</b> (5.03-7.19)	<b>5.50</b> (4.58-6.56)	<b>10.5</b> (7.93-14.1)	<b>30.1</b> (16.7-46.5)	<b>53.0</b> (37.5-70.3)	399
	13-14	<b>5.21</b> (4.57-5.95)	<b>4.78</b> (4.27-5.57)	<b>8.79</b> (7.52-10.3)	<b>17.1</b> (12.4-25.3)	<b>29.0</b> (17.9-47.7)	402
12-19 years	11-12	<b>6.01</b> (4.45-8.11)	<b>5.26</b> (3.95-7.47)	<b>10.9</b> (7.74-16.9)	<b>25.9</b> (16.6-44.0)	<b>44.0</b> (25.9-153)	390
	13-14	<b>5.79</b> (4.96-6.75)	<b>5.33</b> (4.83-5.91)	<b>9.40</b> (8.44-11.8)	<b>22.0</b> (17.4-28.1)	<b>44.1</b> (27.0-90.8)	451
20 years and older	11-12	<b>7.09</b> (6.03-8.33)	<b>6.31</b> (5.32-7.45)	<b>13.6</b> (11.3-18.3)	<b>33.2</b> (26.7-39.5)	<b>52.5</b> (41.9-77.3)	1715
	13-14	<b>6.49</b> (5.72-7.36)	<b>6.12</b> (5.22-7.06)	<b>12.1</b> (10.9-14.2)	<b>27.9</b> (24.1-32.1)	<b>48.0</b> (37.5-57.5)	1809
<b>Gender</b>							
Males	11-12	<b>7.69</b> (6.35-9.31)	<b>6.84</b> (5.33-8.59)	<b>15.4</b> (11.7-19.7)	<b>33.5</b> (27.7-41.9)	<b>56.5</b> (42.2-78.0)	1262
	13-14	<b>6.67</b> (5.97-7.46)	<b>6.37</b> (5.68-7.12)	<b>11.7</b> (10.8-13.0)	<b>27.0</b> (22.3-32.5)	<b>48.5</b> (33.3-57.5)	1316
Females	11-12	<b>6.14</b> (5.22-7.22)	<b>5.42</b> (4.79-6.25)	<b>11.6</b> (9.85-13.7)	<b>29.0</b> (22.5-38.2)	<b>50.6</b> (37.5-79.8)	1242
	13-14	<b>5.94</b> (5.18-6.80)	<b>5.38</b> (4.68-6.28)	<b>11.2</b> (9.49-13.7)	<b>26.0</b> (21.8-31.1)	<b>43.6</b> (36.0-55.8)	1346
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>7.12</b> (5.73-8.84)	<b>6.94</b> (5.34-8.70)	<b>12.2</b> (9.84-16.5)	<b>24.2</b> (18.4-35.7)	<b>44.0</b> (23.8-70.3)	317
	13-14	<b>5.73</b> (5.01-6.56)	<b>5.64</b> (4.93-6.47)	<b>9.19</b> (8.10-10.2)	<b>17.5</b> (11.2-36.6)	<b>36.6</b> (15.4-73.0)	453
Non-Hispanic blacks	11-12	<b>9.31</b> (7.19-12.0)	<b>8.18</b> (6.16-10.8)	<b>17.9</b> (13.1-25.3)	<b>46.8</b> (28.8-76.5)	<b>82.1</b> (53.1-107)	669
	13-14	<b>8.17</b> (6.87-9.72)	<b>6.99</b> (6.01-8.20)	<b>14.9</b> (10.9-18.2)	<b>30.7</b> (25.5-38.2)	<b>59.8</b> (40.0-79.0)	579
Non-Hispanic whites	11-12	<b>5.89</b> (4.92-7.06)	<b>5.08</b> (4.56-6.06)	<b>10.8</b> (8.48-15.5)	<b>26.3</b> (20.3-34.9)	<b>43.2</b> (34.9-56.0)	820
	13-14	<b>5.67</b> (4.88-6.59)	<b>5.30</b> (4.40-6.62)	<b>11.0</b> (9.16-12.7)	<b>22.4</b> (17.6-29.9)	<b>39.0</b> (30.8-50.6)	985
All Hispanics	11-12	<b>7.62</b> (6.63-8.76)	<b>7.32</b> (6.31-8.35)	<b>13.7</b> (11.7-16.6)	<b>25.8</b> (21.2-29.8)	<b>45.6</b> (28.7-55.8)	573
	13-14	<b>6.16</b> (5.24-7.22)	<b>5.93</b> (5.02-6.82)	<b>10.4</b> (9.11-11.9)	<b>20.2</b> (14.2-30.1)	<b>37.5</b> (24.1-57.9)	701
Asians	11-12	<b>16.7</b> (14.7-18.9)	<b>14.9</b> (12.8-19.0)	<b>39.0</b> (33.2-44.8)	<b>83.2</b> (61.4-108)	<b>117</b> (88.4-145)	353
	13-14	<b>12.1</b> (10.4-14.1)	<b>11.5</b> (9.08-13.6)	<b>30.8</b> (23.2-37.0)	<b>70.7</b> (52.5-90.8)	<b>126</b> (79.2-181)	292

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 1.25 and 0.26.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Arsenic\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Arsenic\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html)



## Urinary Total Arsenic (creatinine corrected) (2003 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg /g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	<b>8.24</b> (7.07-9.59)	<b>7.04</b> (5.93-8.51)	<b>14.1</b> (11.6-17.2)	<b>30.4</b> (26.0-38.7)	<b>50.4</b> (40.3-64.5)	2557
	05-06	<b>9.15</b> (7.93-10.6)	<b>7.70</b> (6.55-8.98)	<b>15.2</b> (11.7-19.4)	<b>35.1</b> (26.5-44.7)	<b>62.8</b> (44.7-85.0)	2576
	07-08	<b>8.46</b> (7.78-9.21)	<b>7.06</b> (6.56-7.74)	<b>13.8</b> (12.5-15.2)	<b>28.9</b> (24.2-36.7)	<b>49.0</b> (38.8-70.5)	2605
	09-10	<b>9.90</b> (9.06-10.8)	<b>7.90</b> (6.98-8.97)	<b>17.6</b> (15.4-20.2)	<b>45.2</b> (36.6-53.3)	<b>80.8</b> (60.5-94.4)	2860
<b>Age group</b>							
6-11 years	03-04	<b>8.25</b> (6.58-10.3)	<b>7.18</b> (5.93-9.45)	<b>11.7</b> (9.10-16.3)	<b>22.2</b> (12.0-69.5)	<b>40.1</b> (14.7-188)	290
	05-06	<b>8.88</b> (7.05-11.2)	<b>7.87</b> (6.19-9.42)	<b>11.8</b> (9.32-18.9)	<b>24.5</b> (13.0-62.8)	<b>45.4</b> (22.9-80.9)	355
	07-08	<b>8.87</b> (8.06-9.77)	<b>7.53</b> (6.73-7.88)	<b>13.4</b> (10.2-16.0)	<b>26.7</b> (19.9-34.0)	<b>37.2</b> (28.6-71.4)	390
	09-10	<b>8.97</b> (7.93-10.2)	<b>7.42</b> (6.70-8.32)	<b>11.0</b> (9.90-14.0)	<b>33.5</b> (17.0-54.6)	<b>60.8</b> (36.6-84.9)	378
12-19 years	03-04	<b>6.11</b> (5.23-7.13)	<b>5.06</b> (4.47-6.04)	<b>9.66</b> (7.44-11.2)	<b>17.8</b> (12.0-26.0)	<b>27.8</b> (20.7-35.9)	725
	05-06	<b>6.30</b> (5.56-7.14)	<b>5.19</b> (4.80-6.19)	<b>9.62</b> (8.12-11.1)	<b>19.4</b> (13.9-25.8)	<b>28.0</b> (21.9-33.2)	701
	07-08	<b>5.50</b> (4.91-6.16)	<b>4.96</b> (4.25-5.40)	<b>7.69</b> (6.09-9.31)	<b>16.8</b> (10.8-21.1)	<b>22.5</b> (16.8-29.1)	373
	09-10	<b>6.06</b> (5.34-6.87)	<b>4.95</b> (4.39-5.81)	<b>9.18</b> (7.00-11.0)	<b>19.2</b> (14.5-21.3)	<b>28.4</b> (20.8-35.7)	454
20 years and older	03-04	<b>8.64</b> (7.38-10.1)	<b>7.47</b> (6.20-9.01)	<b>15.4</b> (12.7-18.8)	<b>33.8</b> (27.3-41.2)	<b>53.9</b> (45.4-64.5)	1542
	05-06	<b>9.75</b> (8.46-11.2)	<b>8.22</b> (6.98-9.75)	<b>17.0</b> (12.8-21.3)	<b>41.0</b> (29.6-52.5)	<b>68.4</b> (52.8-89.7)	1520
	07-08	<b>9.00</b> (8.20-9.88)	<b>7.55</b> (6.79-8.53)	<b>14.9</b> (13.1-17.1)	<b>32.5</b> (25.8-41.0)	<b>59.4</b> (41.0-86.2)	1842
	09-10	<b>10.8</b> (9.71-12.0)	<b>8.73</b> (7.69-9.71)	<b>20.1</b> (16.5-24.2)	<b>50.8</b> (40.5-59.7)	<b>87.3</b> (70.0-105)	2028
<b>Gender</b>							
Males	03-04	<b>8.00</b> (6.81-9.40)	<b>6.75</b> (5.66-8.35)	<b>13.7</b> (11.0-18.0)	<b>28.7</b> (25.1-36.4)	<b>45.6</b> (35.3-62.1)	1281
	05-06	<b>8.26</b> (7.09-9.63)	<b>7.16</b> (5.87-8.54)	<b>12.9</b> (10.2-18.0)	<b>28.8</b> (22.9-36.3)	<b>46.1</b> (35.1-66.5)	1271
	07-08	<b>8.30</b> (7.49-9.18)	<b>6.79</b> (6.39-7.61)	<b>13.2</b> (11.8-15.2)	<b>28.9</b> (23.5-38.5)	<b>47.7</b> (35.7-68.1)	1318
	09-10	<b>9.21</b> (8.55-9.93)	<b>7.22</b> (6.43-8.67)	<b>17.0</b> (14.9-18.6)	<b>41.8</b> (35.4-47.9)	<b>66.9</b> (52.0-81.5)	1401
Females	03-04	<b>8.47</b> (7.12-10.1)	<b>7.33</b> (6.10-8.75)	<b>14.4</b> (11.7-17.7)	<b>32.3</b> (24.2-46.6)	<b>58.4</b> (42.8-75.0)	1276
	05-06	<b>10.1</b> (8.72-11.7)	<b>8.29</b> (7.23-9.87)	<b>17.4</b> (13.0-21.4)	<b>43.8</b> (29.2-61.5)	<b>74.1</b> (55.0-96.2)	1305
	07-08	<b>8.63</b> (7.91-9.41)	<b>7.13</b> (6.53-8.33)	<b>14.1</b> (12.3-16.9)	<b>27.9</b> (24.1-37.0)	<b>51.4</b> (39.7-83.3)	1287
	09-10	<b>10.6</b> (9.36-12.0)	<b>8.38</b> (7.40-9.41)	<b>18.6</b> (14.9-23.9)	<b>50.8</b> (35.1-72.9)	<b>87.8</b> (66.8-109)	1459
<b>Race/ethnicity</b>							
Mexican Americans	03-04	<b>8.61</b> (7.33-10.1)	<b>7.76</b> (6.30-9.44)	<b>12.6</b> (10.2-15.9)	<b>24.0</b> (17.7-34.8)	<b>42.4</b> (24.8-62.4)	618
	05-06	<b>8.98</b> (7.89-10.2)	<b>7.48</b> (6.72-8.87)	<b>12.8</b> (11.0-16.3)	<b>28.1</b> (21.1-35.5)	<b>49.1</b> (31.0-108)	652
	07-08	<b>8.88</b> (7.71-10.2)	<b>7.38</b> (6.51-8.63)	<b>14.1</b> (10.6-17.8)	<b>28.6</b> (22.5-35.3)	<b>48.2</b> (31.1-75.7)	510
	09-10	<b>8.88</b> (7.87-10.0)	<b>7.62</b> (6.69-8.45)	<b>13.2</b> (10.7-17.2)	<b>31.4</b> (23.7-38.5)	<b>49.8</b> (37.5-68.9)	613
Non-Hispanic blacks	03-04	<b>8.31</b> (6.99-9.88)	<b>6.88</b> (5.66-8.41)	<b>13.8</b> (11.5-17.0)	<b>27.6</b> (17.9-56.0)	<b>54.3</b> (27.5-120)	722
	05-06	<b>7.96</b> (6.40-9.92)	<b>6.48</b> (5.21-8.30)	<b>13.4</b> (10.0-18.6)	<b>32.5</b> (18.7-66.5)	<b>71.4</b> (35.6-98.8)	692
	07-08	<b>7.72</b> (6.98-8.54)	<b>6.60</b> (6.01-7.56)	<b>13.4</b> (11.5-15.4)	<b>25.7</b> (22.1-30.0)	<b>42.7</b> (31.4-60.3)	585
	09-10	<b>8.67</b> (7.54-9.98)	<b>7.26</b> (5.96-9.02)	<b>15.6</b> (12.4-21.3)	<b>38.7</b> (31.5-48.7)	<b>63.9</b> (43.1-102)	546
Non-Hispanic whites	03-04	<b>7.50</b> (6.25-9.01)	<b>6.32</b> (5.28-7.96)	<b>12.5</b> (9.86-17.1)	<b>26.8</b> (21.8-32.0)	<b>40.0</b> (31.3-53.9)	1074
	05-06	<b>9.01</b> (7.57-10.7)	<b>7.68</b> (6.18-9.56)	<b>14.3</b> (11.1-20.8)	<b>31.9</b> (24.1-46.1)	<b>59.4</b> (37.9-96.2)	1041
	07-08	<b>7.82</b> (7.05-8.68)	<b>6.72</b> (6.00-7.54)	<b>12.5</b> (11.1-13.9)	<b>24.6</b> (19.6-32.3)	<b>43.1</b> (29.1-64.0)	1088
	09-10	<b>9.14</b> (8.35-10.0)	<b>7.10</b> (6.43-8.06)	<b>15.8</b> (13.7-18.4)	<b>40.9</b> (30.4-50.8)	<b>66.4</b> (50.9-90.0)	1224

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Arsenic\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Arsenic\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html)

## Urinary Total Arsenic (creatinine corrected) (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg As/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>7.77</b> (6.85-8.81)	<b>6.39</b> (5.57-7.24)	<b>13.7</b> (11.5-16.5)	<b>30.8</b> (24.6-38.6)	<b>50.4</b> (38.2-70.1)	2502
	13-14	<b>7.27</b> (6.62-7.99)	<b>6.10</b> (5.39-6.88)	<b>11.9</b> (10.5-13.5)	<b>27.6</b> (23.8-32.8)	<b>52.0</b> (43.5-60.9)	2661
<b>Age group</b>							
6-11 years	11-12	<b>8.63</b> (7.26-10.3)	<b>6.87</b> (5.84-8.00)	<b>12.3</b> (9.58-15.5)	<b>27.7</b> (17.7-57.7)	<b>91.2</b> (26.2-129)	398
	13-14	<b>7.78</b> (7.08-8.54)	<b>6.91</b> (5.91-7.65)	<b>12.5</b> (10.3-13.6)	<b>17.7</b> (16.1-21.1)	<b>29.9</b> (20.4-52.1)	402
12-19 years	11-12	<b>5.75</b> (4.49-7.36)	<b>4.69</b> (3.70-5.73)	<b>8.73</b> (6.26-13.3)	<b>22.1</b> (11.5-52.6)	<b>34.9</b> (21.1-159)	390
	13-14	<b>5.24</b> (4.53-6.06)	<b>4.21</b> (3.61-4.61)	<b>7.92</b> (5.75-10.3)	<b>17.6</b> (12.6-23.0)	<b>30.5</b> (20.3-54.1)	451
20 years and older	11-12	<b>8.04</b> (7.07-9.14)	<b>6.52</b> (5.88-7.69)	<b>14.8</b> (12.1-18.8)	<b>32.4</b> (25.2-39.8)	<b>49.7</b> (38.2-70.1)	1714
	13-14	<b>7.58</b> (6.87-8.36)	<b>6.39</b> (5.66-7.29)	<b>12.4</b> (10.9-14.7)	<b>31.0</b> (26.0-37.9)	<b>54.0</b> (47.9-66.1)	1808
<b>Gender</b>							
Males	11-12	<b>7.20</b> (6.15-8.43)	<b>6.13</b> (5.18-7.23)	<b>12.5</b> (10.5-15.2)	<b>28.3</b> (20.2-34.9)	<b>50.4</b> (33.3-69.6)	1261
	13-14	<b>6.69</b> (6.07-7.38)	<b>5.55</b> (4.96-6.26)	<b>10.9</b> (9.50-12.5)	<b>26.0</b> (19.5-30.6)	<b>47.9</b> (36.5-55.3)	1315
Females	11-12	<b>8.35</b> (7.40-9.42)	<b>6.64</b> (6.12-7.37)	<b>15.0</b> (12.2-19.1)	<b>33.1</b> (26.1-41.4)	<b>50.7</b> (39.8-79.0)	1241
	13-14	<b>7.88</b> (7.03-8.82)	<b>6.67</b> (5.82-7.78)	<b>13.1</b> (10.9-15.6)	<b>31.3</b> (24.9-39.4)	<b>54.1</b> (46.3-68.3)	1346
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>8.00</b> (6.85-9.36)	<b>6.91</b> (6.07-7.98)	<b>11.9</b> (9.05-14.6)	<b>26.1</b> (16.7-39.4)	<b>40.8</b> (24.0-70.1)	317
	13-14	<b>6.54</b> (5.70-7.51)	<b>5.83</b> (5.08-6.54)	<b>8.97</b> (7.32-11.6)	<b>17.1</b> (12.6-20.8)	<b>29.2</b> (15.1-72.2)	453
Non-Hispanic blacks	11-12	<b>7.24</b> (5.51-9.51)	<b>5.83</b> (4.65-7.96)	<b>13.5</b> (9.02-19.0)	<b>28.8</b> (21.5-46.3)	<b>55.4</b> (31.6-87.1)	669
	13-14	<b>6.23</b> (5.25-7.39)	<b>4.86</b> (4.24-6.22)	<b>10.3</b> (8.03-13.4)	<b>22.7</b> (17.8-29.1)	<b>37.4</b> (25.8-70.5)	579
Non-Hispanic whites	11-12	<b>7.13</b> (6.05-8.39)	<b>5.72</b> (5.05-6.70)	<b>12.4</b> (10.3-15.4)	<b>28.4</b> (21.7-37.5)	<b>46.5</b> (33.1-75.8)	818
	13-14	<b>7.01</b> (6.25-7.87)	<b>5.87</b> (5.13-6.88)	<b>11.6</b> (9.92-13.7)	<b>27.5</b> (21.6-35.8)	<b>49.5</b> (40.8-55.3)	984
All Hispanics	11-12	<b>8.53</b> (7.74-9.40)	<b>7.60</b> (6.84-8.42)	<b>12.8</b> (11.2-14.1)	<b>25.3</b> (20.8-30.8)	<b>37.5</b> (28.2-50.6)	573
	13-14	<b>6.87</b> (6.08-7.76)	<b>6.26</b> (5.36-6.89)	<b>10.3</b> (8.75-11.9)	<b>18.7</b> (14.3-24.0)	<b>28.7</b> (18.9-50.7)	701
Asians	11-12	<b>22.3</b> (19.1-26.1)	<b>20.1</b> (16.3-25.2)	<b>39.4</b> (32.2-61.0)	<b>100</b> (73.2-129)	<b>162</b> (114-202)	353
	13-14	<b>19.0</b> (16.1-22.5)	<b>15.2</b> (13.0-19.2)	<b>41.9</b> (31.1-59.2)	<b>95.0</b> (74.2-131)	<b>137</b> (111-229)	292

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Arsenic\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Arsenic\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html)

## Urinary Inorganic-related Arsenic Species (2003 - 2010)

*Sum of arsenic acid, arsenous acid, dimethylarsinic acid, and monomethylarsonic acid\*\**

Geometric mean and selected percentiles of urine concentrations (in µg As/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	<b>6.52</b> (6.03-7.04)	<b>6.10</b> (5.50-6.40)	<b>8.60</b> (8.00-9.50)	<b>14.0</b> (12.5-15.4)	<b>19.1</b> (15.8-22.9)	2572
	05-06	<b>6.84</b> (6.35-7.38)	<b>6.40</b> (5.88-6.85)	<b>9.00</b> (8.19-10.0)	<b>13.9</b> (12.0-16.5)	<b>18.5</b> (15.8-21.7)	2588
	07-08	<b>6.47</b> (6.20-6.76)	<b>6.02</b> (5.74-6.26)	<b>8.55</b> (8.03-9.22)	<b>12.9</b> (11.8-14.0)	<b>16.8</b> (14.7-18.9)	2576
	09-10	<b>6.56</b> (6.23-6.90)	<b>5.87</b> (5.57-6.09)	<b>8.80</b> (8.14-9.47)	<b>14.6</b> (12.3-17.2)	<b>20.8</b> (17.8-24.5)	2852
<b>Age group</b>							
6-11 years	03-04	<b>6.46</b> (5.67-7.35)	<b>6.10</b> (5.80-6.90)	<b>8.50</b> (7.10-10.0)	<b>12.1</b> (10.0-14.7)	<b>15.0</b> (10.7-26.3)	292
	05-06	<b>6.71</b> (6.13-7.35)	<b>6.27</b> (5.44-6.98)	<b>8.46</b> (7.48-9.72)	<b>13.5</b> (9.72-16.1)	<b>16.1</b> (14.0-18.3)	354
	07-08	<b>6.70</b> (6.15-7.31)	<b>6.08</b> (5.77-6.44)	<b>8.78</b> (7.72-10.3)	<b>13.9</b> (10.9-16.5)	<b>18.3</b> (12.2-42.3)	390
	09-10	<b>6.29</b> (5.85-6.75)	<b>5.80</b> (5.11-6.32)	<b>8.34</b> (7.67-9.07)	<b>13.2</b> (10.7-14.6)	<b>16.0</b> (14.0-17.9)	379
12-19 years	03-04	<b>6.72</b> (6.08-7.42)	<b>6.10</b> (5.90-7.00)	<b>8.80</b> (7.70-10.4)	<b>13.1</b> (10.6-16.6)	<b>16.7</b> (14.5-20.3)	729
	05-06	<b>6.82</b> (6.18-7.53)	<b>6.38</b> (5.67-7.45)	<b>8.78</b> (7.77-10.4)	<b>13.1</b> (10.9-15.4)	<b>16.4</b> (13.3-17.7)	703
	07-08	<b>6.42</b> (5.89-6.99)	<b>6.34</b> (5.60-6.95)	<b>8.15</b> (7.33-9.69)	<b>11.8</b> (10.5-13.4)	<b>14.6</b> (12.0-18.1)	366
	09-10	<b>5.84</b> (5.43-6.27)	<b>5.31</b> (4.89-5.85)	<b>7.67</b> (6.79-8.60)	<b>11.4</b> (9.66-13.1)	<b>13.9</b> (11.8-17.0)	453
20 years and older	03-04	<b>6.49</b> (6.02-7.00)	<b>6.00</b> (5.30-6.20)	<b>8.60</b> (8.10-9.40)	<b>14.1</b> (12.7-15.6)	<b>19.5</b> (16.8-24.9)	1550
	05-06	<b>6.86</b> (6.34-7.42)	<b>6.43</b> (5.83-6.87)	<b>9.10</b> (8.22-10.2)	<b>14.1</b> (12.0-17.3)	<b>19.9</b> (15.8-24.0)	1531
	07-08	<b>6.46</b> (6.17-6.76)	<b>5.95</b> (5.71-6.18)	<b>8.57</b> (8.00-9.40)	<b>13.0</b> (11.8-14.2)	<b>17.2</b> (15.0-19.2)	1820
	09-10	<b>6.70</b> (6.33-7.10)	<b>5.95</b> (5.71-6.20)	<b>9.12</b> (8.20-9.87)	<b>15.4</b> (12.6-19.6)	<b>23.2</b> (19.4-27.4)	2020
<b>Gender</b>							
Males	03-04	<b>7.03</b> (6.38-7.74)	<b>6.40</b> (6.00-7.10)	<b>9.20</b> (8.30-10.5)	<b>14.8</b> (12.7-18.1)	<b>21.3</b> (16.0-28.1)	1283
	05-06	<b>7.10</b> (6.56-7.68)	<b>6.59</b> (6.10-7.05)	<b>9.37</b> (8.22-10.5)	<b>14.3</b> (11.6-17.7)	<b>18.4</b> (14.9-23.1)	1276
	07-08	<b>6.94</b> (6.54-7.36)	<b>6.44</b> (6.13-6.87)	<b>9.22</b> (8.53-9.89)	<b>13.5</b> (12.4-15.2)	<b>18.3</b> (14.9-26.4)	1289
	09-10	<b>6.80</b> (6.30-7.34)	<b>6.09</b> (5.71-6.54)	<b>9.06</b> (8.27-9.89)	<b>15.0</b> (12.0-20.4)	<b>23.5</b> (16.3-29.4)	1396
Females	03-04	<b>6.08</b> (5.62-6.57)	<b>5.50</b> (5.10-6.10)	<b>8.10</b> (7.10-9.10)	<b>12.7</b> (11.1-14.9)	<b>17.3</b> (14.6-21.9)	1289
	05-06	<b>6.60</b> (6.11-7.14)	<b>6.14</b> (5.47-6.81)	<b>8.77</b> (8.06-9.51)	<b>13.3</b> (11.7-16.2)	<b>18.6</b> (15.8-22.0)	1312
	07-08	<b>6.06</b> (5.81-6.33)	<b>5.66</b> (5.42-5.84)	<b>7.96</b> (7.35-8.59)	<b>11.9</b> (10.7-13.7)	<b>15.8</b> (14.0-16.8)	1287
	09-10	<b>6.33</b> (5.98-6.70)	<b>5.64</b> (5.21-5.95)	<b>8.36</b> (7.70-9.60)	<b>14.2</b> (12.1-16.2)	<b>19.6</b> (17.8-21.1)	1456
<b>Race/ethnicity</b>							
Mexican Americans	03-04	<b>7.72</b> (7.09-8.41)	<b>7.10</b> (6.50-8.00)	<b>10.1</b> (9.10-11.8)	<b>15.5</b> (12.8-20.5)	<b>22.7</b> (16.5-29.4)	622
	05-06	<b>7.27</b> (6.94-7.62)	<b>7.05</b> (6.69-7.42)	<b>9.83</b> (9.21-10.5)	<b>12.5</b> (11.7-14.5)	<b>16.1</b> (13.9-18.5)	651
	07-08	<b>7.22</b> (6.80-7.66)	<b>7.02</b> (6.43-7.46)	<b>9.89</b> (9.18-10.3)	<b>12.7</b> (11.3-14.3)	<b>15.3</b> (13.6-23.3)	513
	09-10	<b>6.76</b> (6.19-7.38)	<b>6.31</b> (5.48-7.19)	<b>9.12</b> (8.06-10.3)	<b>14.1</b> (11.9-16.5)	<b>19.8</b> (15.8-22.2)	618
Non-Hispanic blacks	03-04	<b>7.04</b> (6.42-7.73)	<b>6.50</b> (6.10-7.30)	<b>9.30</b> (8.70-10.3)	<b>15.7</b> (12.3-18.1)	<b>19.4</b> (17.1-21.4)	725
	05-06	<b>7.05</b> (6.36-7.82)	<b>6.48</b> (5.73-7.16)	<b>8.85</b> (7.77-9.80)	<b>14.0</b> (11.0-16.5)	<b>17.9</b> (14.5-31.0)	695
	07-08	<b>7.06</b> (6.76-7.38)	<b>6.45</b> (6.00-6.81)	<b>9.43</b> (8.55-10.3)	<b>14.5</b> (13.3-15.8)	<b>18.5</b> (15.8-23.5)	586
	09-10	<b>7.03</b> (6.44-7.67)	<b>6.28</b> (5.66-6.92)	<b>9.84</b> (8.48-11.4)	<b>16.0</b> (12.7-19.9)	<b>22.2</b> (17.8-33.5)	543
Non-Hispanic whites	03-04	<b>5.96</b> (5.54-6.41)	<b>5.50</b> (5.10-6.10)	<b>7.70</b> (7.10-8.50)	<b>12.0</b> (9.80-13.7)	<b>15.1</b> (12.8-18.1)	1081
	05-06	<b>6.55</b> (5.96-7.20)	<b>6.10</b> (5.42-6.83)	<b>8.50</b> (7.74-9.73)	<b>13.3</b> (11.1-16.2)	<b>17.3</b> (14.1-21.4)	1050
	07-08	<b>5.95</b> (5.69-6.23)	<b>5.66</b> (5.35-5.96)	<b>7.72</b> (7.26-8.25)	<b>11.1</b> (10.3-12.2)	<b>14.0</b> (12.5-16.1)	1063
	09-10	<b>5.96</b> (5.75-6.18)	<b>5.46</b> (5.22-5.65)	<b>7.89</b> (7.56-8.19)	<b>11.5</b> (10.1-13.3)	<b>15.3</b> (13.3-18.8)	1210

\*\*See Calculation of Inorganic-related Arsenic Species for additional information.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Arsenic\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Arsenic\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html)



## Urinary Inorganic-related Arsenic Species (2011 - 2014)

Sum of arsenic acid, arsenous acid, dimethylarsenic acid, and methylarsonic acid\*\*

Geometric mean and selected percentiles of urine concentrations (in µg As/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>5.59</b> (5.24-5.96)	<b>5.15</b> (4.73-5.56)	<b>7.73</b> (7.09-8.57)	<b>12.2</b> (11.1-13.9)	<b>17.2</b> (14.6-19.9)	2517
	13-14	<b>4.80</b> (4.53-5.09)	<b>4.53</b> (4.18-4.94)	<b>7.22</b> (6.74-7.70)	<b>11.2</b> (10.3-12.0)	<b>14.7</b> (13.5-16.8)	2654
<b>Age group</b>							
6-11 years	11-12	<b>5.48</b> (5.05-5.95)	<b>5.36</b> (4.50-5.98)	<b>7.58</b> (7.08-8.34)	<b>11.2</b> (9.93-12.1)	<b>13.4</b> (11.6-16.2)	401
	13-14	<b>4.91</b> (4.44-5.43)	<b>4.59</b> (4.02-5.00)	<b>7.21</b> (6.20-8.38)	<b>11.3</b> (9.91-13.9)	<b>14.2</b> (11.4-19.6)	397
12-19 years	11-12	<b>5.37</b> (4.67-6.17)	<b>5.09</b> (4.24-6.00)	<b>7.28</b> (6.27-8.32)	<b>11.1</b> (8.34-14.9)	<b>15.6</b> (10.8-23.9)	392
	13-14	<b>5.09</b> (4.64-5.57)	<b>5.02</b> (4.51-5.46)	<b>7.29</b> (6.53-8.08)	<b>11.9</b> (9.80-13.7)	<b>14.5</b> (12.5-15.9)	450
20 years and older	11-12	<b>5.64</b> (5.28-6.01)	<b>5.15</b> (4.71-5.57)	<b>7.83</b> (7.07-8.88)	<b>12.5</b> (11.2-14.8)	<b>17.6</b> (15.2-20.0)	1724
	13-14	<b>4.75</b> (4.46-5.05)	<b>4.45</b> (4.08-4.91)	<b>7.20</b> (6.63-7.72)	<b>11.2</b> (10.3-11.8)	<b>14.8</b> (12.9-17.1)	1807
<b>Gender</b>							
Males	11-12	<b>6.00</b> (5.52-6.52)	<b>5.63</b> (5.11-6.28)	<b>8.31</b> (7.29-9.94)	<b>13.4</b> (11.7-16.5)	<b>18.8</b> (16.7-20.8)	1264
	13-14	<b>5.02</b> (4.78-5.28)	<b>4.92</b> (4.45-5.32)	<b>7.45</b> (7.09-7.94)	<b>11.4</b> (10.3-12.1)	<b>14.8</b> (13.5-16.1)	1308
Females	11-12	<b>5.23</b> (4.90-5.58)	<b>4.70</b> (4.36-5.05)	<b>7.16</b> (6.47-8.01)	<b>11.6</b> (10.1-12.9)	<b>14.9</b> (12.3-20.5)	1253
	13-14	<b>4.59</b> (4.26-4.96)	<b>4.29</b> (3.87-4.69)	<b>6.94</b> (5.99-7.67)	<b>10.8</b> (10.0-12.1)	<b>14.7</b> (12.8-18.3)	1346
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>5.76</b> (5.37-6.18)	<b>5.26</b> (5.02-5.77)	<b>7.71</b> (7.37-8.54)	<b>11.9</b> (10.1-13.8)	<b>16.8</b> (12.1-19.9)	317
	13-14	<b>5.01</b> (4.77-5.27)	<b>5.14</b> (4.62-5.52)	<b>7.21</b> (6.84-7.70)	<b>10.3</b> (9.54-11.3)	<b>12.4</b> (11.2-16.2)	455
Non-Hispanic blacks	11-12	<b>6.20</b> (5.52-6.97)	<b>5.77</b> (5.09-6.42)	<b>8.81</b> (7.43-10.6)	<b>14.4</b> (12.1-18.0)	<b>20.5</b> (16.5-25.4)	672
	13-14	<b>5.58</b> (5.03-6.20)	<b>5.28</b> (4.84-5.81)	<b>7.81</b> (6.82-9.63)	<b>13.4</b> (10.6-15.7)	<b>19.2</b> (13.5-25.0)	576
Non-Hispanic whites	11-12	<b>5.10</b> (4.79-5.43)	<b>4.69</b> (4.35-5.11)	<b>7.01</b> (6.36-7.72)	<b>10.7</b> (8.90-12.1)	<b>12.9</b> (11.9-16.0)	825
	13-14	<b>4.35</b> (4.02-4.71)	<b>4.12</b> (3.67-4.47)	<b>6.46</b> (5.79-7.21)	<b>9.95</b> (8.65-10.9)	<b>12.3</b> (10.9-14.0)	980
All Hispanics	11-12	<b>6.22</b> (5.52-7.01)	<b>5.72</b> (5.08-6.51)	<b>8.97</b> (7.41-11.1)	<b>14.5</b> (11.4-19.0)	<b>19.9</b> (15.8-21.6)	574
	13-14	<b>5.31</b> (4.87-5.80)	<b>5.34</b> (4.64-6.01)	<b>7.92</b> (7.18-8.84)	<b>11.7</b> (10.5-12.9)	<b>14.8</b> (12.4-16.2)	703
Asians	11-12	<b>10.1</b> (9.11-11.2)	<b>9.53</b> (8.32-11.1)	<b>17.8</b> (14.6-19.9)	<b>29.6</b> (24.5-34.2)	<b>42.3</b> (33.0-46.4)	356
	13-14	<b>7.60</b> (7.10-8.14)	<b>7.69</b> (6.65-8.90)	<b>13.8</b> (11.0-14.9)	<b>23.0</b> (18.3-24.3)	<b>28.0</b> (23.1-39.4)	291

\*\*See Calculation of Inorganic-related Arsenic Species for additional information.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Arsenic\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Arsenic\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html)

## Urinary Inorganic-related Arsenic Species (creatinine corrected) (2003 - 2010)

Sum of arsenic acid, arsenous acid, dimethylarsinic acid, and monomethylarsonic acid\*\*

Geometric mean and selected percentiles of urine concentrations (in µg As/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	<b>6.47</b> (5.84-7.16)	<b>5.95</b> (5.40-6.62)	<b>9.64</b> (8.25-11.4)	<b>15.7</b> (13.3-18.5)	<b>20.0</b> (17.4-23.9)	2569
	05-06	<b>6.72</b> (6.30-7.17)	<b>6.21</b> (5.81-6.58)	<b>9.75</b> (8.81-11.0)	<b>16.2</b> (14.2-18.0)	<b>21.3</b> (18.7-24.3)	2588
	07-08	<b>6.75</b> (6.41-7.12)	<b>6.42</b> (5.97-6.88)	<b>9.77</b> (9.03-10.6)	<b>15.5</b> (14.2-17.0)	<b>21.2</b> (18.1-23.3)	2576
	09-10	<b>6.94</b> (6.55-7.36)	<b>6.55</b> (6.04-7.00)	<b>10.3</b> (9.58-11.0)	<b>16.4</b> (14.9-17.9)	<b>22.5</b> (19.0-26.5)	2851
<b>Age group</b>							
6-11 years	03-04	<b>7.52</b> (6.45-8.77)	<b>6.51</b> (6.05-8.30)	<b>10.5</b> (8.06-13.5)	<b>16.8</b> (12.4-19.7)	<b>19.2</b> (14.3-41.3)	292
	05-06	<b>8.28</b> (7.20-9.52)	<b>7.73</b> (6.44-8.96)	<b>10.7</b> (8.86-14.1)	<b>17.4</b> (13.6-22.1)	<b>24.0</b> (18.8-26.2)	354
	07-08	<b>8.81</b> (7.92-9.80)	<b>8.09</b> (7.23-9.44)	<b>12.1</b> (10.8-13.9)	<b>18.3</b> (15.5-23.4)	<b>24.5</b> (18.4-37.9)	390
	09-10	<b>8.47</b> (7.76-9.25)	<b>7.92</b> (7.20-8.73)	<b>10.7</b> (9.71-12.6)	<b>17.0</b> (13.8-22.3)	<b>24.9</b> (14.8-42.2)	378
12-19 years	03-04	<b>4.79</b> (4.33-5.29)	<b>4.46</b> (3.98-5.00)	<b>6.31</b> (5.46-7.44)	<b>8.96</b> (8.17-11.4)	<b>12.8</b> (10.2-15.7)	728
	05-06	<b>5.24</b> (4.95-5.55)	<b>4.97</b> (4.61-5.44)	<b>7.23</b> (6.71-7.72)	<b>10.7</b> (9.48-11.6)	<b>13.3</b> (11.5-15.5)	703
	07-08	<b>5.00</b> (4.64-5.39)	<b>4.72</b> (4.47-5.13)	<b>6.68</b> (5.85-7.49)	<b>9.85</b> (7.88-11.8)	<b>12.1</b> (10.2-14.8)	366
	09-10	<b>5.44</b> (4.97-5.95)	<b>4.83</b> (4.46-5.50)	<b>8.10</b> (6.54-9.23)	<b>12.1</b> (10.4-15.1)	<b>16.6</b> (13.6-20.5)	453
20 years and older	03-04	<b>6.67</b> (6.00-7.41)	<b>6.12</b> (5.54-7.03)	<b>10.2</b> (8.51-12.0)	<b>15.9</b> (13.8-19.2)	<b>21.2</b> (18.2-25.5)	1548
	05-06	<b>6.82</b> (6.39-7.28)	<b>6.27</b> (5.80-6.79)	<b>10.3</b> (9.07-11.5)	<b>16.7</b> (14.5-18.9)	<b>22.2</b> (19.3-25.9)	1531
	07-08	<b>6.87</b> (6.48-7.29)	<b>6.54</b> (6.14-7.08)	<b>9.90</b> (9.10-11.1)	<b>16.2</b> (14.2-18.0)	<b>21.3</b> (18.2-24.3)	1820
	09-10	<b>7.06</b> (6.61-7.53)	<b>6.67</b> (6.13-7.09)	<b>10.6</b> (9.71-11.4)	<b>17.0</b> (15.0-18.9)	<b>23.3</b> (19.5-27.5)	2020
<b>Gender</b>							
Males	03-04	<b>5.93</b> (5.19-6.78)	<b>5.43</b> (4.73-6.14)	<b>8.57</b> (7.19-10.7)	<b>13.7</b> (11.4-17.4)	<b>19.4</b> (14.7-25.6)	1283
	05-06	<b>5.83</b> (5.41-6.28)	<b>5.43</b> (5.00-5.90)	<b>8.27</b> (7.26-9.46)	<b>12.9</b> (11.3-15.5)	<b>18.0</b> (14.2-20.4)	1276
	07-08	<b>6.21</b> (5.91-6.53)	<b>5.89</b> (5.47-6.27)	<b>8.87</b> (8.27-9.71)	<b>14.3</b> (12.7-16.6)	<b>18.9</b> (17.0-21.3)	1289
	09-10	<b>6.17</b> (5.82-6.54)	<b>5.70</b> (5.34-6.30)	<b>8.95</b> (8.40-9.46)	<b>14.3</b> (12.5-15.8)	<b>18.1</b> (16.0-22.0)	1395
Females	03-04	<b>7.02</b> (6.45-7.64)	<b>6.59</b> (5.94-7.20)	<b>10.5</b> (8.95-12.4)	<b>16.8</b> (14.9-19.1)	<b>20.6</b> (18.0-25.4)	1285
	05-06	<b>7.70</b> (7.22-8.21)	<b>7.11</b> (6.54-7.73)	<b>11.4</b> (10.3-13.1)	<b>17.9</b> (16.2-20.0)	<b>25.7</b> (22.1-28.5)	1312
	07-08	<b>7.30</b> (6.85-7.77)	<b>7.00</b> (6.44-7.48)	<b>10.4</b> (9.59-11.5)	<b>16.2</b> (13.7-20.1)	<b>22.7</b> (18.9-28.3)	1287
	09-10	<b>7.77</b> (7.27-8.31)	<b>7.29</b> (6.80-7.91)	<b>11.7</b> (10.9-12.5)	<b>18.9</b> (16.3-22.0)	<b>26.5</b> (20.4-34.0)	1456
<b>Race/ethnicity</b>							
Mexican Americans	03-04	<b>7.16</b> (6.29-8.15)	<b>6.78</b> (5.58-8.01)	<b>10.4</b> (8.19-12.7)	<b>15.6</b> (13.3-18.9)	<b>20.0</b> (16.1-29.9)	621
	05-06	<b>6.83</b> (6.38-7.32)	<b>6.55</b> (5.94-7.34)	<b>9.40</b> (8.51-10.6)	<b>13.6</b> (11.6-15.9)	<b>16.2</b> (14.3-20.0)	651
	07-08	<b>7.19</b> (6.39-8.10)	<b>7.07</b> (6.17-7.76)	<b>9.73</b> (8.28-11.4)	<b>15.4</b> (12.9-19.2)	<b>21.3</b> (17.8-24.3)	513
	09-10	<b>7.04</b> (6.44-7.69)	<b>6.92</b> (6.15-7.70)	<b>10.3</b> (9.19-10.9)	<b>14.7</b> (13.3-16.2)	<b>18.9</b> (16.9-20.6)	618
Non-Hispanic blacks	03-04	<b>5.08</b> (4.63-5.56)	<b>4.72</b> (4.34-5.25)	<b>7.04</b> (6.23-8.00)	<b>10.7</b> (8.71-14.3)	<b>15.0</b> (11.4-19.1)	725
	05-06	<b>5.08</b> (4.63-5.57)	<b>4.73</b> (4.33-5.21)	<b>6.82</b> (6.13-7.61)	<b>10.6</b> (8.32-13.5)	<b>15.1</b> (11.2-25.0)	695
	07-08	<b>5.19</b> (4.86-5.55)	<b>4.79</b> (4.41-5.39)	<b>7.28</b> (6.97-7.97)	<b>11.2</b> (10.2-12.2)	<b>14.7</b> (12.2-18.9)	586
	09-10	<b>5.58</b> (5.10-6.10)	<b>5.01</b> (4.58-5.42)	<b>8.50</b> (6.94-10.4)	<b>13.6</b> (12.6-15.5)	<b>19.0</b> (14.6-23.1)	542
Non-Hispanic whites	03-04	<b>6.28</b> (5.55-7.10)	<b>5.82</b> (5.19-6.53)	<b>9.10</b> (7.74-11.4)	<b>14.8</b> (11.4-18.8)	<b>19.4</b> (15.8-23.6)	1079
	05-06	<b>6.78</b> (6.30-7.31)	<b>6.26</b> (5.79-6.78)	<b>10.2</b> (8.85-11.4)	<b>16.2</b> (13.8-18.2)	<b>20.8</b> (17.9-24.6)	1050
	07-08	<b>6.66</b> (6.29-7.06)	<b>6.37</b> (5.73-6.95)	<b>9.64</b> (8.88-10.2)	<b>14.8</b> (12.8-16.5)	<b>20.0</b> (16.5-22.7)	1063
	09-10	<b>6.61</b> (6.20-7.05)	<b>6.31</b> (5.76-6.81)	<b>9.44</b> (8.75-10.0)	<b>14.7</b> (13.6-15.8)	<b>18.9</b> (17.0-22.0)	1210

\*\*See Calculation of Inorganic-related Arsenic Species for additional information.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Arsenic\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Arsenic\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html)

## Urinary Inorganic-related Arsenic Species (creatinine corrected) (2011 - 2014)

Sum of arsenic acid, arsenous acid, dimethylarsenic acid, and methylarsonic acid\*\*

Geometric mean and selected percentiles of urine concentrations (in µg As/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>6.31</b> (6.02-6.63)	<b>6.00</b> (5.64-6.37)	<b>9.46</b> (8.88-10.1)	<b>15.1</b> (13.4-16.5)	<b>19.6</b> (18.3-20.4)	2516
	13-14	<b>5.53</b> (5.24-5.83)	<b>5.28</b> (4.91-5.61)	<b>8.09</b> (7.61-8.62)	<b>13.0</b> (11.9-14.1)	<b>17.4</b> (15.6-18.8)	2653
<b>Age group</b>							
6-11 years	11-12	<b>7.77</b> (7.36-8.20)	<b>7.33</b> (6.95-8.26)	<b>10.6</b> (9.74-11.9)	<b>15.9</b> (14.3-16.8)	<b>20.2</b> (16.8-22.3)	401
	13-14	<b>7.38</b> (6.78-8.04)	<b>6.73</b> (5.99-8.30)	<b>10.4</b> (9.30-12.3)	<b>15.4</b> (14.1-16.8)	<b>17.8</b> (15.5-19.4)	397
12-19 years	11-12	<b>5.13</b> (4.48-5.88)	<b>4.76</b> (4.40-5.11)	<b>7.40</b> (5.86-8.81)	<b>11.4</b> (8.17-16.8)	<b>16.8</b> (11.4-28.7)	392
	13-14	<b>4.61</b> (4.14-5.15)	<b>4.38</b> (3.92-4.81)	<b>6.57</b> (5.55-7.69)	<b>9.38</b> (8.11-11.1)	<b>11.7</b> (9.46-16.7)	450
20 years and older	11-12	<b>6.37</b> (6.08-6.67)	<b>6.09</b> (5.72-6.52)	<b>9.53</b> (8.98-10.2)	<b>15.6</b> (13.6-17.0)	<b>19.6</b> (18.3-20.4)	1723
	13-14	<b>5.51</b> (5.24-5.79)	<b>5.29</b> (4.95-5.57)	<b>7.95</b> (7.61-8.52)	<b>12.9</b> (11.9-14.2)	<b>17.7</b> (15.6-19.4)	1806
<b>Gender</b>							
Males	11-12	<b>5.61</b> (5.24-6.01)	<b>5.27</b> (4.81-5.87)	<b>8.39</b> (7.73-9.04)	<b>12.4</b> (10.6-13.9)	<b>16.8</b> (13.6-19.1)	1263
	13-14	<b>5.02</b> (4.79-5.26)	<b>4.72</b> (4.44-5.04)	<b>7.04</b> (6.66-7.54)	<b>11.4</b> (10.7-12.8)	<b>17.0</b> (14.2-17.8)	1307
Females	11-12	<b>7.06</b> (6.69-7.45)	<b>6.77</b> (6.30-7.15)	<b>11.0</b> (10.2-11.9)	<b>16.8</b> (15.3-19.1)	<b>21.5</b> (19.4-24.2)	1253
	13-14	<b>6.06</b> (5.62-6.54)	<b>5.80</b> (5.33-6.46)	<b>9.14</b> (8.21-10.1)	<b>13.9</b> (12.5-15.5)	<b>18.0</b> (15.9-19.5)	1346
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>6.48</b> (6.05-6.94)	<b>6.33</b> (5.77-6.82)	<b>9.18</b> (7.97-9.86)	<b>12.4</b> (11.2-13.3)	<b>16.0</b> (13.0-19.0)	317
	13-14	<b>5.71</b> (5.39-6.06)	<b>5.52</b> (5.15-5.87)	<b>7.61</b> (6.97-8.52)	<b>10.9</b> (9.87-12.4)	<b>13.9</b> (12.2-15.8)	455
Non-Hispanic blacks	11-12	<b>4.83</b> (4.23-5.53)	<b>4.53</b> (3.92-5.26)	<b>7.30</b> (6.09-8.27)	<b>10.9</b> (9.40-13.2)	<b>16.2</b> (12.6-17.3)	672
	13-14	<b>4.21</b> (3.77-4.72)	<b>4.00</b> (3.42-4.75)	<b>6.13</b> (5.48-6.97)	<b>8.70</b> (7.90-10.5)	<b>12.2</b> (9.92-15.4)	576
Non-Hispanic whites	11-12	<b>6.13</b> (5.77-6.50)	<b>5.81</b> (5.27-6.36)	<b>9.09</b> (8.41-9.86)	<b>14.3</b> (12.4-16.2)	<b>18.6</b> (16.2-19.8)	824
	13-14	<b>5.36</b> (4.99-5.76)	<b>5.14</b> (4.65-5.55)	<b>7.69</b> (7.04-8.64)	<b>12.5</b> (11.1-13.9)	<b>16.0</b> (14.1-18.3)	979
All Hispanics	11-12	<b>6.96</b> (6.56-7.38)	<b>6.90</b> (6.45-7.36)	<b>9.80</b> (9.30-10.5)	<b>13.4</b> (12.0-15.9)	<b>17.2</b> (14.7-20.3)	574
	13-14	<b>5.93</b> (5.59-6.28)	<b>5.76</b> (5.43-6.09)	<b>8.05</b> (7.53-8.71)	<b>11.9</b> (10.5-13.0)	<b>15.2</b> (12.4-19.0)	703
Asians	11-12	<b>13.6</b> (11.9-15.4)	<b>13.2</b> (11.4-14.6)	<b>20.8</b> (16.5-24.6)	<b>33.9</b> (24.6-58.3)	<b>58.8</b> (36.4-71.5)	356
	13-14	<b>11.8</b> (10.6-13.2)	<b>11.2</b> (10.0-12.8)	<b>18.6</b> (14.7-21.7)	<b>30.3</b> (23.9-40.3)	<b>44.5</b> (31.2-48.9)	291

\*\*See Calculation of Inorganic-related Arsenic Species for additional information.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Arsenic\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Arsenic\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html)

## Urinary Arsenic (V) acid (2003 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg As/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	1.10 (<LOD-1.50)	2568
	05-06	*	< LOD	< LOD	< LOD	1.06 (<LOD-1.43)	2588
	07-08	*	< LOD	< LOD	< LOD	< LOD	2576
	09-10	*	< LOD	< LOD	< LOD	< LOD	2852
<b>Age group</b>							
6-11 years	03-04	*	< LOD	< LOD	< LOD	1.10 (<LOD-1.30)	292
	05-06	*	< LOD	< LOD	< LOD	< LOD	354
	07-08	*	< LOD	< LOD	< LOD	< LOD	390
	09-10	*	< LOD	< LOD	< LOD	< LOD	379
12-19 years	03-04	*	< LOD	< LOD	< LOD	1.20 (<LOD-1.60)	728
	05-06	*	< LOD	< LOD	< LOD	1.00 (<LOD-1.30)	703
	07-08	*	< LOD	< LOD	< LOD	< LOD	366
	09-10	*	< LOD	< LOD	< LOD	< LOD	453
20 years and older	03-04	*	< LOD	< LOD	< LOD	1.10 (<LOD-1.50)	1548
	05-06	*	< LOD	< LOD	< LOD	1.09 (<LOD-1.71)	1531
	07-08	*	< LOD	< LOD	< LOD	< LOD	1820
	09-10	*	< LOD	< LOD	< LOD	< LOD	2020
<b>Gender</b>							
Males	03-04	*	< LOD	< LOD	< LOD	1.20 (<LOD-1.50)	1284
	05-06	*	< LOD	< LOD	< LOD	1.14 (<LOD-1.71)	1276
	07-08	*	< LOD	< LOD	< LOD	< LOD	1289
	09-10	*	< LOD	< LOD	< LOD	< LOD	1396
Females	03-04	*	< LOD	< LOD	< LOD	1.10 (<LOD-1.30)	1284
	05-06	*	< LOD	< LOD	< LOD	1.01 (<LOD-1.22)	1312
	07-08	*	< LOD	< LOD	< LOD	< LOD	1287
	09-10	*	< LOD	< LOD	< LOD	< LOD	1456
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	1.20 (<LOD-1.60)	621
	05-06	*	< LOD	< LOD	< LOD	< LOD	651
	07-08	*	< LOD	< LOD	< LOD	< LOD	513
	09-10	*	< LOD	< LOD	< LOD	< LOD	618
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	1.20 (<LOD-1.80)	725
	05-06	*	< LOD	< LOD	< LOD	< LOD	695
	07-08	*	< LOD	< LOD	< LOD	< LOD	586
	09-10	*	< LOD	< LOD	< LOD	< LOD	543
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	1.10 (<LOD-1.50)	1078
	05-06	*	< LOD	< LOD	< LOD	1.10 (<LOD-1.74)	1050
	07-08	*	< LOD	< LOD	< LOD	< LOD	1063
	09-10	*	< LOD	< LOD	< LOD	< LOD	1210

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08 and 09-10 are 1.0, 1.0, 1.0, and 1.0 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Arsenic\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Arsenic\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html)

## Urinary Arsenic (V) acid (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg As/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2517
	13-14	*	< LOD	< LOD	< LOD	< LOD	2654
<b>Age group</b>							
6-11 years	11-12	*	< LOD	< LOD	< LOD	< LOD	401
	13-14	*	< LOD	< LOD	< LOD	< LOD	397
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	392
	13-14	*	< LOD	< LOD	< LOD	< LOD	450
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	1724
	13-14	*	< LOD	< LOD	< LOD	< LOD	1807
<b>Gender</b>							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	1264
	13-14	*	< LOD	< LOD	< LOD	< LOD	1308
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1253
	13-14	*	< LOD	< LOD	< LOD	< LOD	1346
<b>Race/ethnicity</b>							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	317
	13-14	*	< LOD	< LOD	< LOD	< LOD	455
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	672
	13-14	*	< LOD	< LOD	< LOD	< LOD	576
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	825
	13-14	*	< LOD	< LOD	< LOD	< LOD	980
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	574
	13-14	*	< LOD	< LOD	< LOD	< LOD	703
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	356
	13-14	*	< LOD	< LOD	< LOD	< LOD	291

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.87 and 0.79, respectively. < LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Arsenic\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Arsenic\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html)

## Urinary Arsenic (V) acid (creatinine corrected) (2003 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg As/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	3.04 (<LOD-3.50)	2568
	05-06	*	< LOD	< LOD	< LOD	3.23 (<LOD-3.55)	2588
	07-08	*	< LOD	< LOD	< LOD	< LOD	2576
	09-10	*	< LOD	< LOD	< LOD	< LOD	2851
<b>Age group</b>							
6-11 years	03-04	*	< LOD	< LOD	< LOD	2.80 (<LOD-4.00)	292
	05-06	*	< LOD	< LOD	< LOD	< LOD	354
	07-08	*	< LOD	< LOD	< LOD	< LOD	390
	09-10	*	< LOD	< LOD	< LOD	< LOD	378
12-19 years	03-04	*	< LOD	< LOD	< LOD	1.75 (<LOD-2.41)	728
	05-06	*	< LOD	< LOD	< LOD	1.69 (<LOD-2.73)	703
	07-08	*	< LOD	< LOD	< LOD	< LOD	366
	09-10	*	< LOD	< LOD	< LOD	< LOD	453
20 years and older	03-04	*	< LOD	< LOD	< LOD	3.18 (<LOD-3.70)	1548
	05-06	*	< LOD	< LOD	< LOD	3.38 (<LOD-3.94)	1531
	07-08	*	< LOD	< LOD	< LOD	< LOD	1820
	09-10	*	< LOD	< LOD	< LOD	< LOD	2020
<b>Gender</b>							
Males	03-04	*	< LOD	< LOD	< LOD	2.61 (<LOD-3.18)	1284
	05-06	*	< LOD	< LOD	< LOD	2.14 (<LOD-2.73)	1276
	07-08	*	< LOD	< LOD	< LOD	< LOD	1289
	09-10	*	< LOD	< LOD	< LOD	< LOD	1395
Females	03-04	*	< LOD	< LOD	< LOD	3.33 (<LOD-3.89)	1284
	05-06	*	< LOD	< LOD	< LOD	3.55 (<LOD-4.44)	1312
	07-08	*	< LOD	< LOD	< LOD	< LOD	1287
	09-10	*	< LOD	< LOD	< LOD	< LOD	1456
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	2.69 (<LOD-3.50)	621
	05-06	*	< LOD	< LOD	< LOD	< LOD	651
	07-08	*	< LOD	< LOD	< LOD	< LOD	513
	09-10	*	< LOD	< LOD	< LOD	< LOD	618
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	1.75 (<LOD-2.19)	725
	05-06	*	< LOD	< LOD	< LOD	< LOD	695
	07-08	*	< LOD	< LOD	< LOD	< LOD	586
	09-10	*	< LOD	< LOD	< LOD	< LOD	542
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	3.33 (<LOD-3.95)	1078
	05-06	*	< LOD	< LOD	< LOD	3.38 (<LOD-3.80)	1050
	07-08	*	< LOD	< LOD	< LOD	< LOD	1063
	09-10	*	< LOD	< LOD	< LOD	< LOD	1210

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Arsenic\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Arsenic\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html)

## Urinary Arsenic (V) acid (creatinine corrected) (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg As/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2516
	13-14	*	< LOD	< LOD	< LOD	< LOD	2653
<b>Age group</b>							
6-11 years	11-12	*	< LOD	< LOD	< LOD	< LOD	401
	13-14	*	< LOD	< LOD	< LOD	< LOD	397
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	392
	13-14	*	< LOD	< LOD	< LOD	< LOD	450
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	1723
	13-14	*	< LOD	< LOD	< LOD	< LOD	1806
<b>Gender</b>							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	1263
	13-14	*	< LOD	< LOD	< LOD	< LOD	1307
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1253
	13-14	*	< LOD	< LOD	< LOD	< LOD	1346
<b>Race/ethnicity</b>							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	317
	13-14	*	< LOD	< LOD	< LOD	< LOD	455
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	672
	13-14	*	< LOD	< LOD	< LOD	< LOD	576
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	824
	13-14	*	< LOD	< LOD	< LOD	< LOD	979
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	574
	13-14	*	< LOD	< LOD	< LOD	< LOD	703
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	356
	13-14	*	< LOD	< LOD	< LOD	< LOD	291

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Arsenic\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Arsenic\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html)



## Urinary Arsenobetaine (2003 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg As/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	1.55 (1.31-1.83)	1.00 (.800-1.40)	5.20 (4.00-6.50)	16.8 (12.7-22.3)	35.0 (27.6-44.6)	2568
	05-06	1.86 (1.43-2.41)	1.53 (.980-2.26)	6.73 (4.80-8.91)	22.6 (16.5-30.3)	40.6 (30.7-59.4)	2588
	07-08	*	.670 (.510-.910)	4.26 (3.53-4.88)	16.6 (12.5-20.2)	29.5 (22.8-37.1)	2576
	09-10	1.59 (1.38-1.83)	.940 (.720-1.26)	6.18 (4.67-7.87)	23.5 (19.8-30.1)	50.4 (35.7-63.2)	2870
<b>Age group</b>							
6-11 years	03-04	*	< LOD	1.80 (.800-4.00)	8.80 (3.90-29.9)	29.9 (6.20-190)	292
	05-06	*	< LOD	2.22 (.620-5.35)	7.14 (2.34-29.9)	18.9 (5.46-45.0)	354
	07-08	*	< LOD	1.24 (.780-2.42)	6.71 (3.37-8.38)	13.0 (7.22-25.2)	390
	09-10	*	< LOD	1.20 (.590-3.12)	7.98 (5.20-15.7)	19.4 (9.25-47.9)	380
12-19 years	03-04	*	.600 (.400-.800)	3.20 (2.00-4.70)	13.9 (7.20-25.1)	31.8 (17.2-35.8)	728
	05-06	*	.550 (<LOD-1.14)	3.76 (1.95-7.16)	12.4 (9.15-20.4)	25.6 (16.4-32.4)	703
	07-08	*	< LOD	1.72 (.780-2.62)	4.88 (3.49-9.17)	10.4 (6.81-23.6)	366
	09-10	*	< LOD	2.07 (1.26-3.60)	11.0 (5.35-16.7)	17.8 (12.8-24.0)	455
20 years and older	03-04	1.74 (1.48-2.05)	1.30 (1.00-1.60)	6.10 (4.90-7.10)	18.5 (14.0-23.5)	35.5 (26.8-50.5)	1548
	05-06	2.20 (1.71-2.84)	1.89 (1.41-2.64)	8.14 (5.86-10.4)	27.6 (18.7-35.7)	43.9 (36.0-67.9)	1531
	07-08	1.46 (1.28-1.67)	.960 (.750-1.22)	5.08 (4.30-6.20)	19.1 (14.3-23.7)	31.7 (23.9-46.1)	1820
	09-10	1.92 (1.63-2.26)	1.33 (.960-1.91)	7.60 (6.06-9.90)	28.2 (21.9-34.9)	59.5 (45.7-76.7)	2035
<b>Gender</b>							
Males	03-04	1.66 (1.43-1.93)	1.20 (.900-1.50)	5.80 (4.40-7.10)	18.6 (13.9-23.7)	35.0 (26.8-40.5)	1284
	05-06	1.83 (1.40-2.40)	1.44 (.920-2.04)	6.63 (5.06-8.66)	23.2 (12.8-33.4)	37.1 (28.5-51.3)	1276
	07-08	*	.910 (.660-1.26)	5.07 (4.01-6.81)	19.1 (13.8-22.6)	30.3 (22.8-46.1)	1289
	09-10	1.71 (1.48-1.97)	.990 (.780-1.33)	7.14 (5.38-9.86)	26.8 (21.5-31.8)	57.4 (36.4-64.6)	1402
Females	03-04	1.45 (1.17-1.80)	.900 (.700-1.40)	4.70 (3.40-6.20)	15.6 (11.1-25.3)	32.7 (21.1-51.3)	1284
	05-06	1.88 (1.42-2.50)	1.64 (.950-2.51)	6.81 (4.03-9.88)	21.8 (17.3-30.1)	43.3 (33.8-67.9)	1312
	07-08	*	.530 (.410-.650)	3.52 (2.94-4.35)	14.0 (10.9-17.5)	29.5 (19.4-34.0)	1287
	09-10	1.49 (1.20-1.84)	.890 (.590-1.35)	5.54 (3.56-7.74)	21.2 (14.7-32.7)	47.1 (32.5-76.4)	1468
<b>Race/ethnicity</b>							
Mexican Americans	03-04	1.19 (.871-1.62)	.800 (.500-1.30)	3.20 (1.80-5.20)	10.2 (6.70-21.4)	31.4 (16.3-39.1)	621
	05-06	1.44 (1.23-1.69)	1.04 (.770-1.35)	3.90 (3.03-5.06)	16.8 (11.1-32.0)	41.4 (23.4-57.9)	651
	07-08	*	.560 (<LOD-.910)	3.27 (2.00-5.65)	16.9 (9.73-20.8)	29.6 (19.3-40.5)	513
	09-10	*	.640 (.440-.800)	3.58 (1.80-5.89)	15.5 (7.83-24.6)	31.9 (18.7-44.7)	617
Non-Hispanic blacks	03-04	2.29 (1.60-3.28)	2.00 (1.20-3.50)	7.70 (5.00-12.0)	23.7 (13.2-38.7)	45.6 (25.1-94.0)	725
	05-06	2.55 (1.64-3.99)	2.42 (1.15-4.58)	8.74 (6.01-14.4)	23.8 (15.9-48.9)	59.6 (30.5-121)	695
	07-08	1.58 (1.31-1.90)	1.11 (.750-1.60)	5.88 (4.12-8.13)	21.9 (16.4-24.9)	35.9 (25.4-47.7)	586
	09-10	1.99 (1.60-2.47)	1.79 (1.05-2.41)	7.61 (5.34-10.0)	25.5 (15.4-37.6)	51.2 (31.0-90.9)	546
Non-Hispanic whites	03-04	1.37 (1.11-1.68)	.800 (.700-1.20)	4.30 (2.50-6.30)	13.3 (9.70-21.4)	29.3 (21.4-35.5)	1078
	05-06	1.74 (1.27-2.40)	1.41 (.750-2.27)	6.40 (3.93-9.04)	22.4 (14.1-30.1)	38.4 (27.8-66.8)	1050
	07-08	*	.530 (<LOD-.780)	3.63 (3.06-4.38)	12.6 (9.08-17.1)	24.3 (17.6-30.3)	1063
	09-10	1.43 (1.24-1.65)	.800 (.610-1.18)	5.40 (3.77-7.27)	20.6 (17.7-24.5)	41.3 (30.6-59.5)	1226

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08 and 09-10 are 0.4, 0.4, 0.4, and 0.4 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Arsenic\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Arsenic\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html)



## Urinary Arsenobetaine (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg As/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	<b>4.62</b> (3.25-6.25)	<b>18.0</b> (13.7-23.2)	<b>36.5</b> (25.7-51.9)	2517
	13-14	*	< LOD	<b>3.70</b> (2.77-5.00)	<b>15.1</b> (12.4-19.6)	<b>30.5</b> (24.2-39.7)	2654
<b>Age group</b>							
6-11 years	11-12	*	< LOD	<b>1.58</b> (<LOD-4.12)	<b>15.2</b> (6.60-35.6)	<b>49.6</b> (20.0-60.1)	401
	13-14	*	< LOD	<b>1.45</b> (<LOD-2.03)	<b>5.63</b> (2.82-10.8)	<b>11.7</b> (6.29-30.8)	397
12-19 years	11-12	*	< LOD	<b>1.82</b> (<LOD-8.46)	<b>17.6</b> (6.92-26.5)	<b>32.6</b> (15.3-100)	392
	13-14	*	< LOD	<b>1.55</b> (<LOD-2.76)	<b>11.6</b> (7.52-16.2)	<b>29.8</b> (13.0-77.9)	450
20 years and older	11-12	*	< LOD	<b>5.26</b> (4.07-6.58)	<b>18.1</b> (13.4-24.0)	<b>36.5</b> (24.4-53.4)	1724
	13-14	*	< LOD	<b>4.35</b> (3.13-6.09)	<b>17.8</b> (13.6-21.2)	<b>34.0</b> (24.5-41.5)	1807
<b>Gender</b>							
Males	11-12	*	< LOD	<b>5.22</b> (3.38-7.16)	<b>18.4</b> (13.7-25.9)	<b>41.7</b> (26.4-60.3)	1264
	13-14	*	< LOD	<b>3.88</b> (2.95-5.17)	<b>14.7</b> (10.3-20.6)	<b>30.0</b> (20.7-41.8)	1308
Females	11-12	*	< LOD	<b>4.18</b> (2.84-6.11)	<b>17.0</b> (10.6-22.7)	<b>33.5</b> (22.1-53.1)	1253
	13-14	*	< LOD	<b>3.53</b> (2.37-4.95)	<b>16.0</b> (12.4-21.2)	<b>33.2</b> (24.3-45.4)	1346
<b>Race/ethnicity</b>							
Mexican Americans	11-12	*	< LOD	<b>3.78</b> (1.93-5.84)	<b>12.5</b> (6.11-17.6)	<b>19.3</b> (12.9-34.7)	317
	13-14	*	< LOD	<b>1.85</b> (<LOD-2.66)	<b>7.45</b> (2.97-21.7)	<b>21.3</b> (7.45-45.8)	455
Non-Hispanic blacks	11-12	*	<b>1.19</b> (<LOD-2.91)	<b>7.09</b> (3.79-13.4)	<b>30.2</b> (17.2-51.9)	<b>57.9</b> (36.1-81.5)	672
	13-14	*	<b>1.25</b> (<LOD-1.71)	<b>5.04</b> (3.56-8.35)	<b>21.2</b> (15.2-26.4)	<b>36.4</b> (26.4-70.9)	576
Non-Hispanic whites	11-12	*	< LOD	<b>4.07</b> (2.39-6.12)	<b>16.7</b> (9.30-22.5)	<b>30.0</b> (23.2-47.0)	825
	13-14	*	< LOD	<b>3.33</b> (2.30-5.12)	<b>14.0</b> (8.82-20.8)	<b>29.4</b> (20.7-39.7)	980
All Hispanics	11-12	*	< LOD	<b>3.78</b> (2.65-4.73)	<b>12.2</b> (7.70-16.8)	<b>19.3</b> (13.9-37.4)	574
	13-14	*	< LOD	<b>2.30</b> (1.85-2.81)	<b>9.56</b> (5.03-14.9)	<b>21.3</b> (12.0-33.2)	703
Asians	11-12	<b>5.15</b> (4.31-6.14)	<b>4.80</b> (3.76-5.82)	<b>17.3</b> (13.2-21.3)	<b>46.1</b> (29.1-74.1)	<b>85.6</b> (51.8-110)	356
	13-14	<b>3.74</b> (3.04-4.60)	<b>2.31</b> (1.35-4.24)	<b>11.6</b> (8.96-17.4)	<b>42.1</b> (27.3-60.7)	<b>79.5</b> (48.4-123)	291

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 1.19 and 1.16.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Arsenic\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Arsenic\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html)

## Urinary Arsenobetaine (creatinine corrected) (2003 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg As/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	<b>1.54</b> (1.30-1.82)	<b>1.16</b> (.959-1.43)	<b>5.00</b> (3.62-6.91)	<b>16.2</b> (12.5-20.3)	<b>29.4</b> (24.0-36.4)	2568
	05-06	<b>1.82</b> (1.40-2.37)	<b>1.64</b> (1.10-2.41)	<b>6.64</b> (4.48-8.79)	<b>20.3</b> (14.5-28.1)	<b>37.0</b> (27.5-58.3)	2588
	07-08	*	<b>1.00</b> (.850-1.18)	<b>4.07</b> (3.36-4.98)	<b>14.7</b> (11.1-17.8)	<b>27.7</b> (18.9-45.4)	2576
	09-10	<b>1.69</b> (1.45-1.97)	<b>1.23</b> (.980-1.47)	<b>6.48</b> (4.90-8.00)	<b>23.6</b> (18.5-30.7)	<b>49.6</b> (36.6-61.3)	2869
<b>Age group</b>							
6-11 years	03-04	*	< LOD	<b>2.00</b> (1.15-4.83)	<b>12.2</b> (4.13-39.7)	<b>29.6</b> (6.80-153)	292
	05-06	*	< LOD	<b>2.88</b> (1.04-6.25)	<b>8.77</b> (2.88-40.5)	<b>23.6</b> (6.86-74.8)	354
	07-08	*	< LOD	<b>2.11</b> (1.27-3.79)	<b>8.98</b> (4.76-14.8)	<b>16.4</b> (8.98-23.8)	390
	09-10	*	< LOD	<b>1.70</b> (1.21-3.02)	<b>9.52</b> (5.08-20.7)	<b>24.9</b> (9.81-50.7)	379
12-19 years	03-04	*	<b>.531</b> (.400-.638)	<b>2.14</b> (1.39-3.51)	<b>9.29</b> (4.29-14.7)	<b>17.3</b> (10.4-28.7)	728
	05-06	*	<b>.620</b> (<LOD-.800)	<b>2.82</b> (1.58-4.77)	<b>10.5</b> (7.03-13.7)	<b>15.4</b> (11.8-22.3)	703
	07-08	*	< LOD	<b>1.28</b> (.650-1.72)	<b>5.17</b> (2.31-6.53)	<b>9.88</b> (5.72-16.0)	366
	09-10	*	< LOD	<b>2.25</b> (1.17-3.76)	<b>8.69</b> (5.03-12.8)	<b>14.0</b> (9.82-15.5)	455
20 years and older	03-04	<b>1.79</b> (1.51-2.12)	<b>1.47</b> (1.15-1.88)	<b>5.91</b> (4.32-7.72)	<b>17.2</b> (13.4-21.8)	<b>30.1</b> (26.1-36.4)	1548
	05-06	<b>2.19</b> (1.70-2.82)	<b>2.13</b> (1.40-2.83)	<b>7.79</b> (5.38-10.2)	<b>24.4</b> (16.6-32.9)	<b>43.1</b> (30.5-71.4)	1531
	07-08	<b>1.55</b> (1.36-1.78)	<b>1.29</b> (1.13-1.52)	<b>5.27</b> (3.91-6.40)	<b>16.6</b> (12.2-21.6)	<b>33.4</b> (21.0-55.9)	1820
	09-10	<b>2.03</b> (1.70-2.42)	<b>1.52</b> (1.18-2.16)	<b>7.65</b> (6.04-10.4)	<b>27.7</b> (22.1-35.9)	<b>57.0</b> (39.7-71.9)	2035
<b>Gender</b>							
Males	03-04	<b>1.40</b> (1.18-1.67)	<b>1.11</b> (.909-1.28)	<b>4.78</b> (3.61-6.70)	<b>14.4</b> (11.1-18.5)	<b>26.5</b> (18.6-29.9)	1284
	05-06	<b>1.50</b> (1.15-1.96)	<b>1.25</b> (.800-1.93)	<b>5.11</b> (3.41-7.54)	<b>15.3</b> (11.2-20.8)	<b>30.5</b> (19.6-44.0)	1276
	07-08	*	<b>1.04</b> (.870-1.25)	<b>4.11</b> (3.16-5.30)	<b>14.9</b> (10.1-17.9)	<b>27.0</b> (17.8-49.2)	1289
	09-10	<b>1.56</b> (1.35-1.80)	<b>1.04</b> (.880-1.34)	<b>6.20</b> (4.34-7.79)	<b>23.4</b> (18.7-27.6)	<b>39.2</b> (32.0-54.8)	1401
Females	03-04	<b>1.68</b> (1.37-2.05)	<b>1.25</b> (.938-1.67)	<b>5.58</b> (3.50-7.43)	<b>17.2</b> (12.3-24.5)	<b>32.9</b> (25.6-46.3)	1284
	05-06	<b>2.20</b> (1.65-2.93)	<b>2.04</b> (1.30-2.92)	<b>7.86</b> (5.38-10.8)	<b>26.4</b> (16.6-35.6)	<b>46.2</b> (30.3-74.3)	1312
	07-08	*	<b>.980</b> (.800-1.18)	<b>4.06</b> (3.35-5.29)	<b>14.6</b> (11.1-17.8)	<b>29.6</b> (18.2-50.0)	1287
	09-10	<b>1.83</b> (1.48-2.26)	<b>1.36</b> (1.04-1.75)	<b>6.65</b> (4.68-9.21)	<b>24.1</b> (16.5-37.3)	<b>57.0</b> (36.3-71.3)	1468
<b>Race/ethnicity</b>							
Mexican Americans	03-04	<b>1.10</b> (.786-1.55)	<b>.877</b> (.612-1.40)	<b>2.93</b> (1.78-5.21)	<b>8.88</b> (5.50-15.4)	<b>19.0</b> (9.64-29.4)	621
	05-06	<b>1.35</b> (1.13-1.62)	<b>.970</b> (.810-1.19)	<b>4.21</b> (2.79-5.68)	<b>16.6</b> (10.5-21.3)	<b>36.9</b> (18.4-69.5)	651
	07-08	*	<b>.780</b> (<LOD-1.21)	<b>3.04</b> (1.99-5.09)	<b>13.7</b> (9.09-16.7)	<b>28.9</b> (16.2-46.7)	513
	09-10	*	<b>.790</b> (.670-.940)	<b>3.64</b> (2.28-4.41)	<b>13.5</b> (7.78-19.1)	<b>26.8</b> (16.5-42.0)	617
Non-Hispanic blacks	03-04	<b>1.65</b> (1.19-2.30)	<b>1.53</b> (.901-2.45)	<b>5.81</b> (4.25-7.82)	<b>13.6</b> (9.76-27.9)	<b>32.9</b> (13.4-82.1)	725
	05-06	<b>1.84</b> (1.20-2.83)	<b>1.71</b> (.910-2.95)	<b>6.07</b> (3.83-9.25)	<b>19.4</b> (10.4-45.2)	<b>47.5</b> (25.3-62.0)	695
	07-08	<b>1.16</b> (.955-1.41)	<b>.830</b> (.620-1.12)	<b>4.44</b> (3.23-6.58)	<b>14.9</b> (10.5-17.6)	<b>25.1</b> (17.4-40.0)	586
	09-10	<b>1.59</b> (1.29-1.96)	<b>1.30</b> (.850-2.04)	<b>5.92</b> (4.20-8.40)	<b>19.5</b> (13.5-27.1)	<b>37.9</b> (26.1-51.7)	545
Non-Hispanic whites	03-04	<b>1.44</b> (1.15-1.80)	<b>1.05</b> (.833-1.36)	<b>4.47</b> (2.73-6.83)	<b>14.3</b> (10.9-18.6)	<b>26.5</b> (18.6-32.0)	1078
	05-06	<b>1.81</b> (1.32-2.47)	<b>1.65</b> (.970-2.55)	<b>6.65</b> (3.95-9.34)	<b>19.7</b> (12.6-30.5)	<b>36.6</b> (25.1-71.4)	1050
	07-08	*	<b>.970</b> (<LOD-1.18)	<b>3.56</b> (2.93-4.53)	<b>11.6</b> (8.98-16.6)	<b>23.8</b> (15.5-41.7)	1063
	09-10	<b>1.60</b> (1.36-1.87)	<b>1.15</b> (.900-1.43)	<b>5.85</b> (4.33-7.65)	<b>22.8</b> (15.6-29.4)	<b>38.5</b> (32.0-57.0)	1226

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Arsenic\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Arsenic\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html)

## Urinary Arsenobetaine (creatinine corrected) (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg As/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	<b>5.63</b> (4.42-7.22)	<b>18.0</b> (13.8-26.1)	<b>36.9</b> (26.9-45.6)	2516
	13-14	*	< LOD	<b>4.91</b> (3.98-6.31)	<b>16.3</b> (12.7-21.2)	<b>38.7</b> (33.3-46.8)	2653
<b>Age group</b>							
6-11 years	11-12	*	< LOD	<b>4.35</b> (<LOD-6.46)	<b>16.0</b> (8.00-39.5)	<b>69.0</b> (16.0-102)	401
	13-14	*	< LOD	<b>3.57</b> (<LOD-5.38)	<b>9.00</b> (6.77-11.1)	<b>12.6</b> (10.1-28.6)	397
12-19 years	11-12	*	< LOD	<b>3.36</b> (<LOD-8.94)	<b>14.4</b> (5.56-23.8)	<b>25.9</b> (13.6-104)	392
	13-14	*	< LOD	<b>2.28</b> (<LOD-3.15)	<b>9.59</b> (4.56-16.5)	<b>19.7</b> (12.2-46.9)	450
20 years and older	11-12	*	< LOD	<b>6.25</b> (4.78-8.46)	<b>19.3</b> (14.0-28.4)	<b>35.8</b> (26.8-44.1)	1723
	13-14	*	< LOD	<b>5.63</b> (4.54-7.37)	<b>17.8</b> (14.2-25.2)	<b>44.9</b> (35.5-52.1)	1806
<b>Gender</b>							
Males	11-12	*	< LOD	<b>4.94</b> (3.50-6.67)	<b>16.7</b> (12.6-25.7)	<b>35.7</b> (23.4-52.8)	1263
	13-14	*	< LOD	<b>4.42</b> (3.42-5.97)	<b>14.5</b> (10.7-20.1)	<b>37.8</b> (24.1-47.7)	1307
Females	11-12	*	< LOD	<b>6.48</b> (4.79-8.60)	<b>18.8</b> (15.4-28.1)	<b>37.0</b> (26.2-46.8)	1253
	13-14	*	< LOD	<b>5.39</b> (4.56-7.07)	<b>17.8</b> (13.8-25.8)	<b>41.3</b> (33.3-53.2)	1346
<b>Race/ethnicity</b>							
Mexican Americans	11-12	*	< LOD	<b>3.87</b> (2.80-5.76)	<b>12.6</b> (8.36-22.6)	<b>25.9</b> (13.4-40.3)	317
	13-14	*	< LOD	<b>2.93</b> (<LOD-4.10)	<b>7.28</b> (4.10-14.4)	<b>16.6</b> (6.84-41.5)	455
Non-Hispanic blacks	11-12	*	<b>1.50</b> (<LOD-2.18)	<b>6.00</b> (2.63-12.4)	<b>20.3</b> (12.8-30.0)	<b>38.7</b> (22.6-78.2)	672
	13-14	*	<b>1.30</b> (<LOD-1.56)	<b>4.39</b> (3.28-6.05)	<b>13.7</b> (10.4-19.3)	<b>29.2</b> (16.8-60.0)	576
Non-Hispanic whites	11-12	*	< LOD	<b>5.00</b> (4.06-7.55)	<b>16.8</b> (12.7-28.7)	<b>35.7</b> (21.0-45.6)	824
	13-14	*	< LOD	<b>5.08</b> (3.73-7.46)	<b>16.4</b> (11.9-24.4)	<b>39.2</b> (29.3-47.7)	979
All Hispanics	11-12	*	< LOD	<b>4.00</b> (3.48-4.75)	<b>13.5</b> (9.17-17.1)	<b>24.9</b> (16.6-30.9)	574
	13-14	*	< LOD	<b>3.28</b> (2.56-4.24)	<b>7.95</b> (5.80-13.7)	<b>17.2</b> (9.76-29.2)	703
Asians	11-12	<b>6.90</b> (5.54-8.60)	<b>6.02</b> (4.78-7.88)	<b>21.5</b> (14.0-30.7)	<b>60.4</b> (42.8-82.0)	<b>95.7</b> (75.6-120)	356
	13-14	<b>5.83</b> (4.56-7.44)	<b>4.08</b> (3.42-6.68)	<b>17.4</b> (12.3-28.7)	<b>71.3</b> (46.4-81.5)	<b>89.3</b> (80.4-159)	291

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Arsenic\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Arsenic\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html)

## Urinary Arsenocholine (2003 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg As/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2568
	05-06	*	< LOD	< LOD	< LOD	< LOD	2588
	07-08	*	< LOD	< LOD	< LOD	< LOD	2576
	09-10	*	< LOD	< LOD	< LOD	< LOD	2871
<b>Age group</b>							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	292
	05-06	*	< LOD	< LOD	< LOD	< LOD	354
	07-08	*	< LOD	< LOD	< LOD	< LOD	390
	09-10	*	< LOD	< LOD	< LOD	< LOD	380
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	728
	05-06	*	< LOD	< LOD	< LOD	< LOD	703
	07-08	*	< LOD	< LOD	< LOD	< LOD	366
	09-10	*	< LOD	< LOD	< LOD	< LOD	456
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1548
	05-06	*	< LOD	< LOD	< LOD	< LOD	1531
	07-08	*	< LOD	< LOD	< LOD	< LOD	1820
	09-10	*	< LOD	< LOD	< LOD	< LOD	2035
<b>Gender</b>							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1284
	05-06	*	< LOD	< LOD	< LOD	< LOD	1276
	07-08	*	< LOD	< LOD	< LOD	< LOD	1289
	09-10	*	< LOD	< LOD	< LOD	< LOD	1403
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1284
	05-06	*	< LOD	< LOD	< LOD	< LOD	1312
	07-08	*	< LOD	< LOD	< LOD	< LOD	1287
	09-10	*	< LOD	< LOD	< LOD	< LOD	1468
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	621
	05-06	*	< LOD	< LOD	< LOD	< LOD	651
	07-08	*	< LOD	< LOD	< LOD	< LOD	513
	09-10	*	< LOD	< LOD	< LOD	< LOD	618
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	725
	05-06	*	< LOD	< LOD	< LOD	< LOD	695
	07-08	*	< LOD	< LOD	< LOD	< LOD	586
	09-10	*	< LOD	< LOD	< LOD	< LOD	546
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1078
	05-06	*	< LOD	< LOD	< LOD	< LOD	1050
	07-08	*	< LOD	< LOD	< LOD	< LOD	1063
	09-10	*	< LOD	< LOD	< LOD	< LOD	1226

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08 and 09-10 are 0.6, 0.6, 0.6, and 0.6 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Arsenic\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Arsenic\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html)

## Urinary Arsenocholine (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg As/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2517
	13-14	*	< LOD	< LOD	.200 (.140-.250)	.320 (.290-.350)	2654
<b>Age group</b>							
6-11 years	11-12	*	< LOD	< LOD	< LOD	< LOD	401
	13-14	*	< LOD	< LOD	< LOD	.260 (<LOD-.750)	397
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	392
	13-14	*	< LOD	< LOD	.160 (<LOD-.260)	.260 (.140-.370)	450
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	1724
	13-14	*	< LOD	< LOD	.210 (.150-.260)	.330 (.290-.370)	1807
<b>Gender</b>							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	1264
	13-14	*	< LOD	< LOD	.220 (.130-.290)	.340 (.290-.380)	1308
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1253
	13-14	*	< LOD	< LOD	.180 (.110-.230)	.290 (.220-.360)	1346
<b>Race/ethnicity</b>							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	317
	13-14	*	< LOD	< LOD	.180 (<LOD-.260)	.320 (.220-.390)	455
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	672
	13-14	*	< LOD	< LOD	.260 (.200-.310)	.370 (.310-.410)	576
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	825
	13-14	*	< LOD	< LOD	.160 (<LOD-.250)	.280 (.200-.360)	980
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	574
	13-14	*	< LOD	< LOD	.180 (<LOD-.270)	.330 (.250-.390)	703
Asians	11-12	*	< LOD	< LOD	.310 (<LOD-.450)	.560 (.370-.930)	356
	13-14	*	< LOD	.130 (<LOD-.230)	.430 (.340-.570)	.860 (.480-1.83)	291

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.28 and 0.11.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Arsenic\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Arsenic\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html)

## Urinary Arsenocholine (creatinine corrected) (2003 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg As/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2568
	05-06	*	< LOD	< LOD	< LOD	< LOD	2588
	07-08	*	< LOD	< LOD	< LOD	< LOD	2576
	09-10	*	< LOD	< LOD	< LOD	< LOD	2870
<b>Age group</b>							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	292
	05-06	*	< LOD	< LOD	< LOD	< LOD	354
	07-08	*	< LOD	< LOD	< LOD	< LOD	390
	09-10	*	< LOD	< LOD	< LOD	< LOD	379
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	728
	05-06	*	< LOD	< LOD	< LOD	< LOD	703
	07-08	*	< LOD	< LOD	< LOD	< LOD	366
	09-10	*	< LOD	< LOD	< LOD	< LOD	456
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1548
	05-06	*	< LOD	< LOD	< LOD	< LOD	1531
	07-08	*	< LOD	< LOD	< LOD	< LOD	1820
	09-10	*	< LOD	< LOD	< LOD	< LOD	2035
<b>Gender</b>							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1284
	05-06	*	< LOD	< LOD	< LOD	< LOD	1276
	07-08	*	< LOD	< LOD	< LOD	< LOD	1289
	09-10	*	< LOD	< LOD	< LOD	< LOD	1402
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1284
	05-06	*	< LOD	< LOD	< LOD	< LOD	1312
	07-08	*	< LOD	< LOD	< LOD	< LOD	1287
	09-10	*	< LOD	< LOD	< LOD	< LOD	1468
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	621
	05-06	*	< LOD	< LOD	< LOD	< LOD	651
	07-08	*	< LOD	< LOD	< LOD	< LOD	513
	09-10	*	< LOD	< LOD	< LOD	< LOD	618
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	725
	05-06	*	< LOD	< LOD	< LOD	< LOD	695
	07-08	*	< LOD	< LOD	< LOD	< LOD	586
	09-10	*	< LOD	< LOD	< LOD	< LOD	545
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1078
	05-06	*	< LOD	< LOD	< LOD	< LOD	1050
	07-08	*	< LOD	< LOD	< LOD	< LOD	1063
	09-10	*	< LOD	< LOD	< LOD	< LOD	1226

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Arsenic\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Arsenic\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html)

## Urinary Arsenocholine (creatinine corrected) (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg As/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2516
	13-14	*	< LOD	< LOD	.333 (.296-.381)	.533 (.444-.615)	2653
<b>Age group</b>							
6-11 years	11-12	*	< LOD	< LOD	< LOD	< LOD	401
	13-14	*	< LOD	< LOD	< LOD	.533 (<LOD-.974)	397
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	392
	13-14	*	< LOD	< LOD	.229 (<LOD-.276)	.308 (.250-.348)	450
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	1723
	13-14	*	< LOD	< LOD	.351 (.314-.400)	.571 (.471-.667)	1806
<b>Gender</b>							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	1263
	13-14	*	< LOD	< LOD	.276 (.250-.320)	.526 (.338-.603)	1307
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1253
	13-14	*	< LOD	< LOD	.381 (.333-.444)	.533 (.471-.667)	1346
<b>Race/ethnicity</b>							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	317
	13-14	*	< LOD	< LOD	.276 (<LOD-.308)	.348 (.286-.490)	455
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	672
	13-14	*	< LOD	< LOD	.235 (.190-.259)	.316 (.259-.364)	576
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	824
	13-14	*	< LOD	< LOD	.364 (<LOD-.444)	.571 (.444-.667)	979
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	574
	13-14	*	< LOD	< LOD	.283 (<LOD-.320)	.364 (.308-.444)	703
Asians	11-12	*	< LOD	< LOD	.952 (<LOD-1.33)	1.43 (.952-2.00)	356
	13-14	*	< LOD	.333 (<LOD-.421)	.727 (.485-1.14)	1.25 (.800-4.25)	291

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Arsenic\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Arsenic\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html)

## Urinary Arsenous (III) acid (2003 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg As/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2568
	05-06	*	< LOD	< LOD	< LOD	< LOD	2588
	07-08	*	< LOD	< LOD	< LOD	< LOD	2576
	09-10	*	< LOD	< LOD	< LOD	< LOD	2871
<b>Age group</b>							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	292
	05-06	*	< LOD	< LOD	< LOD	< LOD	354
	07-08	*	< LOD	< LOD	< LOD	< LOD	390
	09-10	*	< LOD	< LOD	< LOD	< LOD	380
12-19 years	03-04	*	< LOD	< LOD	< LOD	1.40 (<LOD-1.70)	728
	05-06	*	< LOD	< LOD	< LOD	1.20 (<LOD-1.40)	703
	07-08	*	< LOD	< LOD	< LOD	< LOD	366
	09-10	*	< LOD	< LOD	< LOD	< LOD	456
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1548
	05-06	*	< LOD	< LOD	< LOD	< LOD	1531
	07-08	*	< LOD	< LOD	< LOD	< LOD	1820
	09-10	*	< LOD	< LOD	< LOD	< LOD	2035
<b>Gender</b>							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1284
	05-06	*	< LOD	< LOD	< LOD	1.26 (<LOD-1.73)	1276
	07-08	*	< LOD	< LOD	< LOD	< LOD	1289
	09-10	*	< LOD	< LOD	< LOD	1.24 (<LOD-1.50)	1403
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1284
	05-06	*	< LOD	< LOD	< LOD	< LOD	1312
	07-08	*	< LOD	< LOD	< LOD	< LOD	1287
	09-10	*	< LOD	< LOD	< LOD	< LOD	1468
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	2.00 (<LOD-3.00)	621
	05-06	*	< LOD	< LOD	< LOD	< LOD	651
	07-08	*	< LOD	< LOD	< LOD	1.20 (<LOD-1.76)	513
	09-10	*	< LOD	< LOD	< LOD	< LOD	618
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	1.20 (<LOD-1.80)	725
	05-06	*	< LOD	< LOD	< LOD	< LOD	695
	07-08	*	< LOD	< LOD	< LOD	< LOD	586
	09-10	*	< LOD	< LOD	< LOD	< LOD	546
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1078
	05-06	*	< LOD	< LOD	< LOD	< LOD	1050
	07-08	*	< LOD	< LOD	< LOD	< LOD	1063
	09-10	*	< LOD	< LOD	< LOD	< LOD	1226

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08 and 09-10 are 1.2, 1.2, 1.2, and 1.2 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Arsenic\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Arsenic\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html)



## Urinary Arsenous (III) acid (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg As/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	.520 (<LOD-.600)	.840 (.760-.960)	1.11 (.980-1.27)	2517
	13-14	.316 (.275-.365)	.470 (.360-.560)	.730 (.660-.810)	1.00 (.930-1.07)	1.19 (1.12-1.29)	2654
<b>Age group</b>							
6-11 years	11-12	*	< LOD	.540 (<LOD-.660)	.870 (.710-1.00)	1.03 (.820-1.22)	401
	13-14	.360 (.278-.466)	.540 (.370-.630)	.810 (.680-.880)	1.05 (.930-1.13)	1.22 (1.07-1.32)	397
12-19 years	11-12	*	< LOD	.610 (.480-.720)	.920 (.810-1.14)	1.18 (.980-1.43)	392
	13-14	.429 (.358-.515)	.570 (.490-.630)	.830 (.730-.930)	1.12 (1.00-1.28)	1.35 (1.13-1.57)	450
20 years and older	11-12	*	< LOD	.500 (<LOD-.570)	.830 (.750-.940)	1.11 (.980-1.27)	1724
	13-14	.299 (.258-.346)	.430 (.300-.540)	.720 (.650-.790)	.970 (.890-1.07)	1.16 (1.08-1.27)	1807
<b>Gender</b>							
Males	11-12	*	< LOD	.600 (.520-.680)	.980 (.840-1.13)	1.31 (1.11-1.59)	1264
	13-14	.365 (.306-.436)	.540 (.420-.630)	.800 (.710-.890)	1.04 (.970-1.12)	1.21 (1.14-1.35)	1308
Females	11-12	*	< LOD	< LOD	.760 (.600-.840)	.940 (.810-1.07)	1253
	13-14	.276 (.241-.315)	.400 (.260-.490)	.660 (.600-.730)	.940 (.850-1.04)	1.13 (1.05-1.28)	1346
<b>Race/ethnicity</b>							
Mexican Americans	11-12	*	< LOD	.570 (.490-.660)	.830 (.770-1.03)	1.14 (.880-1.37)	317
	13-14	.416 (.351-.494)	.580 (.460-.700)	.870 (.750-.990)	1.08 (1.03-1.18)	1.29 (1.17-1.47)	455
Non-Hispanic blacks	11-12	*	< LOD	.520 (<LOD-.680)	.880 (.700-1.10)	1.21 (.980-1.57)	672
	13-14	.416 (.378-.458)	.550 (.490-.600)	.840 (.730-.900)	1.12 (1.00-1.20)	1.33 (1.18-1.46)	576
Non-Hispanic whites	11-12	*	< LOD	< LOD	.800 (.640-.900)	1.03 (.830-1.18)	825
	13-14	.267 (.225-.316)	.380 (.170-.520)	.670 (.600-.730)	.900 (.820-.950)	1.05 (.940-1.21)	980
All Hispanics	11-12	*	< LOD	.620 (.510-.760)	.910 (.820-1.07)	1.29 (1.07-1.43)	574
	13-14	.423 (.358-.501)	.580 (.460-.700)	.880 (.790-.980)	1.11 (1.06-1.18)	1.35 (1.20-1.40)	703
Asians	11-12	*	.510 (<LOD-.610)	.900 (.740-.990)	1.32 (1.10-1.63)	1.79 (1.53-2.31)	356
	13-14	.456 (.393-.528)	.600 (.500-.680)	.900 (.790-1.09)	1.34 (1.15-1.56)	1.66 (1.37-2.14)	291

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.48 and 0.12.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Arsenic\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Arsenic\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html)

## Urinary Arsenous (III) acid (creatinine corrected) (2003 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg As/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2568
	05-06	*	< LOD	< LOD	< LOD	< LOD	2588
	07-08	*	< LOD	< LOD	< LOD	< LOD	2576
	09-10	*	< LOD	< LOD	< LOD	< LOD	2870
<b>Age group</b>							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	292
	05-06	*	< LOD	< LOD	< LOD	< LOD	354
	07-08	*	< LOD	< LOD	< LOD	< LOD	390
	09-10	*	< LOD	< LOD	< LOD	< LOD	379
12-19 years	03-04	*	< LOD	< LOD	< LOD	1.95 (<LOD-2.76)	728
	05-06	*	< LOD	< LOD	< LOD	2.02 (<LOD-3.04)	703
	07-08	*	< LOD	< LOD	< LOD	< LOD	366
	09-10	*	< LOD	< LOD	< LOD	< LOD	456
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1548
	05-06	*	< LOD	< LOD	< LOD	< LOD	1531
	07-08	*	< LOD	< LOD	< LOD	< LOD	1820
	09-10	*	< LOD	< LOD	< LOD	< LOD	2035
<b>Gender</b>							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1284
	05-06	*	< LOD	< LOD	< LOD	2.43 (<LOD-3.15)	1276
	07-08	*	< LOD	< LOD	< LOD	< LOD	1289
	09-10	*	< LOD	< LOD	< LOD	2.93 (<LOD-3.54)	1402
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1284
	05-06	*	< LOD	< LOD	< LOD	< LOD	1312
	07-08	*	< LOD	< LOD	< LOD	< LOD	1287
	09-10	*	< LOD	< LOD	< LOD	< LOD	1468
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	3.08 (<LOD-4.44)	621
	05-06	*	< LOD	< LOD	< LOD	< LOD	651
	07-08	*	< LOD	< LOD	< LOD	3.54 (<LOD-4.72)	513
	09-10	*	< LOD	< LOD	< LOD	< LOD	618
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	2.00 (<LOD-2.29)	725
	05-06	*	< LOD	< LOD	< LOD	< LOD	695
	07-08	*	< LOD	< LOD	< LOD	< LOD	586
	09-10	*	< LOD	< LOD	< LOD	< LOD	545
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1078
	05-06	*	< LOD	< LOD	< LOD	< LOD	1050
	07-08	*	< LOD	< LOD	< LOD	< LOD	1063
	09-10	*	< LOD	< LOD	< LOD	< LOD	1226

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Arsenic\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Arsenic\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html)

## Urinary Arsenous (III) acid (creatinine corrected) (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg As/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	.791 (<LOD-.850)	1.35 (1.21-1.42)	1.79 (1.55-1.89)	2516
	13-14	.365 (.311-.427)	.387 (.320-.460)	.715 (.612-.851)	1.23 (1.05-1.39)	1.62 (1.38-1.85)	2653
<b>Age group</b>							
6-11 years	11-12	*	< LOD	1.03 (<LOD-1.13)	1.54 (1.26-1.79)	2.00 (1.55-2.62)	401
	13-14	.541 (.415-.706)	.578 (.451-.711)	1.03 (.764-1.40)	1.70 (1.22-1.98)	1.94 (1.60-2.92)	397
12-19 years	11-12	*	< LOD	.709 (.607-.850)	1.11 (.971-1.31)	1.36 (1.03-2.50)	392
	13-14	.389 (.335-.452)	.390 (.321-.497)	.683 (.536-.862)	1.03 (.866-1.37)	1.43 (1.04-1.77)	450
20 years and older	11-12	*	< LOD	.773 (<LOD-.850)	1.36 (1.19-1.48)	1.79 (1.55-1.95)	1723
	13-14	.347 (.296-.407)	.366 (.303-.444)	.691 (.592-.832)	1.21 (1.00-1.37)	1.56 (1.36-1.82)	1806
<b>Gender</b>							
Males	11-12	*	< LOD	.708 (.645-.756)	1.12 (.981-1.25)	1.48 (1.28-1.70)	1263
	13-14	.366 (.306-.436)	.388 (.311-.475)	.702 (.592-.825)	1.23 (.942-1.40)	1.59 (1.33-1.86)	1307
Females	11-12	*	< LOD	< LOD	1.42 (1.36-1.62)	1.89 (1.70-2.27)	1253
	13-14	.364 (.311-.426)	.387 (.320-.459)	.727 (.616-.889)	1.24 (1.05-1.42)	1.65 (1.40-1.91)	1346
<b>Race/ethnicity</b>							
Mexican Americans	11-12	*	< LOD	.723 (.630-.850)	1.13 (.919-1.42)	1.55 (1.13-2.20)	317
	13-14	.475 (.386-.584)	.471 (.394-.634)	.843 (.692-1.11)	1.50 (1.19-1.79)	1.85 (1.67-2.07)	455
Non-Hispanic blacks	11-12	*	< LOD	.514 (<LOD-.586)	.919 (.739-1.06)	1.22 (.971-1.64)	672
	13-14	.314 (.272-.362)	.328 (.285-.398)	.577 (.483-.673)	.878 (.782-.957)	1.05 (.957-1.24)	576
Non-Hispanic whites	11-12	*	< LOD	< LOD	1.36 (1.21-1.48)	1.79 (1.51-2.00)	824
	13-14	.329 (.275-.393)	.351 (.278-.433)	.653 (.553-.793)	1.17 (.900-1.37)	1.49 (1.30-1.72)	979
All Hispanics	11-12	*	< LOD	.762 (.704-.833)	1.21 (1.00-1.48)	1.55 (1.34-1.95)	574
	13-14	.472 (.388-.575)	.482 (.392-.638)	.851 (.718-1.05)	1.41 (1.13-1.74)	1.84 (1.65-2.06)	703
Asians	11-12	*	.739 (<LOD-.850)	1.21 (1.06-1.45)	1.96 (1.62-2.43)	2.91 (2.00-3.64)	356
	13-14	.709 (.590-.854)	.779 (.596-.938)	1.22 (1.08-1.33)	1.98 (1.48-3.00)	3.04 (1.98-4.15)	291

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Arsenic\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Arsenic\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html)

## Urinary Dimethylarsinic acid (2003 – 2010)

Metabolite of Arsenic

Geometric mean and selected percentiles of urine concentrations (in µg As/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	<b>3.71</b> (3.33-4.14)	<b>3.90</b> (3.00-4.00)	<b>6.00</b> (5.00-7.00)	<b>11.0</b> (9.20-12.0)	<b>16.0</b> (13.0-17.8)	2568
	05-06	<b>3.95</b> (3.59-4.35)	<b>3.90</b> (3.46-4.31)	<b>6.17</b> (5.53-7.04)	<b>10.3</b> (9.00-12.2)	<b>15.0</b> (12.2-17.8)	2588
	07-08	<b>3.67</b> (3.44-3.91)	<b>3.58</b> (3.44-3.84)	<b>5.96</b> (5.44-6.57)	<b>9.78</b> (8.72-11.2)	<b>13.3</b> (11.8-15.3)	2576
	09-10	<b>3.67</b> (3.43-3.93)	<b>3.50</b> (3.25-3.76)	<b>6.16</b> (5.59-6.73)	<b>11.5</b> (9.35-13.7)	<b>17.4</b> (14.0-21.0)	2871
<b>Age group</b>							
6-11 years	03-04	<b>3.73</b> (3.12-4.45)	<b>4.00</b> (3.00-4.00)	<b>6.00</b> (5.00-7.00)	<b>9.00</b> (7.00-12.0)	<b>12.0</b> (8.00-22.0)	292
	05-06	<b>3.96</b> (3.49-4.49)	<b>3.94</b> (3.20-4.71)	<b>5.94</b> (5.01-7.10)	<b>10.5</b> (7.10-12.1)	<b>13.0</b> (10.7-15.3)	354
	07-08	<b>3.86</b> (3.45-4.32)	<b>3.76</b> (3.47-4.01)	<b>6.10</b> (5.29-6.99)	<b>10.4</b> (7.57-13.9)	<b>15.2</b> (9.32-39.2)	390
	09-10	<b>3.53</b> (3.17-3.92)	<b>3.27</b> (2.81-3.87)	<b>5.76</b> (5.07-6.53)	<b>10.7</b> (7.84-11.9)	<b>12.8</b> (11.0-14.4)	380
12-19 years	03-04	<b>3.85</b> (3.34-4.42)	<b>4.00</b> (3.00-4.00)	<b>6.00</b> (5.00-7.10)	<b>9.30</b> (7.70-12.0)	<b>13.0</b> (10.0-16.0)	728
	05-06	<b>3.97</b> (3.46-4.55)	<b>3.97</b> (3.31-4.64)	<b>5.74</b> (5.11-7.10)	<b>9.43</b> (7.63-11.6)	<b>12.0</b> (10.7-13.9)	703
	07-08	<b>3.60</b> (3.16-4.09)	<b>3.66</b> (3.24-4.26)	<b>5.53</b> (4.75-6.72)	<b>8.90</b> (7.33-9.95)	<b>10.7</b> (9.08-13.3)	366
	09-10	<b>3.08</b> (2.77-3.43)	<b>2.89</b> (2.64-3.29)	<b>5.05</b> (4.44-5.77)	<b>7.89</b> (6.87-10.1)	<b>11.3</b> (8.75-13.8)	456
20 years and older	03-04	<b>3.69</b> (3.31-4.11)	<b>3.70</b> (3.00-4.00)	<b>6.00</b> (5.00-7.00)	<b>11.0</b> (10.0-12.0)	<b>16.0</b> (13.0-19.0)	1548
	05-06	<b>3.95</b> (3.58-4.36)	<b>3.87</b> (3.46-4.32)	<b>6.30</b> (5.59-7.28)	<b>10.3</b> (9.25-13.3)	<b>16.2</b> (12.5-19.4)	1531
	07-08	<b>3.66</b> (3.43-3.91)	<b>3.56</b> (3.41-3.80)	<b>5.97</b> (5.44-6.63)	<b>9.89</b> (8.72-11.4)	<b>13.8</b> (11.8-15.5)	1820
	09-10	<b>3.79</b> (3.51-4.09)	<b>3.60</b> (3.33-3.87)	<b>6.40</b> (5.71-7.03)	<b>12.1</b> (9.52-16.0)	<b>18.2</b> (15.8-23.6)	2035
<b>Gender</b>							
Males	03-04	<b>4.12</b> (3.60-4.71)	<b>4.00</b> (3.70-4.30)	<b>6.00</b> (5.60-7.70)	<b>11.0</b> (9.00-15.0)	<b>17.0</b> (12.1-22.0)	1284
	05-06	<b>4.17</b> (3.79-4.59)	<b>4.04</b> (3.68-4.43)	<b>6.32</b> (5.41-7.61)	<b>10.5</b> (8.68-13.3)	<b>14.8</b> (11.8-19.2)	1276
	07-08	<b>4.05</b> (3.73-4.40)	<b>3.96</b> (3.63-4.27)	<b>6.53</b> (5.77-7.15)	<b>10.3</b> (9.31-12.0)	<b>14.6</b> (11.6-20.2)	1289
	09-10	<b>3.89</b> (3.50-4.32)	<b>3.71</b> (3.35-4.11)	<b>6.33</b> (5.80-7.02)	<b>11.6</b> (8.80-17.3)	<b>19.2</b> (13.0-24.7)	1403
Females	03-04	<b>3.37</b> (3.00-3.78)	<b>3.00</b> (3.00-4.00)	<b>5.50</b> (4.80-6.20)	<b>10.0</b> (8.00-11.0)	<b>14.0</b> (11.0-17.7)	1284
	05-06	<b>3.75</b> (3.37-4.18)	<b>3.70</b> (3.28-4.21)	<b>6.03</b> (5.46-6.99)	<b>9.95</b> (8.81-12.2)	<b>15.5</b> (11.6-19.0)	1312
	07-08	<b>3.34</b> (3.13-3.57)	<b>3.37</b> (3.15-3.53)	<b>5.48</b> (5.00-6.05)	<b>8.99</b> (7.97-10.4)	<b>11.9</b> (10.7-13.9)	1287
	09-10	<b>3.48</b> (3.22-3.76)	<b>3.28</b> (2.95-3.63)	<b>5.85</b> (5.21-6.69)	<b>11.5</b> (9.42-13.3)	<b>16.1</b> (13.8-17.7)	1468
<b>Race/ethnicity</b>							
Mexican Americans	03-04	<b>4.72</b> (4.27-5.22)	<b>4.80</b> (4.00-5.00)	<b>7.00</b> (6.00-9.00)	<b>12.0</b> (10.0-16.0)	<b>17.0</b> (12.0-25.0)	621
	05-06	<b>4.43</b> (4.15-4.72)	<b>4.66</b> (4.26-5.13)	<b>6.93</b> (6.38-7.58)	<b>9.51</b> (8.70-11.1)	<b>13.1</b> (10.3-15.1)	651
	07-08	<b>4.36</b> (4.05-4.69)	<b>4.62</b> (4.07-5.07)	<b>7.14</b> (6.23-7.76)	<b>9.67</b> (8.39-10.8)	<b>11.7</b> (9.96-17.6)	513
	09-10	<b>3.90</b> (3.45-4.40)	<b>3.98</b> (3.18-4.63)	<b>6.53</b> (5.61-7.15)	<b>10.7</b> (8.95-13.2)	<b>16.2</b> (13.1-19.2)	618
Non-Hispanic blacks	03-04	<b>4.27</b> (3.71-4.92)	<b>4.00</b> (3.50-5.00)	<b>7.00</b> (6.00-8.00)	<b>11.6</b> (9.00-15.0)	<b>16.0</b> (14.0-18.7)	725
	05-06	<b>4.28</b> (3.68-4.98)	<b>4.02</b> (3.37-4.82)	<b>6.42</b> (5.31-7.36)	<b>10.9</b> (8.22-13.1)	<b>15.2</b> (11.5-27.1)	695
	07-08	<b>4.19</b> (3.92-4.49)	<b>3.98</b> (3.63-4.27)	<b>6.69</b> (5.80-7.43)	<b>11.2</b> (10.1-12.5)	<b>14.7</b> (12.1-19.2)	586
	09-10	<b>4.09</b> (3.63-4.61)	<b>3.93</b> (3.31-4.36)	<b>7.13</b> (5.99-8.63)	<b>12.3</b> (10.1-17.0)	<b>18.2</b> (13.7-27.8)	546
Non-Hispanic whites	03-04	<b>3.27</b> (2.95-3.62)	<b>3.00</b> (3.00-3.80)	<b>5.00</b> (4.60-6.00)	<b>9.00</b> (7.00-10.0)	<b>12.0</b> (9.50-15.0)	1078
	05-06	<b>3.69</b> (3.28-4.15)	<b>3.60</b> (3.19-4.08)	<b>5.66</b> (5.10-6.70)	<b>9.62</b> (8.11-11.8)	<b>13.9</b> (10.6-17.8)	1050
	07-08	<b>3.23</b> (3.01-3.48)	<b>3.34</b> (3.04-3.53)	<b>5.14</b> (4.77-5.59)	<b>8.27</b> (7.48-9.07)	<b>10.5</b> (9.25-13.2)	1063
	09-10	<b>3.21</b> (3.07-3.37)	<b>3.12</b> (2.91-3.29)	<b>5.32</b> (5.00-5.66)	<b>8.65</b> (7.23-10.1)	<b>12.0</b> (10.1-14.4)	1226

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08 and 09-10 are 1.7, 1.7, 1.7, and 1.7 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Arsenic\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Arsenic\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html)

## Urinary Dimethylarsinic acid (2011 - 2014)

*Metabolite of Arsenic*

Geometric mean and selected percentiles of urine concentrations (in µg As/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>3.47</b> (3.18-3.78)	<b>3.37</b> (3.06-3.66)	<b>5.81</b> (5.14-6.59)	<b>9.55</b> (8.43-11.2)	<b>14.0</b> (11.4-16.5)	2517
	13-14	<b>3.20</b> (2.97-3.44)	<b>3.08</b> (2.73-3.41)	<b>5.15</b> (4.68-5.69)	<b>8.60</b> (8.02-9.25)	<b>11.8</b> (10.6-13.5)	2654
<b>Age group</b>							
6-11 years	11-12	<b>3.43</b> (3.06-3.85)	<b>3.53</b> (2.81-4.05)	<b>5.81</b> (5.21-6.38)	<b>8.60</b> (7.55-9.73)	<b>11.4</b> (9.35-13.7)	401
	13-14	<b>3.33</b> (2.95-3.75)	<b>3.12</b> (2.68-3.56)	<b>5.27</b> (4.31-6.14)	<b>8.69</b> (7.44-10.8)	<b>11.8</b> (8.62-18.5)	397
12-19 years	11-12	<b>3.27</b> (2.71-3.94)	<b>3.33</b> (2.49-4.20)	<b>5.02</b> (4.33-6.05)	<b>8.53</b> (6.29-11.1)	<b>11.6</b> (8.74-17.9)	392
	13-14	<b>3.30</b> (2.99-3.63)	<b>3.24</b> (2.86-3.66)	<b>4.95</b> (4.53-5.66)	<b>9.02</b> (6.97-10.6)	<b>11.4</b> (10.0-13.1)	450
20 years and older	11-12	<b>3.51</b> (3.22-3.82)	<b>3.37</b> (3.05-3.67)	<b>5.91</b> (5.20-6.83)	<b>9.94</b> (8.57-11.5)	<b>14.1</b> (12.2-16.4)	1724
	13-14	<b>3.17</b> (2.93-3.43)	<b>3.02</b> (2.66-3.41)	<b>5.18</b> (4.68-5.78)	<b>8.53</b> (7.82-9.21)	<b>11.7</b> (10.3-14.2)	1807
<b>Gender</b>							
Males	11-12	<b>3.79</b> (3.40-4.23)	<b>3.71</b> (3.33-4.29)	<b>6.27</b> (5.36-7.61)	<b>10.3</b> (8.75-12.5)	<b>15.3</b> (12.5-16.7)	1264
	13-14	<b>3.31</b> (3.12-3.51)	<b>3.25</b> (3.02-3.56)	<b>5.34</b> (5.03-5.61)	<b>8.56</b> (8.11-9.30)	<b>11.6</b> (10.3-12.8)	1308
Females	11-12	<b>3.19</b> (2.92-3.48)	<b>3.01</b> (2.73-3.30)	<b>5.30</b> (4.61-5.96)	<b>8.96</b> (7.72-10.5)	<b>12.2</b> (9.56-17.8)	1253
	13-14	<b>3.09</b> (2.81-3.40)	<b>2.81</b> (2.53-3.23)	<b>4.85</b> (4.27-5.82)	<b>8.60</b> (7.56-9.54)	<b>11.9</b> (10.6-14.6)	1346
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>3.67</b> (3.33-4.04)	<b>3.58</b> (3.27-4.18)	<b>5.82</b> (5.24-6.47)	<b>9.05</b> (7.91-10.0)	<b>12.1</b> (9.61-17.4)	317
	13-14	<b>3.32</b> (3.10-3.54)	<b>3.45</b> (2.94-3.84)	<b>5.19</b> (4.79-5.75)	<b>7.74</b> (7.22-8.45)	<b>9.94</b> (8.21-12.7)	455
Non-Hispanic blacks	11-12	<b>4.05</b> (3.46-4.74)	<b>4.05</b> (3.35-4.65)	<b>6.78</b> (5.46-8.21)	<b>12.0</b> (10.0-14.2)	<b>17.4</b> (14.2-19.8)	672
	13-14	<b>3.83</b> (3.35-4.39)	<b>3.62</b> (3.21-4.05)	<b>5.84</b> (4.60-7.84)	<b>10.2</b> (8.42-13.2)	<b>15.7</b> (10.9-20.7)	576
Non-Hispanic whites	11-12	<b>3.06</b> (2.82-3.33)	<b>2.97</b> (2.72-3.29)	<b>4.95</b> (4.39-5.77)	<b>7.98</b> (6.92-9.02)	<b>10.5</b> (8.71-13.0)	825
	13-14	<b>2.86</b> (2.59-3.15)	<b>2.69</b> (2.29-3.10)	<b>4.56</b> (3.96-5.21)	<b>7.52</b> (6.61-8.52)	<b>9.62</b> (8.53-11.3)	980
All Hispanics	11-12	<b>4.02</b> (3.45-4.69)	<b>3.96</b> (3.33-4.68)	<b>6.73</b> (5.49-8.39)	<b>11.1</b> (8.53-16.6)	<b>16.8</b> (12.1-19.7)	574
	13-14	<b>3.54</b> (3.16-3.97)	<b>3.61</b> (3.07-4.11)	<b>5.63</b> (5.01-6.88)	<b>9.09</b> (7.80-10.3)	<b>11.8</b> (9.98-12.9)	703
Asians	11-12	<b>7.38</b> (6.50-8.37)	<b>7.52</b> (6.45-8.74)	<b>14.4</b> (11.7-17.2)	<b>24.7</b> (20.3-31.3)	<b>38.6</b> (28.5-40.5)	356
	13-14	<b>5.59</b> (5.13-6.09)	<b>5.62</b> (5.08-6.53)	<b>11.3</b> (9.01-12.4)	<b>19.9</b> (15.6-22.1)	<b>23.6</b> (19.7-34.6)	291

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 1.8 and 1.91.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Arsenic\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Arsenic\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html)

## Urinary Dimethylarsinic acid (creatinine corrected) (2003 – 2010)

Metabolite of Arsenic

Geometric mean and selected percentiles of urine concentrations (in µg As/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	<b>3.69</b> (3.24-4.19)	<b>3.37</b> (2.94-3.91)	<b>5.71</b> (4.69-6.74)	<b>9.09</b> (7.61-11.5)	<b>13.0</b> (10.7-16.0)	2568
	05-06	<b>3.88</b> (3.57-4.22)	<b>3.66</b> (3.39-3.93)	<b>5.71</b> (5.10-6.43)	<b>9.57</b> (7.95-10.9)	<b>12.3</b> (10.6-15.0)	2588
	07-08	<b>3.83</b> (3.60-4.07)	<b>3.62</b> (3.37-3.93)	<b>5.80</b> (5.33-6.32)	<b>9.01</b> (8.00-9.97)	<b>11.6</b> (9.97-14.4)	2576
	09-10	<b>3.90</b> (3.64-4.18)	<b>3.53</b> (3.30-3.80)	<b>6.03</b> (5.36-6.62)	<b>10.2</b> (9.15-11.8)	<b>14.9</b> (12.3-19.2)	2870
<b>Age group</b>							
6-11 years	03-04	<b>4.34</b> (3.57-5.28)	<b>4.03</b> (3.20-4.80)	<b>6.32</b> (4.65-8.33)	<b>10.3</b> (7.00-13.9)	<b>13.9</b> (7.86-21.8)	292
	05-06	<b>4.89</b> (4.22-5.65)	<b>4.31</b> (3.64-5.69)	<b>6.85</b> (5.71-7.69)	<b>10.0</b> (7.54-14.7)	<b>14.7</b> (10.0-18.8)	354
	07-08	<b>5.07</b> (4.56-5.64)	<b>4.54</b> (4.08-4.82)	<b>6.90</b> (6.14-7.76)	<b>12.0</b> (8.39-17.1)	<b>20.9</b> (12.0-40.8)	390
	09-10	<b>4.77</b> (4.34-5.23)	<b>4.48</b> (4.12-4.85)	<b>6.41</b> (5.66-6.82)	<b>10.0</b> (7.63-15.3)	<b>16.5</b> (9.33-27.0)	379
12-19 years	03-04	<b>2.74</b> (2.39-3.14)	<b>2.55</b> (2.27-2.94)	<b>3.77</b> (3.17-4.44)	<b>5.88</b> (4.65-6.67)	<b>7.18</b> (6.16-11.7)	728
	05-06	<b>3.05</b> (2.78-3.34)	<b>2.92</b> (2.55-3.29)	<b>4.25</b> (3.87-4.84)	<b>6.68</b> (5.49-8.06)	<b>9.08</b> (7.11-10.6)	703
	07-08	<b>2.80</b> (2.54-3.09)	<b>2.69</b> (2.37-2.93)	<b>3.91</b> (3.46-4.56)	<b>6.27</b> (4.72-8.21)	<b>8.21</b> (5.77-10.1)	366
	09-10	<b>2.89</b> (2.61-3.20)	<b>2.60</b> (2.36-2.86)	<b>4.08</b> (3.43-4.80)	<b>6.67</b> (5.71-8.57)	<b>10.0</b> (7.61-12.6)	456
20 years and older	03-04	<b>3.79</b> (3.34-4.31)	<b>3.48</b> (3.00-4.00)	<b>5.95</b> (4.86-7.05)	<b>9.45</b> (8.00-12.0)	<b>13.5</b> (11.1-18.6)	1548
	05-06	<b>3.93</b> (3.62-4.27)	<b>3.71</b> (3.42-4.02)	<b>5.82</b> (5.22-6.47)	<b>9.74</b> (8.00-11.2)	<b>12.6</b> (10.9-15.8)	1531
	07-08	<b>3.89</b> (3.64-4.16)	<b>3.69</b> (3.44-4.02)	<b>5.96</b> (5.47-6.58)	<b>9.10</b> (8.00-10.0)	<b>11.6</b> (9.74-14.5)	1820
	09-10	<b>4.00</b> (3.70-4.32)	<b>3.61</b> (3.33-3.90)	<b>6.25</b> (5.57-6.88)	<b>10.8</b> (9.23-12.9)	<b>16.1</b> (12.6-22.2)	2035
<b>Gender</b>							
Males	03-04	<b>3.48</b> (2.95-4.10)	<b>3.16</b> (2.70-3.82)	<b>5.46</b> (4.17-6.90)	<b>8.59</b> (6.92-12.0)	<b>12.3</b> (8.84-18.9)	1284
	05-06	<b>3.43</b> (3.13-3.75)	<b>3.24</b> (2.91-3.63)	<b>5.11</b> (4.25-6.08)	<b>7.90</b> (6.65-9.77)	<b>11.0</b> (9.29-13.0)	1276
	07-08	<b>3.63</b> (3.41-3.85)	<b>3.44</b> (3.22-3.68)	<b>5.33</b> (5.00-5.82)	<b>8.31</b> (7.21-10.1)	<b>12.1</b> (9.73-14.9)	1289
	09-10	<b>3.54</b> (3.29-3.80)	<b>3.20</b> (3.04-3.38)	<b>5.31</b> (4.80-5.99)	<b>9.24</b> (7.80-10.8)	<b>13.3</b> (10.3-16.5)	1402
Females	03-04	<b>3.89</b> (3.49-4.34)	<b>3.57</b> (3.13-4.06)	<b>5.78</b> (4.95-6.67)	<b>9.32</b> (8.00-11.5)	<b>13.7</b> (10.6-18.6)	1284
	05-06	<b>4.37</b> (4.03-4.75)	<b>4.03</b> (3.72-4.51)	<b>6.26</b> (5.71-6.84)	<b>10.0</b> (8.50-12.6)	<b>14.4</b> (11.2-19.3)	1312
	07-08	<b>4.02</b> (3.75-4.32)	<b>3.80</b> (3.46-4.26)	<b>6.15</b> (5.58-7.06)	<b>9.23</b> (8.11-10.1)	<b>10.9</b> (9.52-14.9)	1287
	09-10	<b>4.28</b> (3.96-4.63)	<b>4.00</b> (3.62-4.32)	<b>6.55</b> (5.98-7.14)	<b>11.0</b> (9.64-13.2)	<b>17.2</b> (13.2-24.4)	1468
<b>Race/ethnicity</b>							
Mexican Americans	03-04	<b>4.38</b> (3.80-5.05)	<b>4.11</b> (3.29-4.90)	<b>6.25</b> (4.84-8.15)	<b>10.3</b> (8.00-11.8)	<b>12.9</b> (11.1-15.2)	621
	05-06	<b>4.16</b> (3.83-4.52)	<b>4.00</b> (3.65-4.36)	<b>5.94</b> (5.40-6.49)	<b>8.69</b> (7.23-9.65)	<b>10.2</b> (9.52-13.2)	651
	07-08	<b>4.34</b> (3.87-4.88)	<b>4.19</b> (3.66-4.83)	<b>6.23</b> (5.31-7.44)	<b>9.14</b> (8.00-11.0)	<b>12.1</b> (10.1-15.1)	513
	09-10	<b>4.06</b> (3.63-4.54)	<b>3.95</b> (3.33-4.44)	<b>6.32</b> (5.36-7.10)	<b>9.23</b> (8.10-10.6)	<b>11.7</b> (10.2-14.8)	618
Non-Hispanic blacks	03-04	<b>3.08</b> (2.69-3.52)	<b>2.86</b> (2.60-3.24)	<b>4.34</b> (3.82-5.05)	<b>7.81</b> (5.82-9.45)	<b>10.4</b> (7.61-16.9)	725
	05-06	<b>3.08</b> (2.70-3.52)	<b>2.91</b> (2.52-3.32)	<b>4.21</b> (3.75-4.91)	<b>7.33</b> (5.40-10.7)	<b>11.6</b> (7.66-17.9)	695
	07-08	<b>3.08</b> (2.87-3.31)	<b>2.77</b> (2.56-3.13)	<b>4.74</b> (4.31-5.22)	<b>7.29</b> (6.58-8.26)	<b>9.67</b> (8.26-11.0)	586
	09-10	<b>3.26</b> (2.90-3.66)	<b>2.86</b> (2.47-3.34)	<b>5.10</b> (4.43-6.06)	<b>10.0</b> (7.39-11.7)	<b>13.1</b> (11.1-15.2)	545
Non-Hispanic whites	03-04	<b>3.44</b> (2.97-3.98)	<b>3.17</b> (2.80-3.73)	<b>5.16</b> (4.03-6.49)	<b>8.00</b> (6.32-10.9)	<b>11.1</b> (8.00-15.4)	1078
	05-06	<b>3.82</b> (3.47-4.21)	<b>3.64</b> (3.30-3.93)	<b>5.71</b> (4.90-6.51)	<b>9.23</b> (7.26-10.6)	<b>11.6</b> (9.93-13.9)	1050
	07-08	<b>3.62</b> (3.38-3.87)	<b>3.48</b> (3.20-3.76)	<b>5.38</b> (4.95-5.80)	<b>8.00</b> (7.28-8.86)	<b>10.0</b> (8.96-11.1)	1063
	09-10	<b>3.58</b> (3.36-3.81)	<b>3.31</b> (3.09-3.49)	<b>5.30</b> (4.87-5.75)	<b>8.12</b> (7.06-9.21)	<b>11.5</b> (9.43-14.3)	1226

### Biomonitoring Summary

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### Factsheet

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## Urinary Dimethylarsinic acid (creatinine corrected) (2011 - 2014)

*Metabolite of Arsenic*

Geometric mean and selected percentiles of urine concentrations (in µg As/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>3.92</b> (3.69-4.16)	<b>3.65</b> (3.47-3.91)	<b>5.92</b> (5.40-6.49)	<b>9.86</b> (8.68-11.3)	<b>13.1</b> (11.5-15.2)	2516
	13-14	<b>3.68</b> (3.46-3.92)	<b>3.47</b> (3.17-3.79)	<b>5.53</b> (5.11-5.97)	<b>9.18</b> (8.11-10.2)	<b>12.7</b> (11.4-13.6)	2653
<b>Age group</b>							
6-11 years	11-12	<b>4.86</b> (4.54-5.21)	<b>4.44</b> (4.10-4.70)	<b>6.82</b> (6.15-7.69)	<b>9.77</b> (8.65-11.5)	<b>13.8</b> (10.3-15.0)	401
	13-14	<b>5.00</b> (4.56-5.50)	<b>4.59</b> (4.06-5.40)	<b>7.50</b> (6.62-8.44)	<b>10.8</b> (9.11-12.3)	<b>13.3</b> (12.0-14.4)	397
12-19 years	11-12	<b>3.13</b> (2.68-3.64)	<b>3.02</b> (2.48-3.34)	<b>4.51</b> (3.49-5.62)	<b>7.03</b> (5.08-10.8)	<b>10.8</b> (6.13-18.1)	392
	13-14	<b>2.99</b> (2.68-3.33)	<b>2.74</b> (2.57-3.00)	<b>4.32</b> (3.65-5.28)	<b>6.80</b> (5.81-7.46)	<b>9.30</b> (6.94-12.8)	450
20 years and older	11-12	<b>3.96</b> (3.75-4.19)	<b>3.73</b> (3.52-3.94)	<b>6.05</b> (5.45-6.68)	<b>10.1</b> (8.97-11.3)	<b>13.1</b> (11.5-15.5)	1723
	13-14	<b>3.68</b> (3.46-3.91)	<b>3.48</b> (3.21-3.75)	<b>5.47</b> (5.12-5.89)	<b>9.32</b> (8.24-10.3)	<b>13.0</b> (11.3-14.7)	1806
<b>Gender</b>							
Males	11-12	<b>3.55</b> (3.27-3.86)	<b>3.34</b> (3.11-3.69)	<b>5.32</b> (4.75-6.06)	<b>8.47</b> (7.35-9.73)	<b>11.0</b> (9.45-14.1)	1263
	13-14	<b>3.31</b> (3.12-3.51)	<b>3.03</b> (2.92-3.29)	<b>4.79</b> (4.57-5.05)	<b>8.05</b> (7.51-9.13)	<b>11.4</b> (10.3-12.8)	1307
Females	11-12	<b>4.30</b> (4.06-4.56)	<b>4.10</b> (3.85-4.35)	<b>6.68</b> (5.93-7.36)	<b>10.8</b> (9.77-12.4)	<b>14.9</b> (12.4-17.0)	1253
	13-14	<b>4.08</b> (3.75-4.44)	<b>3.94</b> (3.54-4.29)	<b>6.16</b> (5.64-6.90)	<b>9.84</b> (8.39-12.0)	<b>13.4</b> (11.3-15.4)	1346
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>4.12</b> (3.83-4.44)	<b>4.10</b> (3.43-4.59)	<b>5.77</b> (5.29-6.37)	<b>8.06</b> (7.49-9.54)	<b>10.5</b> (8.70-14.8)	317
	13-14	<b>3.78</b> (3.61-3.96)	<b>3.72</b> (3.55-3.94)	<b>5.11</b> (4.81-5.40)	<b>7.29</b> (6.75-7.94)	<b>9.73</b> (7.53-11.7)	455
Non-Hispanic blacks	11-12	<b>3.16</b> (2.66-3.74)	<b>3.05</b> (2.41-3.67)	<b>4.98</b> (4.01-6.08)	<b>8.27</b> (6.68-9.70)	<b>11.3</b> (8.87-13.7)	672
	13-14	<b>2.89</b> (2.53-3.30)	<b>2.68</b> (2.33-3.05)	<b>4.40</b> (3.70-5.00)	<b>6.81</b> (5.84-8.72)	<b>10.1</b> (7.41-12.5)	576
Non-Hispanic whites	11-12	<b>3.68</b> (3.44-3.93)	<b>3.47</b> (3.31-3.63)	<b>5.32</b> (5.04-5.93)	<b>9.07</b> (7.47-10.3)	<b>11.5</b> (9.87-13.1)	824
	13-14	<b>3.52</b> (3.22-3.84)	<b>3.38</b> (2.94-3.75)	<b>5.24</b> (4.70-5.87)	<b>8.64</b> (7.50-10.1)	<b>12.0</b> (9.54-13.5)	979
All Hispanics	11-12	<b>4.50</b> (4.14-4.89)	<b>4.38</b> (4.20-4.82)	<b>6.62</b> (5.91-7.47)	<b>9.46</b> (8.09-10.6)	<b>13.0</b> (9.66-16.6)	574
	13-14	<b>3.95</b> (3.69-4.23)	<b>3.84</b> (3.64-4.08)	<b>5.56</b> (5.12-6.09)	<b>7.92</b> (6.98-9.33)	<b>11.0</b> (8.07-14.0)	703
Asians	11-12	<b>9.89</b> (8.57-11.4)	<b>9.72</b> (8.10-11.0)	<b>15.6</b> (12.4-20.5)	<b>28.6</b> (20.1-41.1)	<b>45.1</b> (34.3-57.2)	356
	13-14	<b>8.71</b> (7.85-9.67)	<b>8.44</b> (7.33-9.33)	<b>13.8</b> (12.2-17.0)	<b>24.7</b> (18.7-34.4)	<b>37.9</b> (27.5-44.4)	291

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Arsenic\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Arsenic\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html)

## Urinary Monomethylarsonic acid (2003 – 2010)

Metabolite of Arsenic

Geometric mean and selected percentiles of urine concentrations (in µg As/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	1.20 (1.00-1.30)	1.90 (1.60-2.10)	2.40 (2.00-2.80)	2567
	05-06	*	< LOD	1.19 (1.05-1.34)	1.72 (1.51-1.94)	2.12 (1.79-2.70)	2588
	07-08	*	< LOD	1.11 (1.00-1.20)	1.61 (1.51-1.69)	2.09 (1.91-2.26)	2576
	09-10	*	< LOD	1.02 (.920-1.10)	1.64 (1.41-1.83)	2.01 (1.82-2.28)	2871
<b>Age group</b>							
6-11 years	03-04	*	< LOD	1.00 (<LOD-1.40)	1.80 (1.30-2.60)	2.30 (1.70-2.90)	292
	05-06	*	< LOD	1.03 (<LOD-1.37)	1.54 (1.37-2.12)	2.12 (1.51-2.73)	354
	07-08	*	< LOD	1.05 (<LOD-1.28)	1.60 (1.32-1.83)	2.04 (1.64-2.86)	390
	09-10	*	< LOD	< LOD	1.38 (1.00-1.84)	1.81 (1.26-2.13)	380
12-19 years	03-04	*	< LOD	1.50 (1.10-1.80)	2.20 (1.70-3.00)	2.90 (2.20-3.60)	728
	05-06	*	< LOD	1.31 (1.09-1.46)	1.99 (1.62-2.23)	2.41 (2.04-2.89)	703
	07-08	*	< LOD	1.26 (1.11-1.35)	1.83 (1.54-2.22)	2.31 (1.87-2.90)	366
	09-10	*	< LOD	1.10 (.910-1.25)	1.62 (1.33-1.92)	2.03 (1.74-2.30)	456
20 years and older	03-04	*	< LOD	1.20 (1.00-1.30)	1.80 (1.50-2.10)	2.30 (2.00-2.60)	1547
	05-06	*	< LOD	1.20 (1.05-1.33)	1.70 (1.48-1.90)	2.06 (1.74-2.75)	1531
	07-08	*	< LOD	1.08 (.970-1.17)	1.58 (1.44-1.71)	1.98 (1.82-2.21)	1820
	09-10	*	< LOD	1.02 (.930-1.11)	1.65 (1.42-1.86)	2.03 (1.81-2.35)	2035
<b>Gender</b>							
Males	03-04	*	< LOD	1.30 (1.10-1.60)	2.00 (1.80-2.40)	2.60 (2.10-3.00)	1283
	05-06	*	< LOD	1.31 (1.12-1.49)	1.79 (1.57-2.09)	2.23 (1.85-2.86)	1276
	07-08	*	< LOD	1.24 (1.13-1.35)	1.78 (1.63-1.94)	2.33 (1.97-2.71)	1289
	09-10	*	< LOD	1.07 (.970-1.23)	1.77 (1.47-2.01)	2.19 (1.83-2.68)	1403
Females	03-04	*	< LOD	1.00 (<LOD-1.20)	1.60 (1.30-1.90)	2.10 (1.70-2.60)	1284
	05-06	*	< LOD	1.08 (.920-1.24)	1.57 (1.36-1.90)	2.04 (1.67-2.50)	1312
	07-08	*	< LOD	.970 (<LOD-1.06)	1.42 (1.30-1.57)	1.81 (1.68-1.90)	1287
	09-10	*	< LOD	.950 (<LOD-1.06)	1.52 (1.27-1.74)	1.89 (1.66-2.12)	1468
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	1.50 (1.20-1.90)	2.20 (1.70-2.80)	2.80 (2.00-4.40)	621
	05-06	*	< LOD	1.19 (1.10-1.32)	1.73 (1.51-1.97)	2.04 (1.67-2.51)	651
	07-08	*	< LOD	1.22 (1.02-1.35)	1.69 (1.43-2.12)	2.32 (1.75-2.85)	513
	09-10	*	< LOD	1.02 (<LOD-1.37)	1.65 (1.38-1.90)	2.02 (1.65-2.33)	618
Non-Hispanic blacks	03-04	*	< LOD	1.10 (<LOD-1.30)	1.80 (1.40-2.00)	2.20 (1.70-2.70)	725
	05-06	*	< LOD	1.02 (.950-1.07)	1.35 (1.29-1.44)	1.70 (1.50-1.88)	695
	07-08	*	< LOD	1.21 (1.09-1.33)	1.79 (1.61-2.05)	2.32 (2.15-2.63)	586
	09-10	*	< LOD	1.02 (<LOD-1.18)	1.51 (1.36-1.84)	1.88 (1.73-2.24)	546
Non-Hispanic whites	03-04	*	< LOD	1.10 (.900-1.30)	1.80 (1.40-2.00)	2.10 (1.80-2.50)	1077
	05-06	*	< LOD	1.22 (1.02-1.39)	1.75 (1.42-2.12)	2.14 (1.72-2.93)	1050
	07-08	*	< LOD	1.04 (.930-1.15)	1.50 (1.37-1.63)	1.91 (1.69-2.09)	1063
	09-10	*	< LOD	.940 (<LOD-1.04)	1.45 (1.24-1.76)	1.90 (1.65-2.12)	1226

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08 and 09-10 are 0.9, 0.9, 0.9, and 0.9 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Arsenic\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Arsenic\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html)



## Urinary Monomethylarsonic acid (2011 - 2014)

Metabolite of Arsenic

Geometric mean and selected percentiles of urine concentrations (in µg As/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	<b>1.36</b> (1.17-1.55)	<b>1.83</b> (1.57-2.07)	2517
	13-14	<b>.411</b> (.372-.454)	<b>.460</b> (.390-.530)	<b>.810</b> (.750-.870)	<b>1.22</b> (1.11-1.33)	<b>1.53</b> (1.36-1.74)	2654
<b>Age group</b>							
6-11 years	11-12	*	< LOD	< LOD	<b>1.21</b> (.970-1.40)	<b>1.42</b> (1.24-1.54)	401
	13-14	*	<b>.380</b> (<LOD-.530)	<b>.710</b> (.600-.850)	<b>1.11</b> (.920-1.29)	<b>1.47</b> (1.22-1.52)	397
12-19 years	11-12	*	< LOD	<b>.900</b> (<LOD-1.09)	<b>1.28</b> (1.09-1.57)	<b>1.59</b> (1.26-3.30)	392
	13-14	<b>.506</b> (.430-.596)	<b>.580</b> (.480-.710)	<b>.980</b> (.820-1.11)	<b>1.28</b> (1.09-1.58)	<b>1.58</b> (1.26-1.77)	450
20 years and older	11-12	*	< LOD	< LOD	<b>1.41</b> (1.15-1.67)	<b>1.88</b> (1.58-2.08)	1724
	13-14	<b>.406</b> (.365-.450)	<b>.450</b> (.370-.520)	<b>.790</b> (.740-.850)	<b>1.21</b> (1.10-1.33)	<b>1.57</b> (1.36-1.79)	1807
<b>Gender</b>							
Males	11-12	*	< LOD	<b>.950</b> (<LOD-1.14)	<b>1.50</b> (1.26-1.85)	<b>2.04</b> (1.79-2.40)	1264
	13-14	<b>.456</b> (.408-.510)	<b>.520</b> (.450-.600)	<b>.900</b> (.850-.940)	<b>1.26</b> (1.18-1.37)	<b>1.57</b> (1.39-1.74)	1308
Females	11-12	*	< LOD	< LOD	<b>1.15</b> (1.02-1.40)	<b>1.57</b> (1.41-1.79)	1253
	13-14	<b>.372</b> (.336-.412)	<b>.400</b> (.300-.490)	<b>.740</b> (.680-.770)	<b>1.14</b> (.990-1.33)	<b>1.49</b> (1.26-1.88)	1346
<b>Race/ethnicity</b>							
Mexican Americans	11-12	*	< LOD	< LOD	<b>1.25</b> (1.04-1.65)	<b>1.85</b> (1.25-3.26)	317
	13-14	<b>.406</b> (.370-.446)	<b>.470</b> (.380-.560)	<b>.780</b> (.750-.860)	<b>1.14</b> (1.01-1.27)	<b>1.43</b> (1.17-1.69)	455
Non-Hispanic blacks	11-12	*	< LOD	< LOD	<b>1.26</b> (1.01-1.55)	<b>1.65</b> (1.34-2.02)	672
	13-14	<b>.446</b> (.400-.496)	<b>.520</b> (.430-.600)	<b>.820</b> (.750-.890)	<b>1.23</b> (1.03-1.39)	<b>1.55</b> (1.28-1.96)	576
Non-Hispanic whites	11-12	*	< LOD	< LOD	<b>1.24</b> (1.03-1.49)	<b>1.71</b> (1.34-2.04)	825
	13-14	<b>.390</b> (.338-.451)	<b>.430</b> (.320-.530)	<b>.780</b> (.700-.860)	<b>1.17</b> (1.04-1.31)	<b>1.48</b> (1.22-1.81)	980
All Hispanics	11-12	*	< LOD	<b>.960</b> (<LOD-1.25)	<b>1.60</b> (1.32-1.99)	<b>2.38</b> (1.65-3.29)	574
	13-14	<b>.443</b> (.399-.491)	<b>.520</b> (.460-.570)	<b>.860</b> (.770-.950)	<b>1.28</b> (1.08-1.49)	<b>1.68</b> (1.32-1.76)	703
Asians	11-12	*	< LOD	<b>1.32</b> (1.19-1.54)	<b>2.09</b> (1.71-2.56)	<b>2.76</b> (2.24-3.64)	356
	13-14	<b>.499</b> (.445-.559)	<b>.570</b> (.430-.660)	<b>.980</b> (.790-1.23)	<b>1.58</b> (1.42-1.80)	<b>2.04</b> (1.72-2.65)	291

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.89 and 0.2.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Arsenic\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Arsenic\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html)

## Urinary Monomethylarsonic acid (creatinine corrected) (2003 – 2010)

Metabolite of Arsenic

Geometric mean and selected percentiles of urine concentrations (in µg As/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	1.33 (1.18-1.54)	2.22 (1.82-2.57)	2.86 (2.40-3.53)	2567
	05-06	*	< LOD	1.28 (1.14-1.52)	2.37 (1.94-2.78)	3.13 (2.67-3.76)	2588
	07-08	*	< LOD	1.31 (1.23-1.42)	2.24 (2.00-2.56)	3.19 (2.78-3.58)	2576
	09-10	*	< LOD	1.36 (1.25-1.45)	2.16 (2.00-2.29)	2.91 (2.67-3.15)	2870
<b>Age group</b>							
6-11 years	03-04	*	< LOD	1.63 (<LOD-1.81)	2.31 (1.88-2.50)	2.52 (2.31-3.07)	292
	05-06	*	< LOD	1.44 (<LOD-1.83)	2.37 (1.65-3.20)	3.13 (2.29-4.92)	354
	07-08	*	< LOD	1.69 (<LOD-2.06)	2.46 (2.09-2.91)	3.20 (2.56-4.32)	390
	09-10	*	< LOD	< LOD	2.37 (2.07-2.78)	3.16 (2.55-3.76)	379
12-19 years	03-04	*	< LOD	1.10 (.853-1.23)	1.53 (1.30-1.85)	2.07 (1.71-2.22)	728
	05-06	*	< LOD	1.05 (.930-1.14)	1.56 (1.49-1.73)	1.97 (1.78-2.13)	703
	07-08	*	< LOD	.970 (.880-1.07)	1.45 (1.19-1.73)	1.97 (1.49-2.34)	366
	09-10	*	< LOD	1.21 (1.02-1.45)	1.98 (1.60-2.56)	2.56 (1.94-4.57)	456
20 years and older	03-04	*	< LOD	1.36 (1.18-1.58)	2.28 (1.82-2.79)	3.00 (2.43-3.53)	1547
	05-06	*	< LOD	1.31 (1.13-1.58)	2.46 (2.00-2.91)	3.20 (2.78-3.81)	1531
	07-08	*	< LOD	1.32 (1.23-1.45)	2.35 (2.02-2.67)	3.38 (2.78-3.83)	1820
	09-10	*	< LOD	1.36 (1.25-1.45)	2.18 (2.00-2.29)	2.91 (2.78-3.20)	2035
<b>Gender</b>							
Males	03-04	*	< LOD	1.20 (1.05-1.36)	1.88 (1.53-2.34)	2.50 (2.07-3.45)	1283
	05-06	*	< LOD	1.11 (.950-1.28)	1.78 (1.47-2.29)	2.46 (1.88-3.32)	1276
	07-08	*	< LOD	1.18 (1.07-1.26)	2.06 (1.85-2.34)	2.71 (2.46-3.37)	1289
	09-10	*	< LOD	1.16 (1.07-1.25)	1.79 (1.64-1.99)	2.29 (2.08-2.78)	1402
Females	03-04	*	< LOD	1.50 (<LOD-1.77)	2.40 (1.96-2.86)	3.00 (2.61-3.53)	1284
	05-06	*	< LOD	1.58 (1.36-1.76)	2.78 (2.29-3.20)	3.56 (3.05-4.35)	1312
	07-08	*	< LOD	1.45 (<LOD-1.60)	2.41 (1.94-2.91)	3.56 (2.78-4.27)	1287
	09-10	*	< LOD	1.56 (<LOD-1.73)	2.46 (2.29-2.62)	3.37 (2.91-3.56)	1468
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	1.46 (1.11-1.93)	2.30 (1.84-3.00)	3.16 (2.40-3.85)	621
	05-06	*	< LOD	1.19 (1.08-1.35)	1.92 (1.60-2.13)	2.53 (2.06-2.91)	651
	07-08	*	< LOD	1.28 (1.10-1.60)	2.27 (1.64-2.71)	3.05 (2.35-3.76)	513
	09-10	*	< LOD	1.31 (<LOD-1.49)	2.00 (1.73-2.56)	3.05 (2.29-3.56)	618
Non-Hispanic blacks	03-04	*	< LOD	.816 (<LOD-.985)	1.37 (1.14-1.61)	1.88 (1.46-2.17)	725
	05-06	*	< LOD	.790 (.720-.880)	1.11 (.980-1.34)	1.57 (1.23-1.98)	695
	07-08	*	< LOD	.920 (.840-1.06)	1.45 (1.33-1.73)	2.09 (1.73-2.56)	586
	09-10	*	< LOD	.970 (<LOD-1.08)	1.73 (1.39-1.94)	2.29 (1.83-2.91)	545
Non-Hispanic whites	03-04	*	< LOD	1.33 (1.15-1.62)	2.28 (1.73-2.86)	2.86 (2.35-3.75)	1077
	05-06	*	< LOD	1.35 (1.16-1.64)	2.50 (2.00-3.05)	3.20 (2.78-3.81)	1050
	07-08	*	< LOD	1.35 (1.23-1.52)	2.37 (2.04-2.78)	3.37 (2.78-4.00)	1063
	09-10	*	< LOD	1.36 (<LOD-1.52)	2.21 (1.99-2.37)	2.91 (2.67-3.20)	1226

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Arsenic\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Arsenic\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html)

## Urinary Monomethylarsonic acid (creatinine corrected) (2011 - 2014)

*Metabolite of Arsenic*

Geometric mean and selected percentiles of urine concentrations (in µg As/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	2.21 (2.03-2.42)	2.86 (2.63-3.32)	2516
	13-14	.474 (.425-.527)	.489 (.424-.556)	.812 (.734-.904)	1.27 (1.17-1.40)	1.61 (1.45-1.84)	2653
<b>Age group</b>							
6-11 years	11-12	*	< LOD	< LOD	2.55 (2.17-3.15)	3.32 (2.52-4.50)	401
	13-14	*	.543 (<LOD-.667)	.933 (.700-1.15)	1.43 (1.08-1.87)	1.71 (1.44-2.22)	397
12-19 years	11-12	*	< LOD	1.07 (<LOD-1.24)	1.75 (1.30-2.42)	2.52 (1.62-7.00)	392
	13-14	.459 (.397-.530)	.462 (.362-.603)	.727 (.634-.848)	1.10 (.877-1.50)	1.51 (1.11-2.00)	450
20 years and older	11-12	*	< LOD	< LOD	2.25 (2.00-2.42)	2.74 (2.52-3.32)	1723
	13-14	.471 (.423-.524)	.488 (.424-.545)	.815 (.740-.900)	1.28 (1.18-1.38)	1.62 (1.44-1.82)	1806
<b>Gender</b>							
Males	11-12	*	< LOD	1.13 (<LOD-1.24)	1.72 (1.58-1.85)	2.31 (1.92-2.67)	1263
	13-14	.456 (.413-.504)	.475 (.421-.535)	.772 (.695-.851)	1.20 (1.09-1.30)	1.56 (1.38-1.69)	1307
Females	11-12	*	< LOD	< LOD	2.52 (2.27-2.74)	3.32 (2.74-3.94)	1253
	13-14	.491 (.435-.555)	.500 (.424-.583)	.842 (.741-1.00)	1.33 (1.18-1.46)	1.68 (1.41-2.08)	1346
<b>Race/ethnicity</b>							
Mexican Americans	11-12	*	< LOD	< LOD	1.95 (1.54-2.25)	2.63 (1.85-3.32)	317
	13-14	.463 (.409-.524)	.488 (.438-.554)	.743 (.674-.850)	1.20 (1.01-1.33)	1.49 (1.31-1.66)	455
Non-Hispanic blacks	11-12	*	< LOD	< LOD	1.38 (1.21-1.62)	1.97 (1.75-2.33)	672
	13-14	.336 (.296-.382)	.329 (.294-.392)	.557 (.486-.631)	.806 (.735-.910)	1.06 (.910-1.25)	576
Non-Hispanic whites	11-12	*	< LOD	< LOD	2.33 (2.03-2.52)	2.86 (2.52-3.50)	824
	13-14	.481 (.423-.546)	.495 (.418-.568)	.824 (.733-.933)	1.25 (1.10-1.42)	1.56 (1.36-1.84)	979
All Hispanics	11-12	*	< LOD	1.34 (<LOD-1.48)	2.02 (1.62-2.52)	2.63 (1.97-3.50)	574
	13-14	.494 (.446-.548)	.520 (.467-.586)	.819 (.713-.931)	1.31 (1.18-1.50)	1.71 (1.49-1.97)	703
Asians	11-12	*	< LOD	2.06 (1.63-2.33)	3.07 (2.69-3.68)	4.50 (3.43-5.09)	356
	13-14	.777 (.667-.906)	.800 (.623-1.04)	1.33 (1.08-1.61)	1.94 (1.56-2.53)	2.54 (2.00-3.16)	291

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Arsenic\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Arsenic\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html)

## Urinary Trimethylarsine oxide (2003 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg As/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2568
	05-06	*	< LOD	< LOD	< LOD	< LOD	2588
	07-08	*	< LOD	< LOD	< LOD	< LOD	2576
	09-10	*	< LOD	< LOD	< LOD	< LOD	2871
<b>Age group</b>							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	292
	05-06	*	< LOD	< LOD	< LOD	< LOD	354
	07-08	*	< LOD	< LOD	< LOD	< LOD	390
	09-10	*	< LOD	< LOD	< LOD	< LOD	380
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	728
	05-06	*	< LOD	< LOD	< LOD	< LOD	703
	07-08	*	< LOD	< LOD	< LOD	< LOD	366
	09-10	*	< LOD	< LOD	< LOD	< LOD	456
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1548
	05-06	*	< LOD	< LOD	< LOD	< LOD	1531
	07-08	*	< LOD	< LOD	< LOD	< LOD	1820
	09-10	*	< LOD	< LOD	< LOD	< LOD	2035
<b>Gender</b>							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1284
	05-06	*	< LOD	< LOD	< LOD	< LOD	1276
	07-08	*	< LOD	< LOD	< LOD	< LOD	1289
	09-10	*	< LOD	< LOD	< LOD	< LOD	1403
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1284
	05-06	*	< LOD	< LOD	< LOD	< LOD	1312
	07-08	*	< LOD	< LOD	< LOD	< LOD	1287
	09-10	*	< LOD	< LOD	< LOD	< LOD	1468
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	621
	05-06	*	< LOD	< LOD	< LOD	< LOD	651
	07-08	*	< LOD	< LOD	< LOD	< LOD	513
	09-10	*	< LOD	< LOD	< LOD	< LOD	618
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	725
	05-06	*	< LOD	< LOD	< LOD	< LOD	695
	07-08	*	< LOD	< LOD	< LOD	< LOD	586
	09-10	*	< LOD	< LOD	< LOD	< LOD	546
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1078
	05-06	*	< LOD	< LOD	< LOD	< LOD	1050
	07-08	*	< LOD	< LOD	< LOD	< LOD	1063
	09-10	*	< LOD	< LOD	< LOD	< LOD	1226

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08 and 09-10 are 1.0, 1.0, 1.0, and 1.0 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Arsenic\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Arsenic\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html)

## Urinary Trimethylarsine oxide (2011 - 2012)‡

Geometric mean and selected percentiles of urine concentrations (in µg As/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2517
<b>Age group</b>							
6-11 years	11-12	*	< LOD	< LOD	< LOD	.300 (<LOD-.960)	401
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	392
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	1724
<b>Gender</b>							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	1264
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1253
<b>Race/ethnicity</b>							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	317
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	672
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	825
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	574
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	356

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 0.25.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Not measured after Survey years 2011-2012

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Arsenic\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Arsenic\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html)

## Urinary Trimethylarsine oxide (creatinine corrected) (2003 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg As/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2568
	05-06	*	< LOD	< LOD	< LOD	< LOD	2588
	07-08	*	< LOD	< LOD	< LOD	< LOD	2576
	09-10	*	< LOD	< LOD	< LOD	< LOD	2870
<b>Age group</b>							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	292
	05-06	*	< LOD	< LOD	< LOD	< LOD	354
	07-08	*	< LOD	< LOD	< LOD	< LOD	390
	09-10	*	< LOD	< LOD	< LOD	< LOD	379
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	728
	05-06	*	< LOD	< LOD	< LOD	< LOD	703
	07-08	*	< LOD	< LOD	< LOD	< LOD	366
	09-10	*	< LOD	< LOD	< LOD	< LOD	456
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1548
	05-06	*	< LOD	< LOD	< LOD	< LOD	1531
	07-08	*	< LOD	< LOD	< LOD	< LOD	1820
	09-10	*	< LOD	< LOD	< LOD	< LOD	2035
<b>Gender</b>							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1284
	05-06	*	< LOD	< LOD	< LOD	< LOD	1276
	07-08	*	< LOD	< LOD	< LOD	< LOD	1289
	09-10	*	< LOD	< LOD	< LOD	< LOD	1402
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1284
	05-06	*	< LOD	< LOD	< LOD	< LOD	1312
	07-08	*	< LOD	< LOD	< LOD	< LOD	1287
	09-10	*	< LOD	< LOD	< LOD	< LOD	1468
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	621
	05-06	*	< LOD	< LOD	< LOD	< LOD	651
	07-08	*	< LOD	< LOD	< LOD	< LOD	513
	09-10	*	< LOD	< LOD	< LOD	< LOD	618
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	725
	05-06	*	< LOD	< LOD	< LOD	< LOD	695
	07-08	*	< LOD	< LOD	< LOD	< LOD	586
	09-10	*	< LOD	< LOD	< LOD	< LOD	545
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1078
	05-06	*	< LOD	< LOD	< LOD	< LOD	1050
	07-08	*	< LOD	< LOD	< LOD	< LOD	1063
	09-10	*	< LOD	< LOD	< LOD	< LOD	1226

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Arsenic\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Arsenic\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html)

## Urinary Trimethylarsine oxide (creatinine corrected) (2011 - 2012)‡

Geometric mean and selected percentiles of urine concentrations (in µg As/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2516
<b>Age group</b>							
6-11 years	11-12	*	< LOD	< LOD	< LOD	1.06 (<LOD-1.39)	401
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	392
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	1723
<b>Gender</b>							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	1263
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1253
<b>Race/ethnicity</b>							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	317
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	672
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	824
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	574
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	356

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Not measured after Survey years 2011-2012.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Arsenic\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Arsenic\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html)

## Urinary Barium (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	<b>1.50</b> (1.35-1.66)	<b>1.60</b> (1.50-1.90)	<b>3.10</b> (2.70-3.40)	<b>5.40</b> (4.60-6.10)	<b>6.90</b> (6.20-8.40)	2180
	01-02	<b>1.52</b> (1.41-1.65)	<b>1.63</b> (1.50-1.76)	<b>3.12</b> (2.77-3.51)	<b>5.24</b> (4.73-5.84)	<b>7.48</b> (6.54-8.12)	2690
	03-04	<b>1.49</b> (1.36-1.64)	<b>1.51</b> (1.35-1.72)	<b>2.91</b> (2.64-3.28)	<b>5.36</b> (4.86-5.71)	<b>7.54</b> (6.93-8.63)	2558
	05-06	<b>1.52</b> (1.39-1.66)	<b>1.58</b> (1.44-1.70)	<b>2.99</b> (2.63-3.41)	<b>5.34</b> (4.82-5.83)	<b>7.10</b> (6.46-8.18)	2576
	07-08	<b>1.56</b> (1.45-1.69)	<b>1.64</b> (1.49-1.80)	<b>3.01</b> (2.72-3.34)	<b>4.93</b> (4.39-5.69)	<b>7.04</b> (6.07-8.20)	2627
	09-10	<b>1.47</b> (1.34-1.60)	<b>1.48</b> (1.35-1.62)	<b>2.81</b> (2.52-3.06)	<b>4.66</b> (4.34-5.35)	<b>6.78</b> (5.86-7.76)	2848
Age group 6-11 years	99-00	<b>2.15</b> (1.70-2.72)	<b>2.20</b> (1.90-2.50)	<b>4.00</b> (2.60-6.10)	<b>6.40</b> (5.20-8.30)	<b>8.30</b> (5.00-76.2)	297
	01-02	<b>1.80</b> (1.44-2.26)	<b>2.09</b> (1.74-2.49)	<b>3.63</b> (2.86-4.39)	<b>5.37</b> (4.26-7.38)	<b>6.88</b> (5.37-8.49)	368
	03-04	<b>2.21</b> (1.81-2.71)	<b>2.50</b> (1.81-2.75)	<b>4.76</b> (3.80-5.65)	<b>8.63</b> (5.59-11.8)	<b>11.8</b> (6.87-14.8)	290
	05-06	<b>1.73</b> (1.53-1.97)	<b>1.87</b> (1.61-2.03)	<b>3.55</b> (2.41-4.30)	<b>6.21</b> (4.30-7.32)	<b>7.72</b> (6.26-8.92)	355
	07-08	<b>1.75</b> (1.50-2.04)	<b>1.86</b> (1.58-2.23)	<b>3.41</b> (2.85-3.79)	<b>5.57</b> (4.49-6.59)	<b>7.32</b> (5.71-9.18)	394
	09-10	<b>1.49</b> (1.28-1.74)	<b>1.50</b> (1.22-1.68)	<b>2.72</b> (2.19-3.13)	<b>4.63</b> (4.02-5.37)	<b>6.59</b> (5.24-7.72)	378
12-19 years	99-00	<b>1.97</b> (1.78-2.19)	<b>2.00</b> (1.70-2.30)	<b>3.50</b> (3.10-4.00)	<b>5.90</b> (4.80-7.00)	<b>9.70</b> (5.90-13.1)	621
	01-02	<b>2.03</b> (1.76-2.34)	<b>2.27</b> (1.96-2.53)	<b>4.11</b> (3.48-4.72)	<b>6.73</b> (5.55-7.87)	<b>9.02</b> (7.25-11.4)	762
	03-04	<b>2.16</b> (1.93-2.41)	<b>2.35</b> (2.06-2.63)	<b>4.11</b> (3.48-4.71)	<b>7.18</b> (6.00-8.29)	<b>9.63</b> (8.15-11.4)	725
	05-06	<b>2.16</b> (1.92-2.42)	<b>2.33</b> (1.99-2.56)	<b>3.80</b> (3.60-4.21)	<b>6.35</b> (5.48-7.49)	<b>8.24</b> (6.06-10.5)	701
	07-08	<b>2.18</b> (1.99-2.39)	<b>2.31</b> (2.07-2.59)	<b>3.62</b> (3.34-4.10)	<b>6.19</b> (4.75-7.51)	<b>8.20</b> (6.22-11.1)	376
	09-10	<b>1.79</b> (1.52-2.09)	<b>1.90</b> (1.46-2.45)	<b>3.25</b> (2.82-4.14)	<b>5.43</b> (4.45-6.07)	<b>6.87</b> (5.73-8.16)	451
20 years and older	99-00	<b>1.36</b> (1.24-1.51)	<b>1.50</b> (1.30-1.70)	<b>2.80</b> (2.60-3.20)	<b>5.10</b> (4.30-5.50)	<b>6.40</b> (5.70-8.40)	1262
	01-02	<b>1.43</b> (1.32-1.54)	<b>1.50</b> (1.39-1.65)	<b>2.85</b> (2.55-3.27)	<b>4.86</b> (4.53-5.47)	<b>7.14</b> (6.08-8.12)	1560
	03-04	<b>1.34</b> (1.20-1.50)	<b>1.39</b> (1.19-1.56)	<b>2.54</b> (2.21-2.91)	<b>4.61</b> (3.99-5.30)	<b>6.61</b> (5.57-7.43)	1543
	05-06	<b>1.42</b> (1.28-1.57)	<b>1.43</b> (1.28-1.63)	<b>2.75</b> (2.47-3.11)	<b>5.12</b> (4.45-5.81)	<b>6.83</b> (6.14-7.90)	1520
	07-08	<b>1.46</b> (1.35-1.58)	<b>1.51</b> (1.39-1.67)	<b>2.79</b> (2.54-3.15)	<b>4.61</b> (4.19-5.42)	<b>6.80</b> (5.50-8.37)	1857
	09-10	<b>1.42</b> (1.30-1.55)	<b>1.43</b> (1.31-1.58)	<b>2.67</b> (2.36-3.02)	<b>4.58</b> (4.22-5.14)	<b>6.80</b> (5.70-8.63)	2019
Gender Males	99-00	<b>1.70</b> (1.54-1.88)	<b>1.90</b> (1.80-2.00)	<b>3.20</b> (3.00-3.60)	<b>5.50</b> (4.20-6.70)	<b>7.50</b> (5.90-9.70)	1083
	01-02	<b>1.64</b> (1.47-1.82)	<b>1.80</b> (1.65-1.98)	<b>3.15</b> (2.76-3.73)	<b>5.52</b> (4.82-6.35)	<b>7.87</b> (6.49-9.32)	1335
	03-04	<b>1.62</b> (1.47-1.78)	<b>1.69</b> (1.49-1.85)	<b>3.09</b> (2.81-3.54)	<b>5.65</b> (5.14-6.16)	<b>8.56</b> (6.71-9.67)	1281
	05-06	<b>1.66</b> (1.48-1.85)	<b>1.71</b> (1.50-1.94)	<b>3.21</b> (2.76-3.79)	<b>5.48</b> (4.68-6.22)	<b>7.10</b> (6.18-8.84)	1271
	07-08	<b>1.62</b> (1.48-1.77)	<b>1.80</b> (1.57-1.93)	<b>3.14</b> (2.79-3.42)	<b>5.00</b> (4.31-5.70)	<b>6.84</b> (5.83-7.72)	1327
	09-10	<b>1.53</b> (1.35-1.74)	<b>1.57</b> (1.36-1.82)	<b>3.01</b> (2.53-3.36)	<b>4.83</b> (4.25-5.77)	<b>6.81</b> (5.77-8.76)	1398
Females	99-00	<b>1.33</b> (1.15-1.53)	<b>1.50</b> (1.20-1.60)	<b>2.80</b> (2.30-3.30)	<b>5.20</b> (4.20-5.90)	<b>6.80</b> (5.60-10.4)	1097
	01-02	<b>1.43</b> (1.30-1.56)	<b>1.44</b> (1.29-1.63)	<b>3.11</b> (2.74-3.43)	<b>4.93</b> (4.44-5.88)	<b>7.15</b> (6.32-7.86)	1355
	03-04	<b>1.38</b> (1.24-1.54)	<b>1.39</b> (1.18-1.57)	<b>2.71</b> (2.41-3.15)	<b>4.95</b> (4.29-5.51)	<b>6.87</b> (5.65-8.10)	1277
	05-06	<b>1.40</b> (1.27-1.54)	<b>1.42</b> (1.30-1.63)	<b>2.70</b> (2.39-3.19)	<b>5.21</b> (4.65-5.71)	<b>7.09</b> (6.24-7.94)	1305
	07-08	<b>1.51</b> (1.36-1.68)	<b>1.54</b> (1.38-1.70)	<b>2.84</b> (2.52-3.37)	<b>4.87</b> (4.23-6.13)	<b>7.18</b> (5.94-8.83)	1300
	09-10	<b>1.40</b> (1.30-1.51)	<b>1.38</b> (1.31-1.47)	<b>2.61</b> (2.41-2.90)	<b>4.58</b> (4.33-4.95)	<b>6.59</b> (5.37-7.86)	1450

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.12, 0.12, 0.31, 0.12, 0.12, and 0.12 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Barium\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Barium_BiomonitoringSummary.html)



## Urinary Barium (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00	<b>1.35</b> (1.25-1.46)	<b>1.40</b> (1.20-1.50)	<b>2.60</b> (2.30-2.90)	<b>4.50</b> (4.10-5.30)	<b>6.30</b> (5.50-6.80)	692
	01-02	<b>1.21</b> (1.06-1.37)	<b>1.25</b> (1.11-1.46)	<b>2.56</b> (2.04-2.91)	<b>4.35</b> (3.65-5.49)	<b>6.43</b> (5.21-8.22)	683
	03-04	<b>1.40</b> (1.15-1.70)	<b>1.45</b> (1.22-1.73)	<b>2.62</b> (1.78-3.38)	<b>4.07</b> (2.95-6.37)	<b>6.01</b> (4.01-7.88)	618
	05-06	<b>1.33</b> (1.24-1.42)	<b>1.36</b> (1.22-1.50)	<b>2.63</b> (2.35-2.89)	<b>4.47</b> (3.80-5.23)	<b>6.21</b> (5.23-7.00)	652
	07-08	<b>1.33</b> (1.16-1.53)	<b>1.37</b> (1.19-1.48)	<b>2.60</b> (2.29-2.84)	<b>4.21</b> (3.53-4.90)	<b>5.79</b> (4.90-8.00)	515
	09-10	<b>1.24</b> (1.07-1.45)	<b>1.18</b> (1.05-1.40)	<b>2.25</b> (1.88-2.71)	<b>4.15</b> (3.55-5.40)	<b>6.35</b> (5.00-8.75)	613
Non-Hispanic blacks	99-00	<b>1.34</b> (1.12-1.62)	<b>1.40</b> (1.20-1.60)	<b>2.50</b> (2.30-2.90)	<b>5.10</b> (3.70-6.60)	<b>7.40</b> (5.40-13.9)	540
	01-02	<b>1.30</b> (1.14-1.48)	<b>1.42</b> (1.22-1.62)	<b>2.61</b> (2.31-2.82)	<b>4.30</b> (3.70-5.18)	<b>5.99</b> (4.87-7.26)	667
	03-04	<b>1.27</b> (1.17-1.39)	<b>1.38</b> (1.26-1.48)	<b>2.34</b> (2.05-2.59)	<b>3.77</b> (3.35-4.36)	<b>5.86</b> (4.76-7.45)	723
	05-06	<b>1.25</b> (1.15-1.37)	<b>1.31</b> (1.21-1.41)	<b>2.40</b> (2.22-2.61)	<b>4.24</b> (3.69-4.83)	<b>6.19</b> (5.23-6.96)	692
	07-08	<b>1.17</b> (1.07-1.28)	<b>1.23</b> (1.12-1.37)	<b>2.14</b> (2.01-2.34)	<b>3.70</b> (3.27-4.00)	<b>5.00</b> (3.93-5.90)	589
	09-10	<b>1.22</b> (1.08-1.38)	<b>1.22</b> (1.07-1.38)	<b>2.13</b> (1.91-2.51)	<b>3.76</b> (3.09-4.88)	<b>5.50</b> (4.06-7.32)	544
Non-Hispanic whites	99-00	<b>1.56</b> (1.36-1.80)	<b>1.80</b> (1.60-2.00)	<b>3.30</b> (2.80-3.70)	<b>5.50</b> (4.50-6.30)	<b>7.50</b> (6.20-8.80)	765
	01-02	<b>1.61</b> (1.46-1.77)	<b>1.68</b> (1.54-1.85)	<b>3.31</b> (2.87-3.74)	<b>5.66</b> (4.94-6.30)	<b>7.73</b> (6.61-8.49)	1132
	03-04	<b>1.56</b> (1.37-1.78)	<b>1.61</b> (1.28-1.92)	<b>3.12</b> (2.75-3.70)	<b>5.57</b> (5.04-6.43)	<b>8.08</b> (6.87-9.53)	1074
	05-06	<b>1.59</b> (1.42-1.78)	<b>1.66</b> (1.50-1.86)	<b>3.08</b> (2.63-3.79)	<b>5.50</b> (4.90-6.08)	<b>7.10</b> (6.46-8.24)	1041
	07-08	<b>1.71</b> (1.55-1.88)	<b>1.82</b> (1.62-1.97)	<b>3.36</b> (2.91-3.71)	<b>5.38</b> (4.51-6.30)	<b>7.18</b> (6.22-9.05)	1095
	09-10	<b>1.56</b> (1.42-1.73)	<b>1.60</b> (1.40-1.76)	<b>3.00</b> (2.64-3.36)	<b>4.89</b> (4.48-5.84)	<b>7.16</b> (6.12-9.31)	1225

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.12, 0.12, 0.31, 0.12, 0.12, and 0.12 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Barium\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Barium_BiomonitoringSummary.html)

## Urinary Barium (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>1.19</b> (1.11-1.28)	<b>1.23</b> (1.14-1.33)	<b>2.40</b> (2.24-2.54)	<b>4.04</b> (3.76-4.35)	<b>5.52</b> (4.92-5.95)	2504
	13-14	<b>1.09</b> (1.03-1.16)	<b>1.10</b> (.980-1.21)	<b>2.17</b> (2.05-2.31)	<b>4.01</b> (3.61-4.28)	<b>5.67</b> (5.29-6.09)	2664
<b>Age group</b>							
6-11 years	11-12	<b>1.39</b> (1.24-1.55)	<b>1.46</b> (1.21-1.62)	<b>2.96</b> (2.33-3.52)	<b>4.92</b> (4.52-5.29)	<b>6.68</b> (5.25-7.92)	399
	13-14	<b>1.13</b> (.962-1.33)	<b>1.20</b> (.970-1.43)	<b>2.06</b> (1.73-2.64)	<b>3.48</b> (2.64-5.02)	<b>5.02</b> (2.96-9.85)	402
12-19 years	11-12	<b>1.52</b> (1.25-1.84)	<b>1.61</b> (1.24-1.90)	<b>2.98</b> (2.40-4.03)	<b>5.37</b> (4.27-6.08)	<b>6.63</b> (5.53-8.77)	390
	13-14	<b>1.43</b> (1.19-1.70)	<b>1.49</b> (1.10-1.75)	<b>2.78</b> (2.23-3.49)	<b>5.67</b> (4.18-6.69)	<b>6.92</b> (6.14-8.11)	451
20 years and older	11-12	<b>1.13</b> (1.06-1.21)	<b>1.19</b> (1.09-1.27)	<b>2.24</b> (2.09-2.44)	<b>3.74</b> (3.39-4.01)	<b>5.05</b> (4.37-5.78)	1715
	13-14	<b>1.05</b> (.989-1.11)	<b>1.03</b> (.930-1.16)	<b>2.13</b> (1.93-2.31)	<b>3.88</b> (3.33-4.25)	<b>5.60</b> (4.78-5.96)	1811
<b>Gender</b>							
Males	11-12	<b>1.29</b> (1.20-1.38)	<b>1.30</b> (1.24-1.41)	<b>2.52</b> (2.25-2.71)	<b>4.29</b> (3.74-4.58)	<b>5.96</b> (4.49-7.35)	1262
	13-14	<b>1.20</b> (1.10-1.31)	<b>1.24</b> (1.05-1.43)	<b>2.38</b> (2.09-2.68)	<b>4.27</b> (3.76-4.95)	<b>5.96</b> (5.60-6.69)	1318
Females	11-12	<b>1.11</b> (.989-1.25)	<b>1.14</b> (1.00-1.35)	<b>2.33</b> (2.06-2.57)	<b>3.90</b> (3.34-4.35)	<b>5.13</b> (4.44-5.57)	1242
	13-14	<b>.998</b> (.940-1.06)	<b>.980</b> (.870-1.12)	<b>2.03</b> (1.85-2.19)	<b>3.66</b> (3.21-4.07)	<b>5.19</b> (4.42-5.74)	1346
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>1.08</b> (.961-1.22)	<b>1.06</b> (.910-1.23)	<b>2.10</b> (1.79-2.57)	<b>3.95</b> (3.24-4.86)	<b>5.58</b> (4.10-7.22)	317
	13-14	<b>.938</b> (.853-1.03)	<b>.870</b> (.760-1.02)	<b>2.00</b> (1.61-2.25)	<b>3.15</b> (2.84-3.53)	<b>4.19</b> (3.48-4.95)	453
Non-Hispanic blacks	11-12	<b>.997</b> (.891-1.12)	<b>1.05</b> (.910-1.20)	<b>2.08</b> (1.79-2.29)	<b>3.63</b> (3.09-4.08)	<b>4.68</b> (4.02-5.19)	669
	13-14	<b>.947</b> (.865-1.04)	<b>.940</b> (.860-1.06)	<b>1.81</b> (1.59-2.08)	<b>3.48</b> (2.94-4.01)	<b>4.50</b> (3.92-5.95)	581
Non-Hispanic whites	11-12	<b>1.27</b> (1.17-1.38)	<b>1.32</b> (1.22-1.43)	<b>2.50</b> (2.25-2.71)	<b>4.33</b> (3.63-4.81)	<b>5.57</b> (4.87-6.35)	820
	13-14	<b>1.18</b> (1.10-1.26)	<b>1.20</b> (1.05-1.35)	<b>2.32</b> (2.16-2.53)	<b>4.27</b> (3.74-4.94)	<b>5.99</b> (5.57-6.44)	985
All Hispanics	11-12	<b>1.08</b> (.970-1.19)	<b>1.07</b> (.940-1.23)	<b>2.15</b> (1.86-2.47)	<b>3.74</b> (2.99-4.34)	<b>4.82</b> (3.96-5.98)	573
	13-14	<b>.927</b> (.840-1.03)	<b>.890</b> (.760-1.05)	<b>1.92</b> (1.72-2.14)	<b>3.15</b> (2.84-3.53)	<b>4.25</b> (3.60-4.82)	701
Asians	11-12	<b>1.16</b> (1.03-1.30)	<b>1.21</b> (1.02-1.35)	<b>2.28</b> (1.94-2.67)	<b>3.90</b> (3.20-4.47)	<b>5.50</b> (4.01-6.40)	353
	13-14	<b>.962</b> (.831-1.12)	<b>.920</b> (.790-1.13)	<b>1.93</b> (1.47-2.33)	<b>3.79</b> (2.95-4.75)	<b>5.67</b> (4.19-6.61)	292

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.1 and 0.06.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Barium\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Barium_BiomonitoringSummary.html)

## Urinary Barium (creatinine corrected) (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	<b>1.40</b> (1.26-1.56)	<b>1.41</b> (1.28-1.54)	<b>2.54</b> (2.20-2.91)	<b>4.68</b> (3.85-5.47)	<b>6.33</b> (5.47-8.09)	2180
	01-02	<b>1.44</b> (1.31-1.58)	<b>1.49</b> (1.35-1.63)	<b>2.76</b> (2.51-3.03)	<b>4.58</b> (4.15-4.96)	<b>6.24</b> (5.28-7.27)	2689
	03-04	<b>1.48</b> (1.37-1.60)	<b>1.41</b> (1.31-1.58)	<b>2.68</b> (2.44-2.89)	<b>4.92</b> (4.39-5.45)	<b>7.10</b> (6.29-7.77)	2558
	05-06	<b>1.50</b> (1.40-1.61)	<b>1.48</b> (1.37-1.61)	<b>2.75</b> (2.50-3.03)	<b>4.65</b> (4.09-5.10)	<b>6.38</b> (5.62-7.56)	2576
	07-08	<b>1.63</b> (1.51-1.75)	<b>1.60</b> (1.51-1.72)	<b>2.92</b> (2.72-3.16)	<b>4.85</b> (4.40-5.57)	<b>7.20</b> (5.94-8.59)	2627
	09-10	<b>1.56</b> (1.45-1.68)	<b>1.55</b> (1.42-1.64)	<b>2.72</b> (2.54-2.97)	<b>4.69</b> (4.12-5.16)	<b>6.24</b> (5.60-7.43)	2848
	Age group 6-11 years	99-00	<b>2.37</b> (1.68-3.32)	<b>2.38</b> (1.84-2.92)	<b>4.47</b> (2.55-6.46)	<b>10.2</b> (3.75-22.0)	<b>11.4</b> (5.46-22.0)
01-02		<b>2.20</b> (1.91-2.52)	<b>2.41</b> (2.19-2.83)	<b>3.91</b> (3.29-4.51)	<b>5.01</b> (4.58-6.00)	<b>6.71</b> (5.20-8.47)	368
03-04		<b>2.58</b> (2.22-2.99)	<b>3.00</b> (2.35-3.29)	<b>4.45</b> (3.57-5.54)	<b>6.69</b> (5.59-7.70)	<b>10.3</b> (6.53-21.0)	290
05-06		<b>2.14</b> (1.85-2.48)	<b>2.15</b> (1.76-2.51)	<b>3.83</b> (3.10-4.73)	<b>6.19</b> (4.84-7.83)	<b>10.0</b> (5.76-11.1)	355
07-08		<b>2.28</b> (2.04-2.54)	<b>2.41</b> (2.05-2.59)	<b>4.43</b> (3.87-4.70)	<b>6.58</b> (5.05-9.46)	<b>9.89</b> (7.13-13.3)	394
09-10		<b>2.03</b> (1.78-2.30)	<b>2.00</b> (1.77-2.40)	<b>3.33</b> (2.81-3.79)	<b>5.04</b> (4.17-7.39)	<b>8.76</b> (5.93-10.8)	378
12-19 years		99-00	<b>1.51</b> (1.34-1.70)	<b>1.40</b> (1.26-1.59)	<b>2.48</b> (1.97-3.06)	<b>4.36</b> (3.23-5.39)	<b>7.62</b> (4.24-11.4)
	01-02	<b>1.45</b> (1.33-1.59)	<b>1.56</b> (1.31-1.77)	<b>2.89</b> (2.68-3.12)	<b>4.52</b> (3.84-5.20)	<b>5.55</b> (4.81-6.10)	762
	03-04	<b>1.54</b> (1.36-1.75)	<b>1.59</b> (1.39-1.87)	<b>2.60</b> (2.24-3.48)	<b>4.97</b> (4.34-5.58)	<b>6.47</b> (5.38-7.77)	725
	05-06	<b>1.66</b> (1.50-1.84)	<b>1.73</b> (1.52-1.93)	<b>3.15</b> (2.76-3.42)	<b>4.25</b> (3.88-4.56)	<b>5.00</b> (4.46-6.68)	701
	07-08	<b>1.71</b> (1.52-1.92)	<b>1.70</b> (1.48-1.96)	<b>3.03</b> (2.51-3.65)	<b>4.80</b> (3.96-5.47)	<b>6.17</b> (4.80-8.12)	376
	09-10	<b>1.67</b> (1.48-1.88)	<b>1.66</b> (1.54-1.84)	<b>2.69</b> (2.24-3.18)	<b>3.98</b> (3.40-5.29)	<b>6.42</b> (4.61-9.33)	451
	20 years and older	99-00	<b>1.30</b> (1.19-1.42)	<b>1.33</b> (1.20-1.46)	<b>2.32</b> (2.08-2.62)	<b>4.29</b> (3.63-4.96)	<b>5.65</b> (5.28-6.33)
01-02		<b>1.37</b> (1.24-1.50)	<b>1.40</b> (1.24-1.52)	<b>2.53</b> (2.23-2.84)	<b>4.38</b> (4.02-5.00)	<b>6.55</b> (5.00-7.64)	1559
03-04		<b>1.38</b> (1.26-1.50)	<b>1.32</b> (1.22-1.41)	<b>2.39</b> (2.13-2.70)	<b>4.39</b> (3.77-5.16)	<b>7.00</b> (5.45-8.50)	1543
05-06		<b>1.42</b> (1.30-1.54)	<b>1.39</b> (1.26-1.55)	<b>2.59</b> (2.33-2.82)	<b>4.53</b> (3.65-5.40)	<b>6.34</b> (5.37-7.67)	1520
07-08		<b>1.56</b> (1.44-1.69)	<b>1.55</b> (1.40-1.66)	<b>2.80</b> (2.55-3.04)	<b>4.64</b> (4.05-5.43)	<b>7.20</b> (5.78-8.65)	1857
09-10		<b>1.50</b> (1.40-1.61)	<b>1.46</b> (1.38-1.55)	<b>2.67</b> (2.42-2.92)	<b>4.71</b> (4.07-5.23)	<b>6.03</b> (5.53-7.34)	2019
Gender Males		99-00	<b>1.32</b> (1.22-1.42)	<b>1.36</b> (1.23-1.47)	<b>2.39</b> (2.11-2.57)	<b>4.24</b> (3.48-5.00)	<b>5.61</b> (4.39-10.2)
	01-02	<b>1.30</b> (1.16-1.45)	<b>1.34</b> (1.19-1.50)	<b>2.46</b> (2.14-2.83)	<b>4.51</b> (3.73-4.96)	<b>5.42</b> (4.81-7.51)	1334
	03-04	<b>1.36</b> (1.26-1.47)	<b>1.31</b> (1.19-1.43)	<b>2.60</b> (2.37-2.75)	<b>4.36</b> (3.97-4.72)	<b>6.01</b> (5.45-6.96)	1281
	05-06	<b>1.36</b> (1.23-1.50)	<b>1.38</b> (1.25-1.52)	<b>2.36</b> (2.19-2.73)	<b>4.24</b> (3.65-4.82)	<b>5.69</b> (4.75-7.36)	1271
	07-08	<b>1.45</b> (1.34-1.55)	<b>1.50</b> (1.32-1.60)	<b>2.59</b> (2.34-2.79)	<b>4.30</b> (3.84-4.72)	<b>5.56</b> (5.05-6.30)	1327
	09-10	<b>1.40</b> (1.28-1.52)	<b>1.38</b> (1.22-1.50)	<b>2.39</b> (2.13-2.68)	<b>4.05</b> (3.52-4.71)	<b>5.55</b> (4.89-6.77)	1398
	Females	99-00	<b>1.49</b> (1.27-1.74)	<b>1.48</b> (1.29-1.68)	<b>2.65</b> (2.13-3.46)	<b>4.91</b> (3.96-6.38)	<b>7.36</b> (5.25-11.3)
01-02		<b>1.59</b> (1.45-1.75)	<b>1.64</b> (1.48-1.79)	<b>2.98</b> (2.75-3.30)	<b>4.76</b> (4.38-5.31)	<b>6.97</b> (5.86-7.52)	1355
03-04		<b>1.60</b> (1.45-1.77)	<b>1.55</b> (1.35-1.73)	<b>2.78</b> (2.34-3.25)	<b>5.50</b> (4.43-6.86)	<b>7.88</b> (6.28-11.5)	1277
05-06		<b>1.65</b> (1.54-1.76)	<b>1.63</b> (1.45-1.83)	<b>3.09</b> (2.71-3.38)	<b>4.87</b> (4.48-5.65)	<b>7.48</b> (6.04-10.0)	1305
07-08		<b>1.83</b> (1.63-2.05)	<b>1.74</b> (1.52-2.06)	<b>3.22</b> (2.82-3.89)	<b>5.94</b> (4.57-7.38)	<b>8.15</b> (7.18-9.49)	1300
09-10		<b>1.73</b> (1.60-1.87)	<b>1.71</b> (1.62-1.86)	<b>3.06</b> (2.72-3.41)	<b>5.06</b> (4.59-5.74)	<b>6.58</b> (5.88-8.19)	1450

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Barium\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Barium_BiomonitoringSummary.html)

## Urinary Barium (creatinine corrected) (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00	<b>1.21</b> (1.10-1.33)	<b>1.18</b> (1.05-1.38)	<b>2.39</b> (2.10-2.59)	<b>4.00</b> (3.33-4.80)	<b>5.31</b> (4.80-6.51)	692
	01-02	<b>1.18</b> (1.03-1.34)	<b>1.16</b> (1.00-1.38)	<b>2.33</b> (1.90-2.61)	<b>3.68</b> (3.29-4.10)	<b>4.96</b> (4.24-6.80)	682
	03-04	<b>1.29</b> (1.08-1.55)	<b>1.28</b> (1.03-1.53)	<b>2.25</b> (1.73-2.97)	<b>3.99</b> (2.79-5.03)	<b>4.99</b> (4.24-6.56)	618
	05-06	<b>1.25</b> (1.17-1.33)	<b>1.21</b> (1.09-1.33)	<b>2.27</b> (1.84-2.61)	<b>3.66</b> (3.07-4.35)	<b>5.11</b> (4.00-5.95)	652
	07-08	<b>1.33</b> (1.16-1.53)	<b>1.28</b> (1.14-1.49)	<b>2.40</b> (1.87-2.90)	<b>4.23</b> (3.45-4.87)	<b>6.18</b> (4.75-7.27)	515
	09-10	<b>1.30</b> (1.18-1.44)	<b>1.26</b> (1.14-1.41)	<b>2.33</b> (1.98-2.79)	<b>3.55</b> (3.11-4.42)	<b>5.50</b> (4.27-6.58)	613
Non-Hispanic blacks	99-00	<b>.881</b> (.703-1.11)	<b>.905</b> (.710-1.06)	<b>1.64</b> (1.36-2.00)	<b>3.27</b> (2.26-4.76)	<b>4.84</b> (3.57-10.8)	540
	01-02	<b>.891</b> (.777-1.02)	<b>.921</b> (.754-1.11)	<b>1.64</b> (1.44-2.03)	<b>2.86</b> (2.48-3.37)	<b>4.02</b> (3.52-4.68)	667
	03-04	<b>.915</b> (.832-1.01)	<b>.963</b> (.880-1.04)	<b>1.51</b> (1.39-1.75)	<b>2.62</b> (2.29-3.04)	<b>3.76</b> (3.22-4.72)	723
	05-06	<b>.909</b> (.845-.979)	<b>.880</b> (.820-.970)	<b>1.78</b> (1.56-1.97)	<b>2.99</b> (2.63-3.14)	<b>3.91</b> (3.39-4.73)	692
	07-08	<b>.858</b> (.807-.913)	<b>.850</b> (.790-.920)	<b>1.53</b> (1.34-1.61)	<b>2.51</b> (2.01-3.03)	<b>3.43</b> (2.83-5.05)	589
	09-10	<b>.965</b> (.853-1.09)	<b>.930</b> (.860-1.05)	<b>1.63</b> (1.40-1.85)	<b>2.92</b> (2.33-3.34)	<b>3.71</b> (3.24-4.69)	544
Non-Hispanic whites	99-00	<b>1.56</b> (1.38-1.77)	<b>1.55</b> (1.36-1.74)	<b>2.72</b> (2.27-3.24)	<b>5.00</b> (3.81-6.02)	<b>6.60</b> (5.52-10.2)	765
	01-02	<b>1.62</b> (1.49-1.76)	<b>1.66</b> (1.49-1.82)	<b>3.04</b> (2.76-3.32)	<b>4.96</b> (4.55-5.41)	<b>6.74</b> (5.57-7.64)	1132
	03-04	<b>1.64</b> (1.49-1.82)	<b>1.60</b> (1.40-1.76)	<b>2.88</b> (2.56-3.26)	<b>5.38</b> (4.67-6.28)	<b>7.57</b> (6.69-9.27)	1074
	05-06	<b>1.65</b> (1.52-1.80)	<b>1.61</b> (1.46-1.83)	<b>2.95</b> (2.70-3.26)	<b>4.82</b> (4.32-5.65)	<b>7.21</b> (5.69-8.51)	1041
	07-08	<b>1.91</b> (1.74-2.10)	<b>1.85</b> (1.65-2.09)	<b>3.22</b> (2.84-3.76)	<b>5.42</b> (4.55-6.91)	<b>7.81</b> (6.33-9.45)	1095
	09-10	<b>1.75</b> (1.59-1.92)	<b>1.70</b> (1.58-1.86)	<b>2.99</b> (2.67-3.33)	<b>5.00</b> (4.14-5.69)	<b>6.63</b> (5.69-8.50)	1225

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Barium\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Barium_BiomonitoringSummary.html)

## Urinary Barium (creatinine corrected) (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>1.35</b> (1.24-1.48)	<b>1.38</b> (1.27-1.47)	<b>2.44</b> (2.10-2.84)	<b>4.19</b> (3.72-4.85)	<b>6.27</b> (5.20-6.66)	2502
	13-14	<b>1.26</b> (1.19-1.34)	<b>1.24</b> (1.13-1.38)	<b>2.33</b> (2.18-2.50)	<b>4.06</b> (3.75-4.26)	<b>5.59</b> (5.02-6.06)	2663
<b>Age group</b>							
6-11 years	11-12	<b>1.99</b> (1.80-2.19)	<b>2.18</b> (1.70-2.61)	<b>3.72</b> (3.35-4.03)	<b>5.82</b> (4.95-6.45)	<b>6.78</b> (5.98-8.18)	398
	13-14	<b>1.69</b> (1.39-2.05)	<b>1.61</b> (1.24-2.20)	<b>3.10</b> (2.29-3.80)	<b>5.24</b> (3.54-7.57)	<b>6.62</b> (5.03-9.83)	402
12-19 years	11-12	<b>1.45</b> (1.24-1.70)	<b>1.42</b> (1.24-1.78)	<b>2.81</b> (1.96-3.19)	<b>4.90</b> (3.82-5.69)	<b>6.29</b> (4.90-6.57)	390
	13-14	<b>1.29</b> (1.18-1.42)	<b>1.36</b> (1.20-1.59)	<b>2.33</b> (2.12-2.64)	<b>3.69</b> (3.24-4.20)	<b>4.80</b> (4.09-5.05)	451
20 years and older	11-12	<b>1.29</b> (1.17-1.41)	<b>1.31</b> (1.20-1.43)	<b>2.21</b> (1.95-2.63)	<b>3.83</b> (3.50-4.31)	<b>5.54</b> (4.38-6.84)	1714
	13-14	<b>1.22</b> (1.16-1.29)	<b>1.18</b> (1.10-1.28)	<b>2.23</b> (2.04-2.43)	<b>4.00</b> (3.69-4.31)	<b>5.59</b> (5.00-6.11)	1810
<b>Gender</b>							
Males	11-12	<b>1.20</b> (1.10-1.32)	<b>1.17</b> (1.08-1.33)	<b>2.09</b> (1.85-2.53)	<b>3.72</b> (3.37-4.22)	<b>5.35</b> (4.11-6.34)	1261
	13-14	<b>1.20</b> (1.13-1.28)	<b>1.16</b> (1.09-1.30)	<b>2.26</b> (1.97-2.48)	<b>3.80</b> (3.39-4.28)	<b>4.79</b> (4.42-5.24)	1317
Females	11-12	<b>1.51</b> (1.36-1.68)	<b>1.51</b> (1.39-1.67)	<b>2.73</b> (2.39-3.12)	<b>4.83</b> (3.88-5.63)	<b>6.52</b> (5.32-8.33)	1241
	13-14	<b>1.32</b> (1.23-1.43)	<b>1.33</b> (1.17-1.52)	<b>2.42</b> (2.18-2.72)	<b>4.24</b> (3.96-4.60)	<b>6.23</b> (5.29-8.04)	1346
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>1.22</b> (1.09-1.36)	<b>1.16</b> (1.02-1.31)	<b>2.20</b> (1.82-2.71)	<b>4.00</b> (3.08-4.84)	<b>5.74</b> (3.94-7.90)	317
	13-14	<b>1.07</b> (.985-1.16)	<b>1.02</b> (.943-1.13)	<b>1.88</b> (1.68-2.19)	<b>3.53</b> (2.78-4.32)	<b>4.76</b> (4.28-5.62)	453
Non-Hispanic blacks	11-12	<b>.775</b> (.698-.861)	<b>.744</b> (.664-.918)	<b>1.48</b> (1.32-1.64)	<b>2.64</b> (2.24-3.06)	<b>3.56</b> (3.21-3.86)	669
	13-14	<b>.721</b> (.660-.786)	<b>.717</b> (.657-.790)	<b>1.31</b> (1.18-1.49)	<b>2.42</b> (1.95-2.85)	<b>3.26</b> (2.85-4.46)	581
Non-Hispanic whites	11-12	<b>1.54</b> (1.38-1.70)	<b>1.53</b> (1.44-1.64)	<b>2.71</b> (2.18-3.18)	<b>4.71</b> (3.82-5.54)	<b>6.45</b> (5.36-7.63)	818
	13-14	<b>1.45</b> (1.38-1.52)	<b>1.46</b> (1.27-1.63)	<b>2.59</b> (2.45-2.87)	<b>4.31</b> (3.99-4.59)	<b>6.06</b> (5.03-6.79)	984
All Hispanics	11-12	<b>1.21</b> (1.09-1.34)	<b>1.19</b> (1.09-1.28)	<b>2.20</b> (1.81-2.70)	<b>3.70</b> (3.10-4.66)	<b>5.17</b> (3.73-6.49)	573
	13-14	<b>1.04</b> (.960-1.12)	<b>1.01</b> (.935-1.10)	<b>1.86</b> (1.68-2.00)	<b>3.15</b> (2.78-3.64)	<b>4.52</b> (3.76-5.32)	701
Asians	11-12	<b>1.55</b> (1.40-1.71)	<b>1.49</b> (1.35-1.73)	<b>2.86</b> (2.34-3.33)	<b>5.03</b> (4.00-5.95)	<b>7.26</b> (5.03-9.71)	353
	13-14	<b>1.51</b> (1.34-1.69)	<b>1.56</b> (1.19-1.82)	<b>2.79</b> (2.37-3.21)	<b>4.42</b> (3.96-5.51)	<b>6.27</b> (4.99-8.05)	292

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Barium\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Barium_BiomonitoringSummary.html)

## Urinary Beryllium (1999 – 2010) ‡

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	< LOD	< LOD	< LOD	2465
	01-02	*	< LOD	< LOD	< LOD	< LOD	2690
	03-04	*	< LOD	< LOD	< LOD	< LOD	2558
	05-06	*	< LOD	< LOD	< LOD	< LOD	2576
	07-08	*	< LOD	< LOD	< LOD	< LOD	2627
	09-10	*	< LOD	< LOD	< LOD	< LOD	2848
Age group 6-11 years	99-00	*	< LOD	< LOD	< LOD	< LOD	340
	01-02	*	< LOD	< LOD	< LOD	< LOD	368
	03-04	*	< LOD	< LOD	< LOD	< LOD	290
	05-06	*	< LOD	< LOD	< LOD	< LOD	355
	07-08	*	< LOD	< LOD	< LOD	< LOD	394
	09-10	*	< LOD	< LOD	< LOD	< LOD	378
12-19 years	99-00	*	< LOD	< LOD	< LOD	< LOD	719
	01-02	*	< LOD	< LOD	< LOD	.140 (<LOD-.170)	762
	03-04	*	< LOD	< LOD	< LOD	< LOD	725
	05-06	*	< LOD	< LOD	< LOD	< LOD	701
	07-08	*	< LOD	< LOD	< LOD	< LOD	376
	09-10	*	< LOD	< LOD	< LOD	< LOD	451
20 years and older	99-00	*	< LOD	< LOD	< LOD	< LOD	1406
	01-02	*	< LOD	< LOD	< LOD	< LOD	1560
	03-04	*	< LOD	< LOD	< LOD	< LOD	1543
	05-06	*	< LOD	< LOD	< LOD	< LOD	1520
	07-08	*	< LOD	< LOD	< LOD	< LOD	1857
	09-10	*	< LOD	< LOD	< LOD	< LOD	2019
Gender Males	99-00	*	< LOD	< LOD	< LOD	< LOD	1227
	01-02	*	< LOD	< LOD	< LOD	.130 (<LOD-.150)	1335
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1281
	05-06	*	< LOD	< LOD	< LOD	< LOD	1271
	07-08	*	< LOD	< LOD	< LOD	< LOD	1327
	09-10	*	< LOD	< LOD	< LOD	< LOD	1398
	99-00	*	< LOD	< LOD	< LOD	< LOD	1238
	01-02	*	< LOD	< LOD	< LOD	< LOD	1355
03-04	*	< LOD	< LOD	< LOD	< LOD	1277	
05-06	*	< LOD	< LOD	< LOD	< LOD	1305	
07-08	*	< LOD	< LOD	< LOD	< LOD	1300	
09-10	*	< LOD	< LOD	< LOD	< LOD	1450	

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.13, 0.13, 0.13, 0.072, 0.072, and 0.072 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Not measured after Survey years 2009-2010

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Beryllium\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Beryllium_BiomonitoringSummary.html)

## Urinary Beryllium (1999 – 2010) ‡

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b> Mexican Americans	99-00	*	< LOD	< LOD	< LOD	< LOD	884
	01-02	*	< LOD	< LOD	< LOD	.130 (<LOD-.160)	683
	03-04	*	< LOD	< LOD	< LOD	< LOD	618
	05-06	*	< LOD	< LOD	< LOD	< LOD	652
	07-08	*	< LOD	< LOD	< LOD	< LOD	515
	09-10	*	< LOD	< LOD	< LOD	< LOD	613
Non-Hispanic blacks	99-00	*	< LOD	< LOD	< LOD	< LOD	568
	01-02	*	< LOD	< LOD	< LOD	< LOD	667
	03-04	*	< LOD	< LOD	< LOD	< LOD	723
	05-06	*	< LOD	< LOD	< LOD	< LOD	692
	07-08	*	< LOD	< LOD	< LOD	< LOD	589
Non-Hispanic whites	99-00	*	< LOD	< LOD	< LOD	< LOD	822
	01-02	*	< LOD	< LOD	< LOD	< LOD	1132
	03-04	*	< LOD	< LOD	< LOD	< LOD	1074
	05-06	*	< LOD	< LOD	< LOD	< LOD	1041
	07-08	*	< LOD	< LOD	< LOD	< LOD	1095
	09-10	*	< LOD	< LOD	< LOD	< LOD	1225

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.13, 0.13, 0.13, 0.072, 0.072, and 0.072 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Not measured after Survey years 2009-2010

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Beryllium\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Beryllium_BiomonitoringSummary.html)

## Urinary Beryllium (creatinine corrected) (1999 – 2010) ‡

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	< LOD	< LOD	< LOD	2465
	01-02	*	< LOD	< LOD	< LOD	< LOD	2689
	03-04	*	< LOD	< LOD	< LOD	< LOD	2558
	05-06	*	< LOD	< LOD	< LOD	< LOD	2576
	07-08	*	< LOD	< LOD	< LOD	< LOD	2627
	09-10	*	< LOD	< LOD	< LOD	< LOD	2848
Age group 6-11 years	99-00	*	< LOD	< LOD	< LOD	< LOD	340
	01-02	*	< LOD	< LOD	< LOD	< LOD	368
	03-04	*	< LOD	< LOD	< LOD	< LOD	290
	05-06	*	< LOD	< LOD	< LOD	< LOD	355
	07-08	*	< LOD	< LOD	< LOD	< LOD	394
	09-10	*	< LOD	< LOD	< LOD	< LOD	378
12-19 years	99-00	*	< LOD	< LOD	< LOD	< LOD	719
	01-02	*	< LOD	< LOD	< LOD	.231 (<LOD-.273)	762
	03-04	*	< LOD	< LOD	< LOD	< LOD	725
	05-06	*	< LOD	< LOD	< LOD	< LOD	701
	07-08	*	< LOD	< LOD	< LOD	< LOD	376
	09-10	*	< LOD	< LOD	< LOD	< LOD	451
20 years and older	99-00	*	< LOD	< LOD	< LOD	< LOD	1406
	01-02	*	< LOD	< LOD	< LOD	< LOD	1559
	03-04	*	< LOD	< LOD	< LOD	< LOD	1543
	05-06	*	< LOD	< LOD	< LOD	< LOD	1520
	07-08	*	< LOD	< LOD	< LOD	< LOD	1857
	09-10	*	< LOD	< LOD	< LOD	< LOD	2019
Gender							
Males	99-00	*	< LOD	< LOD	< LOD	< LOD	1227
	01-02	*	< LOD	< LOD	< LOD	.281 (<LOD-.333)	1334
	03-04	*	< LOD	< LOD	< LOD	< LOD	1281
	05-06	*	< LOD	< LOD	< LOD	< LOD	1271
	07-08	*	< LOD	< LOD	< LOD	< LOD	1327
	09-10	*	< LOD	< LOD	< LOD	< LOD	1398
Females	99-00	*	< LOD	< LOD	< LOD	< LOD	1238
	01-02	*	< LOD	< LOD	< LOD	< LOD	1355
	03-04	*	< LOD	< LOD	< LOD	< LOD	1277
	05-06	*	< LOD	< LOD	< LOD	< LOD	1305
	07-08	*	< LOD	< LOD	< LOD	< LOD	1300
	09-10	*	< LOD	< LOD	< LOD	< LOD	1450

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Not measured after Survey years 2009-2010

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Beryllium\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Beryllium_BiomonitoringSummary.html)



## Urinary Beryllium (creatinine corrected) (1999 – 2010) ‡

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b> Mexican Americans	99-00	*	< LOD	< LOD	< LOD	< LOD	884
	01-02	*	< LOD	< LOD	< LOD	.346 (<LOD-.391)	682
	03-04	*	< LOD	< LOD	< LOD	< LOD	618
	05-06	*	< LOD	< LOD	< LOD	< LOD	652
	07-08	*	< LOD	< LOD	< LOD	< LOD	515
	09-10	*	< LOD	< LOD	< LOD	< LOD	613
Non-Hispanic blacks	99-00	*	< LOD	< LOD	< LOD	< LOD	568
	01-02	*	< LOD	< LOD	< LOD	< LOD	667
	03-04	*	< LOD	< LOD	< LOD	< LOD	723
	05-06	*	< LOD	< LOD	< LOD	< LOD	692
	07-08	*	< LOD	< LOD	< LOD	< LOD	589
Non-Hispanic whites	99-00	*	< LOD	< LOD	< LOD	< LOD	822
	01-02	*	< LOD	< LOD	< LOD	< LOD	1132
	03-04	*	< LOD	< LOD	< LOD	< LOD	1074
	05-06	*	< LOD	< LOD	< LOD	< LOD	1041
	07-08	*	< LOD	< LOD	< LOD	< LOD	1095
	09-10	*	< LOD	< LOD	< LOD	< LOD	1225

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Not measured after Survey years 2009-2010

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Beryllium\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Beryllium_BiomonitoringSummary.html)

## Blood Cadmium (1999 – 2010)

Geometric mean and selected percentiles of blood concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	<b>.412</b> (.378-.449)	<b>.400</b> (.300-.400)	<b>.600</b> (.500-.700)	<b>1.00</b> (1.00-1.10)	<b>1.40</b> (1.30-1.40)	7970
	01-02	*	<b>.300</b> (.300-.400)	<b>.500</b> (.500-.600)	<b>1.00</b> (.900-1.10)	<b>1.40</b> (1.20-1.70)	8945
	03-04	<b>.304</b> (.289-.320)	<b>.300</b> (.300-.300)	<b>.500</b> (.500-.600)	<b>1.10</b> (1.00-1.20)	<b>1.60</b> (1.50-1.60)	8372
	05-06	<b>.310</b> (.294-.327)	<b>.270</b> (.250-.280)	<b>.510</b> (.460-.560)	<b>1.02</b> (.910-1.13)	<b>1.53</b> (1.34-1.75)	8407
	07-08	<b>.315</b> (.300-.331)	<b>.270</b> (.260-.280)	<b>.500</b> (.460-.560)	<b>1.00</b> (.900-1.13)	<b>1.52</b> (1.30-1.77)	8266
	09-10	<b>.302</b> (.293-.311)	<b>.260</b> (.250-.270)	<b>.480</b> (.460-.510)	<b>.960</b> (.880-1.01)	<b>1.40</b> (1.29-1.53)	8793
	Age group 1-5 years	99-00	*	< LOD	<b>.300</b> (<LOD-.400)	<b>.400</b> (.300-.400)	<b>.400</b> (.300-.700)
01-02		*	< LOD	< LOD	< LOD	<b>.300</b> (.300-.300)	898
03-04		*	< LOD	< LOD	<b>.200</b> (.200-.300)	<b>.200</b> (.200-.400)	910
05-06		*	< LOD	< LOD	< LOD	<b>.230</b> (.210-.250)	968
07-08		*	< LOD	< LOD	<b>.210</b> (<LOD-.230)	<b>.240</b> (.220-.260)	817
09-10		*	< LOD	< LOD	<b>.200</b> (<LOD-.210)	<b>.220</b> (.200-.240)	836
6-11 years		99-00	*	< LOD	<b>.300</b> (<LOD-.400)	<b>.400</b> (.300-.500)	<b>.500</b> (.400-.500)
	01-02	*	< LOD	< LOD	<b>.300</b> (.300-.300)	<b>.400</b> (.400-.400)	1044
	03-04	*	< LOD	<b>.200</b> (<LOD-.200)	<b>.300</b> (.200-.300)	<b>.300</b> (.300-.300)	856
	05-06	*	< LOD	< LOD	<b>.220</b> (.200-.240)	<b>.260</b> (.230-.280)	934
	07-08	*	< LOD	< LOD	<b>.230</b> (.210-.240)	<b>.260</b> (.240-.280)	1011
	09-10	*	< LOD	< LOD	<b>.210</b> (.200-.240)	<b>.240</b> (.220-.280)	1009
	12-19 years	99-00	<b>.333</b> (.304-.366)	<b>.300</b> (.300-.400)	<b>.400</b> (.400-.500)	<b>.800</b> (.600-1.00)	<b>1.10</b> (.900-1.20)
01-02		*	< LOD	<b>.300</b> (.300-.400)	<b>.500</b> (.400-.700)	<b>.900</b> (.700-1.20)	2231
03-04		*	<b>.200</b> (<LOD-.200)	<b>.300</b> (.300-.300)	<b>.600</b> (.500-.700)	<b>.900</b> (.800-1.10)	2081
05-06		*	< LOD	<b>.250</b> (.240-.270)	<b>.520</b> (.410-.680)	<b>.960</b> (.820-1.08)	1996
07-08		*	< LOD	<b>.260</b> (.240-.270)	<b>.520</b> (.400-.670)	<b>.900</b> (.730-1.19)	1074
09-10		*	< LOD	<b>.240</b> (.220-.260)	<b>.340</b> (.310-.450)	<b>.620</b> (.460-.850)	1183
20 years and older		99-00	<b>.468</b> (.426-.513)	<b>.400</b> (.400-.500)	<b>.700</b> (.600-.800)	<b>1.10</b> (1.00-1.20)	<b>1.50</b> (1.40-1.60)
	01-02	<b>.425</b> (.400-.452)	<b>.400</b> (.400-.400)	<b>.600</b> (.600-.700)	<b>1.10</b> (1.00-1.30)	<b>1.60</b> (1.40-1.90)	4772
	03-04	<b>.378</b> (.359-.398)	<b>.400</b> (.300-.400)	<b>.600</b> (.600-.700)	<b>1.20</b> (1.20-1.30)	<b>1.80</b> (1.60-1.90)	4525
	05-06	<b>.373</b> (.352-.395)	<b>.330</b> (.310-.350)	<b>.610</b> (.570-.660)	<b>1.17</b> (1.06-1.26)	<b>1.72</b> (1.53-1.95)	4509
	07-08	<b>.376</b> (.354-.399)	<b>.330</b> (.310-.350)	<b>.600</b> (.550-.670)	<b>1.16</b> (1.02-1.30)	<b>1.70</b> (1.50-1.96)	5364
	09-10	<b>.358</b> (.347-.370)	<b>.320</b> (.310-.330)	<b>.580</b> (.550-.600)	<b>1.10</b> (1.00-1.18)	<b>1.55</b> (1.43-1.72)	5765
	Gender Males	99-00	<b>.403</b> (.368-.441)	<b>.400</b> (.300-.400)	<b>.600</b> (.500-.700)	<b>1.00</b> (.900-1.10)	<b>1.40</b> (1.30-1.50)
01-02		*	<b>.300</b> (<LOD-.300)	<b>.500</b> (.500-.600)	<b>1.00</b> (.900-1.10)	<b>1.50</b> (1.20-1.80)	4339
03-04		<b>.283</b> (.266-.300)	<b>.300</b> (.200-.300)	<b>.500</b> (.500-.500)	<b>1.10</b> (1.00-1.20)	<b>1.60</b> (1.50-1.60)	4131
05-06		*	<b>.240</b> (.220-.260)	<b>.470</b> (.420-.530)	<b>1.02</b> (.910-1.12)	<b>1.53</b> (1.27-1.86)	4092
07-08		<b>.299</b> (.283-.317)	<b>.250</b> (.230-.260)	<b>.470</b> (.420-.540)	<b>1.05</b> (.930-1.19)	<b>1.60</b> (1.30-1.90)	4147
09-10		<b>.279</b> (.268-.289)	<b>.230</b> (.220-.240)	<b>.410</b> (.390-.460)	<b>.920</b> (.830-1.00)	<b>1.45</b> (1.30-1.58)	4366
Females		99-00	<b>.421</b> (.386-.460)	<b>.400</b> (.400-.400)	<b>.600</b> (.500-.700)	<b>1.00</b> (1.00-1.10)	<b>1.30</b> (1.20-1.40)
	01-02	<b>.382</b> (.362-.403)	<b>.400</b> (.300-.400)	<b>.600</b> (.500-.600)	<b>1.00</b> (.900-1.10)	<b>1.40</b> (1.20-1.70)	4606
	03-04	<b>.326</b> (.309-.344)	<b>.300</b> (.300-.300)	<b>.600</b> (.500-.600)	<b>1.10</b> (1.00-1.20)	<b>1.60</b> (1.50-1.70)	4241
	05-06	<b>.329</b> (.311-.349)	<b>.290</b> (.280-.310)	<b>.530</b> (.480-.580)	<b>1.02</b> (.870-1.18)	<b>1.54</b> (1.33-1.79)	4315
	07-08	<b>.331</b> (.316-.348)	<b>.290</b> (.280-.310)	<b>.530</b> (.480-.570)	<b>.980</b> (.860-1.10)	<b>1.43</b> (1.29-1.63)	4119
	09-10	<b>.326</b> (.314-.339)	<b>.290</b> (.280-.310)	<b>.520</b> (.490-.550)	<b>.960</b> (.880-1.10)	<b>1.40</b> (1.20-1.53)	4427

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.3, 0.3, 0.14, 0.2, 0.2, and 0.2 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Cadmium\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Cadmium_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Cadmium\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Cadmium_FactSheet.html)

## Blood Cadmium (1999 – 2010)

Geometric mean and selected percentiles of blood concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00	<b>.395</b> (.367-.424)	<b>.400</b> (.400-.400)	<b>.500</b> (.500-.600)	<b>.800</b> (.700-1.00)	<b>1.20</b> (.900-1.30)	2742
	01-02	*	<b>&lt; LOD</b>	<b>.400</b> (.400-.500)	<b>.600</b> (.500-.800)	<b>1.00</b> (.700-1.30)	2268
	03-04	<b>.235</b> (.216-.255)	<b>.200</b> (.200-.300)	<b>.400</b> (.300-.400)	<b>.600</b> (.500-.800)	<b>1.00</b> (.800-1.50)	2085
	05-06	*	<b>.220</b> (.200-.240)	<b>.350</b> (.300-.400)	<b>.580</b> (.510-.680)	<b>.820</b> (.710-1.00)	2236
	07-08	*	<b>.220</b> (.210-.230)	<b>.350</b> (.320-.370)	<b>.570</b> (.510-.660)	<b>.840</b> (.690-1.02)	1712
	09-10	*	<b>.220</b> (.200-.230)	<b>.330</b> (.300-.370)	<b>.580</b> (.500-.670)	<b>.800</b> (.690-.960)	1966
Non-Hispanic blacks	99-00	<b>.393</b> (.361-.427)	<b>.400</b> (.300-.400)	<b>.600</b> (.500-.600)	<b>1.00</b> (.900-1.20)	<b>1.40</b> (1.20-1.60)	1842
	01-02	*	<b>.300</b> (<LOD-.300)	<b>.500</b> (.500-.600)	<b>1.00</b> (.900-1.10)	<b>1.40</b> (1.20-1.70)	2219
	03-04	<b>.304</b> (.275-.337)	<b>.300</b> (.300-.300)	<b>.500</b> (.400-.600)	<b>1.00</b> (.900-1.20)	<b>1.50</b> (1.30-1.70)	2292
	05-06	<b>.307</b> (.290-.326)	<b>.260</b> (.250-.280)	<b>.490</b> (.440-.570)	<b>1.03</b> (.880-1.21)	<b>1.50</b> (1.23-1.79)	2193
	07-08	<b>.333</b> (.316-.352)	<b>.280</b> (.270-.300)	<b>.550</b> (.480-.620)	<b>1.20</b> (1.01-1.36)	<b>1.81</b> (1.45-2.13)	1746
	09-10	<b>.328</b> (.310-.347)	<b>.280</b> (.260-.290)	<b>.550</b> (.490-.640)	<b>1.10</b> (1.00-1.20)	<b>1.52</b> (1.38-1.73)	1593
Non-Hispanic whites	99-00	<b>.420</b> (.376-.470)	<b>.400</b> (.300-.500)	<b>.600</b> (.500-.700)	<b>1.10</b> (1.00-1.20)	<b>1.40</b> (1.30-1.50)	2716
	01-02	*	<b>.300</b> (.300-.400)	<b>.600</b> (.500-.600)	<b>1.00</b> (.900-1.20)	<b>1.50</b> (1.30-1.80)	3806
	03-04	<b>.313</b> (.296-.331)	<b>.300</b> (.300-.300)	<b>.600</b> (.500-.600)	<b>1.10</b> (1.00-1.20)	<b>1.60</b> (1.50-1.70)	3478
	05-06	<b>.321</b> (.300-.343)	<b>.270</b> (.250-.300)	<b>.540</b> (.470-.610)	<b>1.08</b> (.930-1.23)	<b>1.64</b> (1.40-1.94)	3310
	07-08	<b>.321</b> (.303-.341)	<b>.270</b> (.260-.290)	<b>.520</b> (.470-.580)	<b>1.05</b> (.920-1.20)	<b>1.55</b> (1.30-1.80)	3461
	09-10	<b>.307</b> (.297-.318)	<b>.270</b> (.260-.280)	<b>.490</b> (.460-.540)	<b>.990</b> (.900-1.10)	<b>1.50</b> (1.36-1.60)	3760

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.3, 0.3, 0.14, 0.2, 0.2, and 0.2 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Cadmium\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Cadmium_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Cadmium\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Cadmium_FactSheet.html)

## Blood Cadmium (2011 - 2014)

Geometric mean and selected percentiles of blood concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>.279</b> (.267-.292)	<b>.250</b> (.230-.260)	<b>.460</b> (.430-.490)	<b>.960</b> (.870-1.10)	<b>1.50</b> (1.30-1.70)	7920
	13-14	<b>.235</b> (.224-.247)	<b>.210</b> (.200-.220)	<b>.410</b> (.370-.450)	<b>.840</b> (.730-.940)	<b>1.22</b> (1.03-1.40)	5215
<b>Age group</b>							
1-5 years	11-12	*	< LOD	< LOD	<b>.190</b> (.160-.200)	<b>.210</b> (.190-.240)	713
	13-14	*	< LOD	<b>.100</b> (<LOD-.100)	<b>.130</b> (.120-.140)	<b>.150</b> (.140-.170)	818
6-11 years	11-12	*	< LOD	<b>.160</b> (<LOD-.180)	<b>.210</b> (.190-.230)	<b>.240</b> (.220-.280)	1048
	13-14	*	< LOD	<b>.120</b> (.110-.130)	<b>.150</b> (.140-.170)	<b>.190</b> (.170-.200)	1075
12-19 years	11-12	*	<b>.160</b> (<LOD-.170)	<b>.230</b> (.210-.240)	<b>.340</b> (.290-.470)	<b>.650</b> (.470-.880)	1129
	13-14	<b>.134</b> (.123-.146)	<b>.120</b> (.110-.130)	<b>.180</b> (.160-.190)	<b>.280</b> (.220-.460)	<b>.490</b> (.300-.960)	627
20 years and older	11-12	<b>.337</b> (.323-.353)	<b>.300</b> (.290-.320)	<b>.550</b> (.520-.580)	<b>1.14</b> (1.01-1.28)	<b>1.70</b> (1.50-1.80)	5030
	13-14	<b>.297</b> (.280-.315)	<b>.270</b> (.260-.290)	<b>.510</b> (.450-.570)	<b>.940</b> (.830-1.08)	<b>1.36</b> (1.17-1.64)	2695
<b>Gender</b>							
Males	11-12	<b>.255</b> (.238-.274)	<b>.210</b> (.200-.230)	<b>.410</b> (.360-.480)	<b>.940</b> (.820-1.09)	<b>1.48</b> (1.20-1.70)	3968
	13-14	<b>.206</b> (.192-.221)	<b>.180</b> (.170-.190)	<b>.330</b> (.300-.370)	<b>.750</b> (.610-.940)	<b>1.18</b> (.940-1.42)	2587
Females	11-12	<b>.304</b> (.289-.320)	<b>.280</b> (.260-.300)	<b>.490</b> (.460-.510)	<b>.980</b> (.850-1.16)	<b>1.53</b> (1.30-1.70)	3952
	13-14	<b>.267</b> (.252-.283)	<b>.250</b> (.240-.280)	<b>.480</b> (.440-.530)	<b>.890</b> (.790-.960)	<b>1.29</b> (1.09-1.53)	2628
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>.217</b> (.202-.233)	<b>.200</b> (.180-.220)	<b>.310</b> (.290-.340)	<b>.550</b> (.510-.600)	<b>.810</b> (.710-.920)	1077
	13-14	<b>.182</b> (.166-.199)	<b>.180</b> (.150-.200)	<b>.280</b> (.250-.310)	<b>.490</b> (.400-.620)	<b>.740</b> (.660-.800)	969
Non-Hispanic blacks	11-12	<b>.291</b> (.274-.309)	<b>.260</b> (.240-.270)	<b>.470</b> (.430-.520)	<b>1.07</b> (.950-1.20)	<b>1.50</b> (1.40-1.60)	2195
	13-14	<b>.252</b> (.225-.281)	<b>.220</b> (.190-.260)	<b>.480</b> (.390-.620)	<b>1.03</b> (.930-1.17)	<b>1.48</b> (1.24-1.67)	1119
Non-Hispanic whites	11-12	<b>.284</b> (.264-.305)	<b>.250</b> (.230-.270)	<b>.470</b> (.420-.520)	<b>1.02</b> (.810-1.25)	<b>1.65</b> (1.30-1.90)	2493
	13-14	<b>.242</b> (.227-.257)	<b>.220</b> (.200-.230)	<b>.430</b> (.380-.480)	<b>.860</b> (.700-1.02)	<b>1.30</b> (1.03-1.65)	1848
All Hispanics	11-12	<b>.227</b> (.211-.244)	<b>.210</b> (.190-.230)	<b>.330</b> (.310-.380)	<b>.600</b> (.540-.660)	<b>.900</b> (.760-1.00)	1931
	13-14	<b>.186</b> (.170-.204)	<b>.180</b> (.160-.190)	<b>.290</b> (.250-.330)	<b>.560</b> (.450-.680)	<b>.800</b> (.740-.870)	1481
Asians	11-12	<b>.394</b> (.355-.437)	<b>.390</b> (.340-.450)	<b>.680</b> (.610-.760)	<b>1.04</b> (.960-1.18)	<b>1.40</b> (1.20-1.48)	1005
	13-14	<b>.339</b> (.302-.380)	<b>.330</b> (.300-.390)	<b>.590</b> (.540-.660)	<b>.900</b> (.740-1.11)	<b>1.31</b> (.940-1.46)	510

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.16 and 0.1.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Cadmium\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Cadmium_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Cadmium\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Cadmium_FactSheet.html)

## Urinary Cadmium (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00**	.193 (.169-.220)	.232 (.214-.249)	.475 (.436-.519)	.858 (.763-.980)	1.20 (1.06-1.34)	2257
	01-02**	.210 (.189-.235)	.230 (.207-.255)	.458 (.423-.482)	.839 (.753-.919)	1.20 (1.07-1.28)	2690
	03-04	.211 (.196-.226)	.210 (.200-.230)	.450 (.400-.500)	.800 (.730-.880)	1.15 (.980-1.26)	2543
	05-06	.191 (.170-.216)	.200 (.170-.220)	.400 (.360-.460)	.780 (.700-.860)	1.05 (.960-1.17)	2576
	07-08	.185 (.172-.198)	.180 (.170-.200)	.380 (.360-.400)	.700 (.650-.770)	1.00 (.920-1.12)	2627
	09-10	.179 (.169-.190)	.180 (.170-.200)	.370 (.340-.400)	.690 (.630-.770)	1.03 (.910-1.13)	2848
Age group 6-11 years	99-00**	*	.078 (.061-.101)	.141 (.115-.173)	.219 (.178-.233)	.279 (.211-.507)	310
	01-02**	.061 (<LOD-.081)	.077 (.067-.092)	.140 (.112-.160)	.219 (.184-.262)	.282 (.260-.326)	368
	03-04	.077 (.065-.090)	.080 (.060-.090)	.120 (.100-.160)	.180 (.160-.310)	.310 (.170-.610)	287
	05-06	.066 (.056-.078)	.060 (.050-.080)	.110 (.090-.130)	.180 (.130-.240)	.240 (.160-.290)	355
	07-08	.064 (.058-.071)	.060 (.050-.070)	.110 (.090-.130)	.180 (.140-.210)	.230 (.180-.310)	394
	09-10	.057 (.053-.061)	.060 (.050-.060)	.090 (.080-.100)	.130 (.120-.160)	.170 (.140-.230)	378
12-19 years	99-00**	.092 (.067-.126)	.128 (.107-.148)	.203 (.183-.232)	.329 (.272-.372)	.426 (.366-.596)	648
	01-02**	.109 (.087-.136)	.135 (.114-.157)	.210 (.189-.247)	.327 (.289-.366)	.452 (.366-.480)	762
	03-04	.121 (.109-.134)	.130 (.110-.150)	.200 (.170-.210)	.300 (.260-.360)	.390 (.330-.490)	724
	05-06	.099 (.090-.109)	.110 (.100-.120)	.170 (.150-.190)	.240 (.210-.280)	.310 (.250-.430)	701
	07-08	.089 (.080-.100)	.080 (.070-.110)	.160 (.140-.170)	.260 (.200-.300)	.330 (.280-.410)	376
	09-10	.081 (.076-.086)	.080 (.070-.080)	.140 (.120-.150)	.220 (.180-.250)	.280 (.240-.300)	451
20 years and older	99-00**	.281 (.253-.313)	.306 (.261-.339)	.551 (.510-.623)	.980 (.836-1.13)	1.32 (1.13-1.57)	1299
	01-02**	.273 (.249-.299)	.280 (.261-.308)	.545 (.493-.607)	.972 (.855-1.06)	1.28 (1.20-1.43)	1560
	03-04	.260 (.238-.284)	.270 (.240-.300)	.530 (.470-.580)	.890 (.800-.990)	1.25 (1.09-1.46)	1532
	05-06	.241 (.213-.272)	.250 (.220-.290)	.490 (.440-.560)	.860 (.790-.930)	1.21 (1.06-1.32)	1520
	07-08	.232 (.215-.251)	.240 (.210-.260)	.450 (.410-.490)	.790 (.730-.870)	1.13 (.990-1.44)	1857
	09-10	.229 (.213-.245)	.230 (.210-.260)	.430 (.400-.470)	.790 (.700-.910)	1.13 (1.03-1.28)	2019
Gender Males	99-00**	.199 (.165-.241)	.227 (.193-.263)	.462 (.381-.539)	.892 (.748-1.15)	1.41 (.980-1.83)	1121
	01-02**	.201 (.177-.229)	.223 (.191-.257)	.445 (.393-.481)	.875 (.741-1.03)	1.22 (1.12-1.38)	1335
	03-04	.206 (.190-.222)	.210 (.190-.230)	.440 (.390-.490)	.790 (.700-.870)	1.01 (.890-1.25)	1277
	05-06	.195 (.176-.217)	.210 (.190-.230)	.400 (.360-.440)	.800 (.730-.890)	1.17 (1.01-1.30)	1271
	07-08	.179 (.162-.197)	.180 (.160-.200)	.360 (.320-.400)	.670 (.540-.780)	.950 (.800-1.16)	1327
	09-10	.170 (.157-.185)	.180 (.150-.200)	.350 (.310-.380)	.650 (.560-.700)	.950 (.770-1.14)	1398
Females	99-00**	.187 (.153-.229)	.239 (.220-.255)	.492 (.456-.540)	.818 (.705-.980)	1.10 (1.01-1.19)	1136
	01-02**	.219 (.192-.251)	.234 (.202-.265)	.466 (.433-.519)	.817 (.733-.886)	1.17 (.918-1.36)	1355
	03-04	.216 (.195-.238)	.210 (.200-.240)	.450 (.400-.530)	.820 (.700-.960)	1.20 (1.02-1.37)	1266
	05-06	.188 (.160-.221)	.190 (.160-.220)	.400 (.350-.480)	.750 (.640-.860)	.980 (.830-1.20)	1305
	07-08	.191 (.177-.207)	.190 (.170-.200)	.400 (.370-.430)	.740 (.660-.840)	1.09 (.940-1.38)	1300
	09-10	.188 (.172-.206)	.200 (.170-.210)	.400 (.360-.440)	.740 (.620-.880)	1.07 (.910-1.31)	1450

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.06, 0.06, 0.06, 0.042, 0.042, and 0.042 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

\*\*All results are corrected for molybdenum oxide interference in the ICP-MS method.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Cadmium\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Cadmium_BiomonitoringSummary.html)

### Factsheet

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## Urinary Cadmium (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00**	.191 (.157-.233)	.202 (.167-.221)	.447 (.351-.551)	.813 (.686-.977)	1.12 (.886-1.38)	780
	01-02**	.160 (.135-.189)	.181 (.171-.198)	.322 (.285-.362)	.559 (.430-.733)	.766 (.633-1.15)	683
	03-04	.175 (.151-.203)	.170 (.150-.210)	.350 (.290-.430)	.680 (.520-.820)	1.04 (.820-1.20)	614
	05-06	.173 (.152-.196)	.180 (.160-.200)	.340 (.300-.380)	.560 (.500-.630)	.780 (.660-.900)	652
	07-08	.159 (.139-.181)	.170 (.140-.200)	.320 (.290-.370)	.570 (.510-.620)	.710 (.630-.830)	515
	09-10	.153 (.136-.173)	.150 (.130-.170)	.300 (.240-.360)	.530 (.440-.680)	.790 (.610-.840)	613
Non-Hispanic blacks	99-00**	.283 (.208-.387)	.316 (.243-.412)	.633 (.498-.806)	1.22 (.892-1.38)	1.48 (1.30-1.72)	546
	01-02**	.277 (.229-.336)	.302 (.257-.354)	.589 (.476-.713)	1.04 (.843-1.38)	1.51 (1.28-1.74)	667
	03-04	.265 (.237-.295)	.270 (.220-.320)	.550 (.440-.640)	.960 (.810-1.17)	1.52 (1.06-1.82)	717
	05-06	.236 (.218-.254)	.240 (.210-.260)	.480 (.420-.530)	.830 (.670-.930)	1.04 (.870-1.26)	692
	07-08	.246 (.218-.277)	.260 (.220-.300)	.460 (.420-.530)	.840 (.690-.980)	1.40 (.900-1.85)	589
	09-10	.234 (.211-.260)	.240 (.220-.270)	.450 (.410-.540)	.910 (.750-1.06)	1.42 (.990-1.74)	544
Non-Hispanic whites	99-00**	.175 (.148-.206)	.220 (.194-.246)	.455 (.388-.510)	.848 (.714-1.01)	1.17 (.963-1.47)	760
	01-02**	.204 (.179-.231)	.221 (.191-.255)	.445 (.394-.479)	.817 (.717-.875)	1.17 (.989-1.24)	1132
	03-04	.209 (.192-.226)	.200 (.190-.220)	.440 (.390-.500)	.790 (.700-.860)	1.13 (.940-1.26)	1070
	05-06	.185 (.159-.216)	.200 (.160-.230)	.400 (.330-.480)	.780 (.670-.920)	1.05 (.940-1.25)	1041
	07-08	.177 (.161-.195)	.170 (.150-.190)	.370 (.320-.400)	.690 (.620-.780)	1.00 (.880-1.13)	1095
	09-10	.171 (.158-.186)	.180 (.150-.200)	.350 (.320-.390)	.680 (.590-.780)	1.05 (.880-1.18)	1225

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.06, 0.06, 0.06, 0.042, 0.042, and 0.042 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result

\*\*All results are corrected for molybdenum oxide interference in the ICP-MS method.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Cadmium\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Cadmium_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Cadmium\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Cadmium_FactSheet.html)



## Urinary Cadmium (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	.155 (.143-.169)	.153 (.134-.175)	.310 (.281-.352)	.629 (.590-.670)	.874 (.806-1.08)	2504
	13-14	.124 (.116-.133)	.126 (.116-.137)	.273 (.243-.302)	.576 (.519-.621)	.842 (.767-.945)	2664
<b>Age group</b>							
6-11 years	11-12	*	< LOD	.070 (.056-.076)	.107 (.088-.128)	.148 (.118-.200)	399
	13-14	*	< LOD	.050 (.044-.059)	.087 (.077-.101)	.113 (.098-.140)	402
12-19 years	11-12	*	.069 (<LOD-.080)	.118 (.100-.152)	.218 (.191-.267)	.280 (.219-.339)	390
	13-14	.064 (.055-.075)	.063 (.044-.078)	.116 (.092-.146)	.206 (.146-.292)	.292 (.184-.379)	451
20 years and older	11-12	.194 (.178-.211)	.192 (.175-.217)	.375 (.336-.417)	.715 (.664-.790)	1.08 (.846-1.27)	1715
	13-14	.156 (.146-.167)	.158 (.147-.170)	.314 (.279-.359)	.654 (.603-.726)	.971 (.842-1.08)	1811
<b>Gender</b>							
Males	11-12	.150 (.136-.166)	.152 (.131-.170)	.292 (.262-.331)	.589 (.518-.675)	.832 (.769-.941)	1262
	13-14	.118 (.110-.126)	.123 (.107-.135)	.238 (.214-.278)	.492 (.394-.617)	.777 (.578-1.09)	1318
Females	11-12	.160 (.142-.181)	.153 (.123-.192)	.332 (.292-.375)	.669 (.607-.741)	1.07 (.798-1.31)	1242
	13-14	.131 (.118-.145)	.132 (.112-.154)	.297 (.271-.331)	.622 (.553-.719)	.896 (.773-1.05)	1346
<b>Race/ethnicity</b>							
Mexican Americans	11-12	.121 (.112-.132)	.115 (.094-.139)	.221 (.183-.274)	.456 (.386-.547)	.643 (.539-.705)	317
	13-14	.101 (.092-.111)	.096 (.079-.109)	.219 (.168-.264)	.424 (.331-.522)	.615 (.439-.785)	453
Non-Hispanic blacks	11-12	.193 (.172-.216)	.199 (.174-.216)	.366 (.304-.445)	.719 (.594-.831)	1.05 (.825-1.38)	669
	13-14	.179 (.146-.219)	.182 (.136-.239)	.387 (.305-.519)	.772 (.625-.947)	1.14 (.885-1.37)	581
Non-Hispanic whites	11-12	.152 (.135-.170)	.148 (.123-.183)	.303 (.269-.352)	.615 (.524-.684)	.846 (.759-1.09)	820
	13-14	.121 (.110-.134)	.124 (.106-.140)	.267 (.232-.302)	.552 (.486-.621)	.842 (.692-.987)	985
All Hispanics	11-12	.133 (.118-.150)	.127 (.105-.153)	.267 (.207-.325)	.546 (.452-.609)	.782 (.646-.976)	573
	13-14	.101 (.092-.111)	.096 (.079-.110)	.212 (.174-.259)	.424 (.340-.501)	.617 (.470-.801)	701
Asians	11-12	.218 (.190-.249)	.215 (.172-.251)	.453 (.405-.604)	.865 (.762-1.23)	1.34 (1.02-1.75)	353
	13-14	.171 (.146-.201)	.172 (.147-.206)	.417 (.304-.566)	.803 (.664-1.14)	1.19 (.817-1.27)	292

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.056 and 0.036.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

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### Factsheet

[http://www.cdc.gov/biomonitoring/Cadmium\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Cadmium_FactSheet.html)

## Urinary Cadmium (creatinine corrected) (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00**	.181 (.157-.209)	.219 (.199-.238)	.423 (.391-.446)	.712 (.645-.757)	.941 (.826-1.07)	2257
	01-02**	.199 (.181-.218)	.212 (.194-.232)	.404 (.377-.440)	.690 (.630-.754)	.919 (.813-.998)	2689
	03-04	.210 (.201-.219)	.208 (.189-.226)	.412 (.381-.438)	.678 (.650-.716)	.940 (.833-1.04)	2543
	05-06	.189 (.169-.210)	.180 (.160-.200)	.370 (.310-.430)	.650 (.590-.720)	.910 (.770-1.08)	2576
	07-08	.193 (.177-.210)	.190 (.180-.210)	.370 (.330-.410)	.660 (.580-.740)	.960 (.840-1.06)	2627
	09-10	.191 (.184-.199)	.180 (.170-.190)	.370 (.340-.400)	.680 (.630-.730)	.910 (.840-1.00)	2848
Age group 6-11 years	99-00**	*	.085 (.063-.107)	.148 (.123-.182)	.210 (.171-.316)	.316 (.184-.607)	310
	01-02**	.075 (<LOD-.094)	.100 (.083-.112)	.166 (.136-.192)	.233 (.206-.281)	.318 (.221-.440)	368
	03-04	.090 (.078-.104)	.091 (.075-.104)	.126 (.111-.156)	.200 (.147-.350)	.308 (.178-.415)	287
	05-06	.081 (.072-.092)	.080 (.070-.090)	.130 (.110-.140)	.170 (.150-.190)	.200 (.180-.240)	355
	07-08	.084 (.076-.092)	.080 (.080-.090)	.120 (.110-.140)	.170 (.150-.240)	.260 (.180-.430)	394
	09-10	.077 (.070-.085)	.080 (.070-.090)	.110 (.100-.130)	.160 (.130-.220)	.230 (.140-.280)	378
12-19 years	99-00**	.071 (.051-.098)	.093 (.084-.106)	.147 (.130-.163)	.215 (.204-.240)	.283 (.222-.404)	648
	01-02**	.078 (.067-.091)	.091 (.085-.101)	.137 (.123-.143)	.191 (.175-.234)	.280 (.234-.321)	762
	03-04	.086 (.077-.096)	.084 (.074-.097)	.122 (.113-.135)	.176 (.154-.198)	.234 (.187-.274)	724
	05-06	.076 (.071-.081)	.080 (.070-.090)	.120 (.110-.130)	.150 (.140-.180)	.210 (.160-.240)	701
	07-08	.070 (.062-.079)	.070 (.070-.080)	.110 (.100-.110)	.150 (.140-.160)	.180 (.160-.210)	376
	09-10	.076 (.068-.084)	.080 (.070-.090)	.120 (.100-.130)	.160 (.140-.180)	.190 (.170-.270)	451
20 years and older	99-00**	.267 (.247-.289)	.288 (.261-.304)	.484 (.433-.545)	.769 (.727-.818)	1.07 (.927-1.17)	1299
	01-02**	.261 (.236-.289)	.273 (.247-.303)	.481 (.426-.518)	.779 (.691-.850)	.979 (.874-1.12)	1559
	03-04	.268 (.255-.281)	.270 (.247-.292)	.490 (.444-.538)	.767 (.688-.830)	1.02 (.909-1.14)	1532
	05-06	.240 (.216-.267)	.230 (.200-.260)	.440 (.400-.500)	.730 (.660-.820)	1.02 (.850-1.18)	1520
	07-08	.247 (.227-.270)	.240 (.220-.270)	.430 (.390-.470)	.740 (.670-.840)	1.05 (.930-1.16)	1857
	09-10	.242 (.232-.253)	.230 (.220-.250)	.440 (.420-.460)	.760 (.700-.820)	1.01 (.910-1.14)	2019
Gender Males	99-00**	.154 (.131-.182)	.176 (.158-.191)	.329 (.293-.382)	.617 (.537-.700)	.789 (.696-.929)	1121
	01-02**	.159 (.143-.177)	.168 (.157-.182)	.335 (.304-.364)	.536 (.491-.653)	.757 (.690-.856)	1334
	03-04	.173 (.161-.187)	.162 (.143-.185)	.325 (.300-.352)	.591 (.560-.631)	.740 (.678-.795)	1277
	05-06	.160 (.145-.177)	.150 (.130-.160)	.300 (.260-.340)	.620 (.560-.670)	.820 (.710-.990)	1271
	07-08	.160 (.146-.175)	.160 (.140-.180)	.290 (.260-.330)	.520 (.440-.650)	.740 (.600-.960)	1327
	09-10	.155 (.149-.161)	.140 (.140-.160)	.280 (.250-.300)	.540 (.510-.600)	.800 (.670-.900)	1398
Females	99-00**	.211 (.170-.261)	.267 (.239-.308)	.473 (.423-.551)	.783 (.690-.917)	1.09 (.813-1.38)	1136
	01-02**	.245 (.216-.278)	.263 (.228-.297)	.479 (.414-.541)	.792 (.687-.884)	.985 (.876-1.16)	1355
	03-04	.252 (.238-.266)	.253 (.227-.288)	.487 (.438-.533)	.802 (.716-.906)	1.06 (.940-1.21)	1266
	05-06	.220 (.193-.252)	.220 (.180-.250)	.420 (.370-.470)	.690 (.590-.850)	.990 (.780-1.31)	1305
	07-08	.231 (.210-.254)	.230 (.200-.270)	.440 (.390-.480)	.770 (.700-.860)	1.08 (.970-1.16)	1300
	09-10	.233 (.218-.248)	.240 (.220-.260)	.450 (.420-.490)	.770 (.680-.860)	1.09 (.910-1.19)	1450

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

\*\*All results are corrected for molybdenum oxide interference in the ICP-MS method.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Cadmium\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Cadmium_BiomonitoringSummary.html)

### Factsheet

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## Urinary Cadmium (creatinine corrected) (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Race/ethnicity</b>							
Mexican Americans	99-00**	<b>.175</b> (.137-.223)	<b>.181</b> (.144-.225)	<b>.331</b> (.266-.418)	<b>.622</b> (.441-.828)	<b>.856</b> (.674-1.13)	780
	01-02**	<b>.156</b> (.136-.178)	<b>.170</b> (.150-.184)	<b>.282</b> (.263-.340)	<b>.501</b> (.388-.614)	<b>.693</b> (.507-.839)	682
	03-04	<b>.163</b> (.147-.181)	<b>.159</b> (.140-.183)	<b>.296</b> (.256-.311)	<b>.531</b> (.418-.667)	<b>.718</b> (.562-.950)	614
	05-06	<b>.162</b> (.146-.181)	<b>.150</b> (.140-.170)	<b>.280</b> (.220-.340)	<b>.480</b> (.430-.510)	<b>.570</b> (.520-.640)	652
	07-08	<b>.159</b> (.141-.178)	<b>.160</b> (.130-.180)	<b>.270</b> (.220-.330)	<b>.480</b> (.370-.620)	<b>.720</b> (.520-.950)	515
	09-10	<b>.161</b> (.149-.173)	<b>.150</b> (.130-.170)	<b>.280</b> (.240-.320)	<b>.510</b> (.410-.630)	<b>.720</b> (.540-.890)	613
Non-Hispanic blacks	99-00**	<b>.183</b> (.140-.240)	<b>.202</b> (.168-.241)	<b>.414</b> (.343-.472)	<b>.663</b> (.516-.827)	<b>.873</b> (.722-.962)	546
	01-02**	<b>.190</b> (.156-.232)	<b>.196</b> (.174-.225)	<b>.387</b> (.336-.449)	<b>.686</b> (.559-.850)	<b>.917</b> (.725-1.08)	667
	03-04	<b>.190</b> (.173-.210)	<b>.185</b> (.168-.207)	<b>.338</b> (.288-.431)	<b>.700</b> (.500-.818)	<b>.865</b> (.708-1.10)	717
	05-06	<b>.171</b> (.159-.183)	<b>.160</b> (.140-.180)	<b>.320</b> (.290-.370)	<b>.550</b> (.500-.580)	<b>.700</b> (.610-.730)	692
	07-08	<b>.180</b> (.164-.197)	<b>.170</b> (.160-.190)	<b>.330</b> (.290-.390)	<b>.600</b> (.470-.700)	<b>.770</b> (.690-.900)	589
	09-10	<b>.186</b> (.170-.203)	<b>.180</b> (.160-.200)	<b>.360</b> (.310-.430)	<b>.680</b> (.570-.760)	<b>.860</b> (.740-1.04)	544
Non-Hispanic whites	99-00**	<b>.175</b> (.146-.209)	<b>.219</b> (.191-.250)	<b>.432</b> (.387-.470)	<b>.729</b> (.666-.783)	<b>1.00</b> (.826-1.16)	760
	01-02**	<b>.205</b> (.184-.229)	<b>.224</b> (.208-.242)	<b>.421</b> (.382-.470)	<b>.719</b> (.668-.784)	<b>.931</b> (.806-1.05)	1132
	03-04	<b>.220</b> (.207-.235)	<b>.221</b> (.197-.253)	<b>.434</b> (.398-.476)	<b>.687</b> (.647-.767)	<b>1.00</b> (.830-1.08)	1070
	05-06	<b>.193</b> (.169-.221)	<b>.180</b> (.160-.220)	<b>.390</b> (.310-.480)	<b>.680</b> (.630-.750)	<b>.930</b> (.800-1.07)	1041
	07-08	<b>.199</b> (.178-.222)	<b>.200</b> (.180-.230)	<b>.380</b> (.340-.440)	<b>.700</b> (.630-.810)	<b>1.03</b> (.880-1.13)	1095
	09-10	<b>.192</b> (.183-.201)	<b>.180</b> (.170-.200)	<b>.390</b> (.340-.420)	<b>.700</b> (.630-.760)	<b>.910</b> (.840-1.02)	1225

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### Biomonitoring Summary

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### Factsheet

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## Urinary Cadmium (creatinine corrected) (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	.176 (.165-.187)	.172 (.159-.182)	.346 (.313-.378)	.582 (.551-.639)	.907 (.772-.997)	2502
	13-14	.144 (.136-.152)	.138 (.125-.151)	.288 (.263-.311)	.563 (.487-.621)	.800 (.712-.859)	2663
<b>Age group</b>							
6-11 years	11-12	*	< LOD	.118 (.107-.129)	.168 (.150-.211)	.235 (.180-.300)	398
	13-14	*	< LOD	.086 (.076-.096)	.147 (.119-.167)	.175 (.140-.214)	402
12-19 years	11-12	*	.071 (<LOD-.078)	.118 (.103-.135)	.176 (.153-.204)	.250 (.176-.444)	390
	13-14	.058 (.053-.064)	.055 (.045-.068)	.092 (.080-.107)	.133 (.117-.176)	.178 (.133-.233)	451
20 years and older	11-12	.220 (.204-.237)	.213 (.198-.230)	.416 (.374-.443)	.678 (.594-.772)	.977 (.892-1.15)	1714
	13-14	.182 (.173-.191)	.181 (.163-.195)	.335 (.306-.368)	.626 (.586-.674)	.868 (.750-1.00)	1810
<b>Gender</b>							
Males	11-12	.140 (.127-.156)	.136 (.120-.148)	.244 (.213-.309)	.492 (.424-.554)	.713 (.583-.801)	1261
	13-14	.118 (.108-.128)	.107 (.098-.121)	.218 (.195-.253)	.402 (.349-.471)	.613 (.519-.675)	1317
Females	11-12	.218 (.202-.236)	.222 (.200-.243)	.430 (.382-.456)	.707 (.594-.868)	1.08 (.904-1.22)	1241
	13-14	.174 (.162-.186)	.173 (.151-.204)	.355 (.311-.382)	.663 (.621-.726)	.964 (.844-1.09)	1346
<b>Race/ethnicity</b>							
Mexican Americans	11-12	.137 (.127-.147)	.124 (.105-.144)	.244 (.196-.315)	.409 (.367-.506)	.519 (.406-1.00)	317
	13-14	.115 (.102-.129)	.114 (.096-.128)	.216 (.186-.260)	.388 (.297-.502)	.546 (.463-.729)	453
Non-Hispanic blacks	11-12	.150 (.135-.166)	.139 (.126-.164)	.286 (.259-.307)	.476 (.416-.659)	.761 (.636-.857)	669
	13-14	.136 (.114-.162)	.132 (.100-.170)	.281 (.218-.382)	.583 (.419-.663)	.691 (.616-.833)	581
Non-Hispanic whites	11-12	.183 (.167-.202)	.180 (.158-.200)	.370 (.327-.416)	.582 (.543-.677)	.932 (.725-1.15)	818
	13-14	.150 (.137-.163)	.141 (.126-.165)	.290 (.256-.322)	.571 (.453-.650)	.807 (.673-.957)	984
All Hispanics	11-12	.149 (.143-.156)	.144 (.132-.163)	.281 (.244-.320)	.471 (.400-.519)	.686 (.516-.942)	573
	13-14	.113 (.100-.127)	.112 (.091-.127)	.216 (.186-.263)	.407 (.327-.498)	.569 (.494-.683)	701
Asians	11-12	.291 (.262-.323)	.286 (.223-.342)	.610 (.532-.732)	1.03 (.913-1.12)	1.36 (1.07-1.59)	353
	13-14	.268 (.230-.313)	.264 (.219-.309)	.609 (.483-.676)	.934 (.838-1.09)	1.23 (.910-1.74)	292

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\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

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### Factsheet

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## Urinary Cesium (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	<b>4.35</b> (4.00-4.74)	<b>4.90</b> (4.40-5.40)	<b>7.10</b> (6.60-7.70)	<b>9.60</b> (8.80-10.3)	<b>11.5</b> (10.2-13.0)	2464
	01-02	<b>4.81</b> (4.40-5.26)	<b>5.49</b> (5.12-5.90)	<b>7.91</b> (7.47-8.39)	<b>10.4</b> (9.56-11.4)	<b>12.6</b> (11.1-13.8)	2690
	03-04	<b>4.67</b> (4.39-4.97)	<b>5.14</b> (4.84-5.49)	<b>7.68</b> (7.20-8.21)	<b>10.6</b> (9.55-11.4)	<b>12.7</b> (11.5-13.9)	2558
	05-06	<b>4.69</b> (4.41-4.98)	<b>5.19</b> (4.91-5.43)	<b>7.68</b> (7.21-8.09)	<b>10.1</b> (9.65-10.9)	<b>12.6</b> (12.0-13.4)	2576
	07-08	<b>4.42</b> (4.25-4.60)	<b>4.90</b> (4.64-5.12)	<b>7.02</b> (6.79-7.38)	<b>9.46</b> (9.04-9.86)	<b>11.3</b> (10.5-11.8)	2627
	09-10	<b>4.06</b> (3.87-4.26)	<b>4.47</b> (4.22-4.66)	<b>6.54</b> (6.35-6.75)	<b>8.98</b> (8.25-9.68)	<b>11.0</b> (10.1-11.6)	2848
Age group 6-11 years	99-00	<b>4.87</b> (4.08-5.81)	<b>5.70</b> (4.60-6.70)	<b>7.30</b> (6.70-8.00)	<b>9.00</b> (7.90-10.1)	<b>9.70</b> (9.00-10.8)	340
	01-02	<b>4.87</b> (4.08-5.82)	<b>5.64</b> (4.69-6.56)	<b>7.96</b> (6.77-8.84)	<b>9.88</b> (8.64-10.6)	<b>11.1</b> (10.2-12.4)	368
	03-04	<b>5.21</b> (4.74-5.71)	<b>5.50</b> (4.76-6.37)	<b>8.08</b> (7.10-8.83)	<b>11.5</b> (8.86-12.9)	<b>12.9</b> (10.8-13.6)	290
	05-06	<b>4.74</b> (4.31-5.21)	<b>5.38</b> (4.67-5.60)	<b>7.00</b> (6.38-7.50)	<b>9.30</b> (8.60-9.95)	<b>11.2</b> (9.62-12.9)	355
	07-08	<b>4.58</b> (4.22-4.96)	<b>5.10</b> (4.50-5.44)	<b>6.91</b> (6.45-7.47)	<b>8.25</b> (7.77-8.93)	<b>9.88</b> (8.47-10.9)	394
	09-10	<b>4.21</b> (3.84-4.62)	<b>4.58</b> (4.01-5.12)	<b>6.68</b> (6.25-6.98)	<b>8.28</b> (7.47-9.11)	<b>9.56</b> (8.68-11.9)	378
12-19 years	99-00	<b>4.55</b> (4.09-5.05)	<b>5.20</b> (4.40-5.60)	<b>6.90</b> (6.10-7.80)	<b>8.80</b> (8.10-9.50)	<b>10.7</b> (8.90-12.5)	718
	01-02	<b>5.22</b> (4.57-5.95)	<b>5.62</b> (5.16-6.12)	<b>7.55</b> (7.13-8.04)	<b>9.77</b> (9.12-11.1)	<b>12.0</b> (10.0-15.0)	762
	03-04	<b>5.04</b> (4.59-5.54)	<b>5.70</b> (5.16-6.07)	<b>7.53</b> (6.91-8.37)	<b>9.71</b> (8.80-10.4)	<b>11.6</b> (9.92-13.2)	725
	05-06	<b>4.76</b> (4.24-5.34)	<b>5.27</b> (4.80-5.74)	<b>7.50</b> (6.71-8.04)	<b>9.60</b> (8.52-10.5)	<b>10.6</b> (9.68-11.8)	701
	07-08	<b>4.58</b> (4.10-5.13)	<b>5.14</b> (4.30-5.76)	<b>6.93</b> (6.33-7.37)	<b>9.20</b> (7.67-9.91)	<b>10.6</b> (8.91-15.1)	376
	09-10	<b>3.70</b> (3.39-4.02)	<b>4.11</b> (3.54-4.70)	<b>6.17</b> (5.72-6.47)	<b>8.20</b> (7.16-8.79)	<b>9.52</b> (8.66-10.6)	451
20 years and older	99-00	<b>4.26</b> (3.94-4.62)	<b>4.80</b> (4.40-5.30)	<b>7.10</b> (6.50-7.60)	<b>9.80</b> (8.90-10.7)	<b>11.7</b> (10.2-13.4)	1406
	01-02	<b>4.74</b> (4.32-5.20)	<b>5.43</b> (5.05-5.87)	<b>7.97</b> (7.43-8.52)	<b>10.6</b> (9.73-11.5)	<b>12.9</b> (11.2-14.2)	1560
	03-04	<b>4.56</b> (4.23-4.90)	<b>5.03</b> (4.60-5.42)	<b>7.66</b> (7.01-8.34)	<b>10.7</b> (9.40-11.5)	<b>12.9</b> (11.5-14.9)	1543
	05-06	<b>4.67</b> (4.38-4.99)	<b>5.14</b> (4.84-5.44)	<b>7.77</b> (7.32-8.30)	<b>10.4</b> (9.72-11.5)	<b>13.2</b> (12.4-13.9)	1520
	07-08	<b>4.38</b> (4.20-4.58)	<b>4.79</b> (4.59-4.99)	<b>7.12</b> (6.81-7.52)	<b>9.69</b> (9.23-10.2)	<b>11.4</b> (10.6-12.0)	1857
	09-10	<b>4.10</b> (3.88-4.34)	<b>4.49</b> (4.21-4.71)	<b>6.57</b> (6.33-6.84)	<b>9.26</b> (8.37-10.1)	<b>11.1</b> (10.3-11.9)	2019
Gender Males	99-00	<b>4.84</b> (4.35-5.38)	<b>5.50</b> (4.60-6.00)	<b>7.50</b> (7.00-8.20)	<b>9.70</b> (8.80-11.3)	<b>11.7</b> (10.3-13.0)	1226
	01-02	<b>5.34</b> (4.89-5.84)	<b>6.13</b> (5.61-6.64)	<b>8.27</b> (7.84-9.08)	<b>10.8</b> (10.1-12.1)	<b>12.8</b> (11.3-15.0)	1335
	03-04	<b>5.03</b> (4.73-5.36)	<b>5.59</b> (5.17-6.00)	<b>7.98</b> (7.31-8.63)	<b>11.0</b> (9.53-11.8)	<b>12.9</b> (11.5-16.1)	1281
	05-06	<b>5.13</b> (4.78-5.51)	<b>5.37</b> (5.03-5.71)	<b>7.92</b> (7.61-8.41)	<b>10.9</b> (9.96-11.6)	<b>13.2</b> (12.4-13.9)	1271
	07-08	<b>4.77</b> (4.59-4.96)	<b>5.26</b> (4.98-5.43)	<b>7.18</b> (6.93-7.54)	<b>9.68</b> (8.93-10.6)	<b>11.6</b> (10.6-12.6)	1327
	09-10	<b>4.27</b> (4.00-4.55)	<b>4.70</b> (4.46-5.00)	<b>6.57</b> (6.39-6.81)	<b>8.67</b> (7.91-9.57)	<b>10.7</b> (9.66-11.3)	1398
Females	99-00	<b>3.95</b> (3.63-4.29)	<b>4.50</b> (4.20-4.90)	<b>6.70</b> (6.20-7.30)	<b>9.10</b> (8.30-10.0)	<b>11.2</b> (9.90-12.9)	1238
	01-02	<b>4.36</b> (3.95-4.81)	<b>4.87</b> (4.45-5.25)	<b>7.33</b> (6.71-8.01)	<b>9.77</b> (9.07-11.0)	<b>12.4</b> (10.4-13.8)	1355
	03-04	<b>4.35</b> (4.03-4.70)	<b>4.79</b> (4.25-5.26)	<b>7.30</b> (6.87-7.81)	<b>10.2</b> (9.40-11.0)	<b>12.1</b> (11.2-13.6)	1277
	05-06	<b>4.30</b> (3.98-4.65)	<b>4.89</b> (4.58-5.25)	<b>7.43</b> (6.99-7.83)	<b>9.79</b> (9.30-10.5)	<b>12.1</b> (10.6-13.1)	1305
	07-08	<b>4.12</b> (3.88-4.37)	<b>4.40</b> (4.17-4.74)	<b>6.84</b> (6.32-7.36)	<b>9.31</b> (8.69-9.76)	<b>10.5</b> (9.93-11.7)	1300
	09-10	<b>3.88</b> (3.63-4.14)	<b>4.13</b> (3.83-4.55)	<b>6.46</b> (5.95-6.90)	<b>9.29</b> (8.62-10.0)	<b>11.2</b> (10.3-12.1)	1450

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.14, 0.14, 0.2, 0.066, 0.066, and 0.066 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Cesium\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Cesium_BiomonitoringSummary.html)

## Urinary Cesium (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00	<b>4.32</b> (3.82-4.89)	<b>4.80</b> (4.30-5.20)	<b>6.70</b> (6.40-7.20)	<b>9.10</b> (8.00-9.90)	<b>11.1</b> (9.60-12.7)	884
	01-02	<b>4.63</b> (4.10-5.24)	<b>5.29</b> (4.59-5.89)	<b>7.08</b> (6.42-7.99)	<b>9.13</b> (7.86-11.3)	<b>11.3</b> (8.81-14.9)	683
	03-04	<b>4.94</b> (4.64-5.27)	<b>5.62</b> (5.01-6.09)	<b>7.86</b> (7.15-8.46)	<b>10.3</b> (8.99-11.3)	<b>11.9</b> (10.7-14.7)	618
	05-06	<b>4.64</b> (4.41-4.88)	<b>5.18</b> (4.91-5.55)	<b>7.29</b> (6.74-7.73)	<b>9.52</b> (8.76-9.98)	<b>11.5</b> (9.88-11.9)	652
	07-08	<b>4.50</b> (4.06-4.99)	<b>4.93</b> (4.40-5.56)	<b>6.98</b> (6.38-7.49)	<b>9.12</b> (8.25-9.82)	<b>10.8</b> (9.45-12.1)	515
	09-10	<b>4.20</b> (3.95-4.48)	<b>4.47</b> (4.16-4.87)	<b>6.49</b> (6.00-7.01)	<b>8.64</b> (7.81-9.40)	<b>10.2</b> (9.15-11.4)	613
Non-Hispanic blacks	99-00	<b>4.94</b> (4.33-5.64)	<b>5.40</b> (4.80-6.40)	<b>7.50</b> (6.90-8.40)	<b>9.80</b> (8.80-10.8)	<b>11.6</b> (9.80-13.1)	568
	01-02	<b>4.93</b> (4.70-5.17)	<b>5.33</b> (5.05-5.64)	<b>7.36</b> (6.97-7.59)	<b>9.44</b> (8.71-9.68)	<b>10.7</b> (10.1-12.3)	667
	03-04	<b>4.71</b> (4.47-4.97)	<b>5.12</b> (4.71-5.49)	<b>7.17</b> (6.72-7.60)	<b>9.13</b> (8.52-9.99)	<b>10.7</b> (9.99-11.4)	723
	05-06	<b>4.78</b> (4.42-5.18)	<b>5.26</b> (5.03-5.44)	<b>7.20</b> (6.63-7.66)	<b>9.14</b> (8.26-10.6)	<b>11.0</b> (9.63-13.7)	692
	07-08	<b>4.64</b> (4.29-5.01)	<b>4.90</b> (4.48-5.31)	<b>6.90</b> (6.35-7.42)	<b>9.39</b> (8.29-10.3)	<b>11.3</b> (9.59-12.6)	589
	09-10	<b>4.07</b> (3.82-4.35)	<b>4.68</b> (4.29-4.84)	<b>6.56</b> (6.19-7.01)	<b>8.98</b> (8.12-9.31)	<b>9.97</b> (9.27-11.3)	544
Non-Hispanic whites	99-00	<b>4.25</b> (3.83-4.72)	<b>4.80</b> (4.20-5.50)	<b>7.20</b> (6.60-7.90)	<b>9.70</b> (8.90-10.7)	<b>11.8</b> (10.3-13.3)	821
	01-02	<b>4.77</b> (4.27-5.32)	<b>5.49</b> (4.99-6.05)	<b>7.98</b> (7.45-8.61)	<b>10.4</b> (9.54-11.4)	<b>12.6</b> (11.0-13.8)	1132
	03-04	<b>4.56</b> (4.22-4.94)	<b>5.02</b> (4.59-5.42)	<b>7.60</b> (7.00-8.23)	<b>10.7</b> (9.26-11.8)	<b>12.9</b> (11.5-14.7)	1074
	05-06	<b>4.64</b> (4.25-5.05)	<b>5.19</b> (4.76-5.49)	<b>7.77</b> (7.18-8.46)	<b>10.3</b> (9.62-11.5)	<b>13.1</b> (12.1-13.9)	1041
	07-08	<b>4.29</b> (4.07-4.53)	<b>4.76</b> (4.48-5.08)	<b>7.02</b> (6.67-7.49)	<b>9.50</b> (8.91-9.93)	<b>11.3</b> (10.3-12.2)	1095
	09-10	<b>3.96</b> (3.73-4.20)	<b>4.38</b> (4.10-4.64)	<b>6.43</b> (6.15-6.63)	<b>8.62</b> (7.86-9.29)	<b>10.5</b> (9.35-11.5)	1225

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.14, 0.14, 0.2, 0.066, 0.066, and 0.066 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Cesium\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Cesium_BiomonitoringSummary.html)

## Urinary Cesium (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>3.82</b> (3.58-4.08)	<b>4.11</b> (3.90-4.42)	<b>6.31</b> (5.96-6.63)	<b>8.81</b> (8.39-9.21)	<b>10.5</b> (9.76-11.1)	2503
	13-14	<b>3.94</b> (3.76-4.12)	<b>4.21</b> (3.96-4.47)	<b>6.63</b> (6.36-6.85)	<b>9.31</b> (8.87-9.80)	<b>11.3</b> (10.4-11.8)	2664
<b>Age group</b>							
6-11 years	11-12	<b>3.91</b> (3.50-4.36)	<b>4.52</b> (3.75-4.96)	<b>6.71</b> (6.18-7.16)	<b>8.61</b> (7.39-9.28)	<b>10.2</b> (9.02-10.6)	399
	13-14	<b>4.15</b> (3.80-4.52)	<b>4.63</b> (4.05-5.12)	<b>7.11</b> (6.58-7.54)	<b>9.58</b> (8.49-10.0)	<b>10.4</b> (9.92-11.1)	402
12-19 years	11-12	<b>3.56</b> (3.08-4.13)	<b>3.96</b> (3.45-4.56)	<b>5.96</b> (5.19-6.73)	<b>7.74</b> (7.17-8.99)	<b>9.55</b> (7.81-10.6)	390
	13-14	<b>4.14</b> (3.72-4.61)	<b>4.55</b> (4.12-5.08)	<b>6.62</b> (6.09-7.29)	<b>8.93</b> (8.19-9.86)	<b>10.9</b> (9.40-11.8)	451
20 years and older	11-12	<b>3.85</b> (3.61-4.10)	<b>4.11</b> (3.85-4.43)	<b>6.31</b> (5.94-6.67)	<b>9.08</b> (8.51-9.44)	<b>10.7</b> (9.81-11.2)	1714
	13-14	<b>3.89</b> (3.70-4.09)	<b>4.09</b> (3.85-4.36)	<b>6.57</b> (6.32-6.82)	<b>9.30</b> (8.67-9.90)	<b>11.3</b> (10.4-12.2)	1811
<b>Gender</b>							
Males	11-12	<b>4.20</b> (3.94-4.47)	<b>4.49</b> (4.21-4.98)	<b>6.53</b> (6.15-6.95)	<b>9.08</b> (8.43-9.55)	<b>10.6</b> (9.80-11.1)	1261
	13-14	<b>4.10</b> (3.84-4.38)	<b>4.47</b> (4.10-4.88)	<b>6.79</b> (6.42-7.22)	<b>9.30</b> (8.56-10.1)	<b>11.1</b> (9.81-13.1)	1318
Females	11-12	<b>3.49</b> (3.16-3.85)	<b>3.75</b> (3.48-3.99)	<b>5.94</b> (5.38-6.55)	<b>8.58</b> (7.58-9.33)	<b>10.3</b> (9.44-11.2)	1242
	13-14	<b>3.78</b> (3.57-4.02)	<b>3.98</b> (3.60-4.28)	<b>6.35</b> (5.98-6.75)	<b>9.31</b> (8.50-9.88)	<b>11.5</b> (10.1-12.4)	1346
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>3.76</b> (3.43-4.12)	<b>4.12</b> (3.61-4.54)	<b>5.50</b> (5.21-6.21)	<b>7.77</b> (7.32-8.75)	<b>9.68</b> (8.07-10.4)	317
	13-14	<b>3.99</b> (3.76-4.24)	<b>4.25</b> (3.65-5.09)	<b>6.53</b> (6.13-7.18)	<b>9.01</b> (8.28-9.61)	<b>10.2</b> (9.01-11.2)	453
Non-Hispanic blacks	11-12	<b>3.97</b> (3.68-4.29)	<b>4.49</b> (4.10-4.88)	<b>6.49</b> (5.98-6.88)	<b>8.12</b> (7.56-9.21)	<b>9.59</b> (8.61-11.0)	669
	13-14	<b>4.41</b> (3.97-4.89)	<b>4.83</b> (4.20-5.38)	<b>6.82</b> (6.20-7.30)	<b>8.93</b> (8.01-9.81)	<b>10.7</b> (9.34-12.2)	581
Non-Hispanic whites	11-12	<b>3.78</b> (3.50-4.07)	<b>4.01</b> (3.75-4.30)	<b>6.30</b> (5.85-6.85)	<b>9.08</b> (8.53-9.48)	<b>10.6</b> (9.88-11.1)	820
	13-14	<b>3.81</b> (3.54-4.10)	<b>4.09</b> (3.70-4.47)	<b>6.62</b> (6.19-7.06)	<b>9.38</b> (8.56-10.2)	<b>11.5</b> (10.1-13.1)	985
All Hispanics	11-12	<b>3.80</b> (3.44-4.20)	<b>4.13</b> (3.65-4.62)	<b>5.87</b> (5.40-6.34)	<b>7.77</b> (7.16-8.73)	<b>9.52</b> (8.08-10.3)	573
	13-14	<b>4.04</b> (3.79-4.30)	<b>4.21</b> (3.70-4.77)	<b>6.65</b> (6.29-7.17)	<b>9.01</b> (8.43-9.61)	<b>10.4</b> (9.30-11.6)	701
Asians	11-12	<b>4.22</b> (3.88-4.60)	<b>4.43</b> (4.00-5.02)	<b>7.42</b> (6.58-7.92)	<b>10.7</b> (9.27-11.4)	<b>12.4</b> (11.1-15.6)	352
	13-14	<b>3.92</b> (3.61-4.24)	<b>4.10</b> (3.43-4.52)	<b>6.41</b> (5.87-7.48)	<b>9.81</b> (7.91-11.4)	<b>11.4</b> (9.11-14.3)	292

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.12 and 0.086.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Cesium\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Cesium_BiomonitoringSummary.html)

## Urinary Cesium (creatinine corrected) (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	<b>4.10</b> (3.96-4.25)	<b>4.13</b> (3.97-4.27)	<b>5.41</b> (5.21-5.70)	<b>7.14</b> (6.83-7.50)	<b>8.64</b> (8.00-9.30)	2464
	01-02	<b>4.54</b> (4.30-4.79)	<b>4.44</b> (4.20-4.64)	<b>6.06</b> (5.66-6.47)	<b>8.18</b> (7.62-8.95)	<b>10.2</b> (8.84-11.7)	2689
	03-04	<b>4.64</b> (4.42-4.87)	<b>4.42</b> (4.21-4.74)	<b>6.11</b> (5.76-6.48)	<b>8.51</b> (7.99-9.15)	<b>10.6</b> (9.75-11.0)	2558
	05-06	<b>4.62</b> (4.37-4.88)	<b>4.51</b> (4.20-4.76)	<b>6.19</b> (5.90-6.55)	<b>8.84</b> (8.14-9.24)	<b>10.8</b> (9.71-12.1)	2576
	07-08	<b>4.62</b> (4.42-4.82)	<b>4.58</b> (4.36-4.79)	<b>6.23</b> (5.96-6.61)	<b>8.67</b> (7.79-9.52)	<b>10.6</b> (9.78-11.2)	2627
	09-10	<b>4.33</b> (4.17-4.49)	<b>4.28</b> (4.12-4.45)	<b>6.00</b> (5.70-6.23)	<b>8.06</b> (7.76-8.36)	<b>9.75</b> (9.05-10.4)	2848
	Age group 6-11 years	99-00	<b>5.34</b> (5.03-5.67)	<b>5.42</b> (5.03-6.04)	<b>6.63</b> (6.18-7.13)	<b>8.23</b> (7.13-9.41)	<b>9.90</b> (7.88-10.1)
01-02		<b>5.95</b> (5.48-6.46)	<b>5.91</b> (5.43-6.53)	<b>7.77</b> (7.00-8.28)	<b>9.27</b> (8.35-11.9)	<b>11.9</b> (9.38-12.3)	368
03-04		<b>6.07</b> (5.63-6.53)	<b>6.02</b> (5.45-6.49)	<b>8.30</b> (7.16-8.99)	<b>10.8</b> (9.15-11.8)	<b>11.9</b> (10.3-15.8)	290
05-06		<b>5.85</b> (5.41-6.34)	<b>5.74</b> (5.21-6.41)	<b>7.65</b> (6.67-9.11)	<b>10.1</b> (9.38-10.8)	<b>11.6</b> (10.1-14.9)	355
07-08		<b>5.96</b> (5.53-6.43)	<b>6.12</b> (5.79-6.55)	<b>7.88</b> (7.33-8.53)	<b>10.7</b> (8.91-12.1)	<b>12.5</b> (10.9-14.1)	394
09-10		<b>5.74</b> (5.30-6.22)	<b>5.58</b> (5.15-6.12)	<b>7.16</b> (6.71-7.87)	<b>9.19</b> (8.13-10.4)	<b>12.2</b> (8.69-14.8)	378
12-19 years		99-00	<b>3.43</b> (3.29-3.58)	<b>3.54</b> (3.29-3.68)	<b>4.35</b> (4.17-4.56)	<b>5.31</b> (4.97-5.79)	<b>6.67</b> (5.33-8.09)
	01-02	<b>3.73</b> (3.41-4.08)	<b>3.55</b> (3.36-3.74)	<b>4.74</b> (4.40-5.14)	<b>6.10</b> (5.35-7.63)	<b>8.08</b> (6.44-9.82)	762
	03-04	<b>3.60</b> (3.37-3.85)	<b>3.51</b> (3.33-3.72)	<b>4.53</b> (4.24-4.87)	<b>6.08</b> (5.14-6.94)	<b>7.27</b> (6.13-9.07)	725
	05-06	<b>3.66</b> (3.40-3.93)	<b>3.59</b> (3.40-3.83)	<b>4.76</b> (4.30-5.20)	<b>5.93</b> (5.62-6.62)	<b>7.62</b> (6.03-8.07)	701
	07-08	<b>3.58</b> (3.31-3.88)	<b>3.70</b> (3.22-3.96)	<b>4.98</b> (4.60-5.17)	<b>6.36</b> (5.38-7.28)	<b>7.93</b> (6.06-9.76)	376
	09-10	<b>3.46</b> (3.27-3.65)	<b>3.48</b> (3.23-3.74)	<b>4.39</b> (4.16-4.70)	<b>5.54</b> (5.01-6.32)	<b>6.56</b> (5.95-7.35)	451
	20 years and older	99-00	<b>4.08</b> (3.88-4.29)	<b>4.06</b> (3.85-4.29)	<b>5.39</b> (5.04-5.85)	<b>7.17</b> (6.84-7.58)	<b>8.61</b> (7.91-9.30)
01-02		<b>4.54</b> (4.30-4.78)	<b>4.43</b> (4.20-4.59)	<b>5.94</b> (5.64-6.40)	<b>8.15</b> (7.46-8.97)	<b>10.2</b> (8.74-11.7)	1559
03-04		<b>4.68</b> (4.46-4.91)	<b>4.47</b> (4.27-4.80)	<b>6.11</b> (5.83-6.43)	<b>8.47</b> (7.76-9.17)	<b>10.5</b> (9.68-11.2)	1543
05-06		<b>4.67</b> (4.42-4.93)	<b>4.54</b> (4.25-4.78)	<b>6.24</b> (5.93-6.66)	<b>8.92</b> (8.29-9.31)	<b>11.2</b> (9.71-12.7)	1520
07-08		<b>4.67</b> (4.46-4.88)	<b>4.58</b> (4.34-4.82)	<b>6.19</b> (5.93-6.61)	<b>8.65</b> (7.79-9.52)	<b>10.6</b> (9.68-11.3)	1857
09-10		<b>4.34</b> (4.17-4.53)	<b>4.28</b> (4.10-4.49)	<b>6.07</b> (5.70-6.33)	<b>8.20</b> (7.81-8.65)	<b>9.80</b> (9.05-11.1)	2019
Gender Males		99-00	<b>3.78</b> (3.65-3.91)	<b>3.78</b> (3.61-3.96)	<b>4.96</b> (4.72-5.20)	<b>6.50</b> (6.18-6.70)	<b>7.71</b> (7.01-8.64)
	01-02	<b>4.22</b> (3.96-4.51)	<b>4.10</b> (3.87-4.41)	<b>5.60</b> (5.27-6.03)	<b>7.67</b> (6.90-8.48)	<b>9.46</b> (8.22-11.5)	1334
	03-04	<b>4.24</b> (3.99-4.50)	<b>4.12</b> (3.89-4.37)	<b>5.66</b> (5.19-6.06)	<b>7.66</b> (6.90-8.40)	<b>9.00</b> (8.36-10.3)	1281
	05-06	<b>4.21</b> (3.94-4.50)	<b>4.11</b> (3.72-4.46)	<b>5.75</b> (5.14-6.11)	<b>7.68</b> (6.91-8.78)	<b>9.33</b> (8.84-9.84)	1271
	07-08	<b>4.27</b> (4.04-4.51)	<b>4.19</b> (4.02-4.42)	<b>5.81</b> (5.46-6.29)	<b>7.84</b> (7.20-8.65)	<b>9.61</b> (8.65-10.2)	1327
	09-10	<b>3.89</b> (3.70-4.09)	<b>3.85</b> (3.60-4.06)	<b>5.29</b> (4.89-5.69)	<b>7.02</b> (6.76-7.42)	<b>8.38</b> (7.87-9.18)	1398
	Females	99-00	<b>4.43</b> (4.20-4.68)	<b>4.45</b> (4.14-4.77)	<b>5.92</b> (5.36-6.47)	<b>7.70</b> (7.16-8.07)	<b>9.41</b> (8.00-10.4)
01-02		<b>4.86</b> (4.58-5.16)	<b>4.72</b> (4.50-5.06)	<b>6.54</b> (5.93-7.00)	<b>8.50</b> (7.84-9.79)	<b>10.3</b> (8.95-12.2)	1355
03-04		<b>5.05</b> (4.77-5.35)	<b>4.77</b> (4.44-5.14)	<b>6.58</b> (6.14-7.22)	<b>9.43</b> (8.56-10.5)	<b>11.3</b> (10.7-12.3)	1277
05-06		<b>5.05</b> (4.78-5.33)	<b>4.86</b> (4.57-5.17)	<b>6.72</b> (6.31-7.23)	<b>9.65</b> (9.23-10.3)	<b>12.6</b> (11.0-13.3)	1305
07-08		<b>4.98</b> (4.76-5.20)	<b>4.90</b> (4.69-5.20)	<b>6.72</b> (6.20-7.06)	<b>9.50</b> (8.37-10.5)	<b>11.3</b> (10.7-12.1)	1300
09-10		<b>4.79</b> (4.63-4.97)	<b>4.69</b> (4.50-4.93)	<b>6.57</b> (6.34-6.85)	<b>8.88</b> (8.36-9.33)	<b>10.5</b> (9.56-12.0)	1450

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Cesium\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Cesium_BiomonitoringSummary.html)



## Urinary Cesium (creatinine corrected) (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Race/ethnicity</b>							
Mexican Americans	99-00	<b>3.99</b> (3.73-4.25)	<b>3.95</b> (3.65-4.17)	<b>5.09</b> (4.79-5.39)	<b>6.65</b> (6.08-7.10)	<b>7.98</b> (7.20-8.95)	884
	01-02	<b>4.51</b> (4.00-5.08)	<b>4.51</b> (3.82-4.95)	<b>5.91</b> (5.31-6.64)	<b>7.77</b> (6.60-10.0)	<b>10.0</b> (7.60-20.5)	682
	03-04	<b>4.58</b> (4.16-5.05)	<b>4.51</b> (4.10-4.92)	<b>5.74</b> (5.42-6.09)	<b>7.53</b> (6.59-8.91)	<b>9.44</b> (8.24-10.6)	618
	05-06	<b>4.36</b> (4.10-4.64)	<b>4.40</b> (3.97-4.73)	<b>5.69</b> (5.24-6.22)	<b>7.23</b> (6.69-7.80)	<b>8.14</b> (7.65-9.33)	652
	07-08	<b>4.50</b> (4.22-4.79)	<b>4.39</b> (3.96-4.86)	<b>6.07</b> (5.57-6.59)	<b>7.63</b> (7.30-7.89)	<b>9.06</b> (7.89-10.5)	515
	09-10	<b>4.41</b> (4.17-4.65)	<b>4.38</b> (4.04-4.59)	<b>5.70</b> (5.34-6.07)	<b>7.68</b> (7.17-8.24)	<b>8.89</b> (8.50-9.52)	613
Non-Hispanic blacks	99-00	<b>3.21</b> (2.90-3.56)	<b>3.26</b> (3.05-3.44)	<b>4.30</b> (4.00-4.55)	<b>5.50</b> (5.00-5.98)	<b>6.33</b> (5.91-7.04)	568
	01-02	<b>3.38</b> (3.19-3.57)	<b>3.35</b> (3.05-3.60)	<b>4.41</b> (4.15-4.78)	<b>5.87</b> (5.63-6.29)	<b>6.75</b> (6.41-7.03)	667
	03-04	<b>3.38</b> (3.21-3.56)	<b>3.30</b> (3.08-3.50)	<b>4.31</b> (4.02-4.62)	<b>5.79</b> (5.12-6.47)	<b>6.98</b> (6.38-7.18)	723
	05-06	<b>3.47</b> (3.34-3.60)	<b>3.40</b> (3.21-3.60)	<b>4.47</b> (4.25-4.68)	<b>5.94</b> (5.52-6.31)	<b>6.95</b> (6.20-7.51)	692
	07-08	<b>3.39</b> (3.21-3.58)	<b>3.33</b> (3.18-3.54)	<b>4.50</b> (4.21-4.78)	<b>5.84</b> (5.41-6.18)	<b>6.87</b> (5.94-7.58)	589
	09-10	<b>3.23</b> (3.05-3.42)	<b>3.20</b> (2.99-3.46)	<b>4.31</b> (4.12-4.59)	<b>5.88</b> (5.30-6.28)	<b>6.69</b> (6.32-7.89)	544
Non-Hispanic whites	99-00	<b>4.26</b> (4.07-4.47)	<b>4.28</b> (4.05-4.50)	<b>5.66</b> (5.26-6.05)	<b>7.27</b> (6.84-7.83)	<b>8.75</b> (7.93-9.38)	821
	01-02	<b>4.81</b> (4.55-5.08)	<b>4.63</b> (4.42-4.96)	<b>6.33</b> (5.91-6.68)	<b>8.46</b> (7.84-9.39)	<b>10.3</b> (9.04-11.8)	1132
	03-04	<b>4.81</b> (4.52-5.12)	<b>4.56</b> (4.31-4.98)	<b>6.28</b> (5.95-6.71)	<b>8.63</b> (7.99-9.28)	<b>10.6</b> (9.43-11.0)	1074
	05-06	<b>4.82</b> (4.50-5.17)	<b>4.68</b> (4.32-5.04)	<b>6.41</b> (6.00-6.81)	<b>9.18</b> (8.67-9.53)	<b>11.0</b> (9.71-12.7)	1041
	07-08	<b>4.81</b> (4.54-5.09)	<b>4.73</b> (4.42-5.12)	<b>6.43</b> (6.01-6.80)	<b>9.24</b> (8.20-9.82)	<b>11.0</b> (10.2-11.7)	1095
	09-10	<b>4.42</b> (4.23-4.63)	<b>4.36</b> (4.15-4.54)	<b>6.16</b> (5.82-6.51)	<b>8.13</b> (7.68-8.65)	<b>9.83</b> (8.79-11.4)	1225

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Cesium\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Cesium_BiomonitoringSummary.html)

## Urinary Cesium (creatinine corrected) (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
Total	11-12	<b>4.33</b> (4.13-4.53)	<b>4.27</b> (4.08-4.50)	<b>5.91</b> (5.63-6.33)	<b>8.12</b> (7.43-8.63)	<b>10.2</b> (8.93-10.7)	2501
	13-14	<b>4.55</b> (4.40-4.70)	<b>4.42</b> (4.24-4.64)	<b>6.37</b> (6.16-6.58)	<b>8.61</b> (8.32-8.86)	<b>10.3</b> (9.67-10.9)	2663
<b>Age group</b>							
6-11 years	11-12	<b>5.56</b> (5.16-5.99)	<b>5.47</b> (5.06-5.98)	<b>7.15</b> (6.68-7.43)	<b>9.42</b> (7.88-10.7)	<b>10.7</b> (9.45-13.0)	398
	13-14	<b>6.18</b> (5.90-6.48)	<b>6.25</b> (5.82-6.83)	<b>8.07</b> (7.58-8.75)	<b>9.96</b> (9.24-11.1)	<b>11.6</b> (9.88-13.4)	402
12-19 years	11-12	<b>3.41</b> (3.16-3.67)	<b>3.35</b> (3.05-3.82)	<b>4.34</b> (3.95-4.93)	<b>5.30</b> (5.07-6.17)	<b>6.34</b> (5.66-6.64)	390
	13-14	<b>3.75</b> (3.49-4.03)	<b>3.69</b> (3.45-3.95)	<b>4.79</b> (4.36-5.37)	<b>6.79</b> (5.47-7.52)	<b>7.52</b> (6.17-9.30)	451
20 years and older	11-12	<b>4.36</b> (4.15-4.59)	<b>4.29</b> (4.10-4.54)	<b>6.00</b> (5.65-6.45)	<b>8.22</b> (7.64-8.78)	<b>10.2</b> (9.47-11.2)	1713
	13-14	<b>4.53</b> (4.38-4.69)	<b>4.40</b> (4.18-4.67)	<b>6.29</b> (6.15-6.50)	<b>8.61</b> (8.30-8.86)	<b>10.3</b> (9.81-10.8)	1810
<b>Gender</b>							
Males	11-12	<b>3.93</b> (3.73-4.14)	<b>3.80</b> (3.63-4.10)	<b>5.31</b> (4.87-5.91)	<b>7.58</b> (6.78-8.26)	<b>8.80</b> (8.28-10.2)	1260
	13-14	<b>4.10</b> (3.92-4.29)	<b>4.04</b> (3.79-4.29)	<b>5.39</b> (5.10-5.77)	<b>7.55</b> (6.83-8.11)	<b>8.92</b> (8.18-10.1)	1317
Females	11-12	<b>4.74</b> (4.52-4.97)	<b>4.73</b> (4.55-4.93)	<b>6.43</b> (5.91-6.82)	<b>8.55</b> (8.05-9.48)	<b>11.2</b> (9.48-12.5)	1241
	13-14	<b>5.02</b> (4.86-5.19)	<b>5.00</b> (4.71-5.23)	<b>7.08</b> (6.80-7.39)	<b>9.51</b> (8.67-10.1)	<b>11.3</b> (10.5-12.3)	1346
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>4.23</b> (3.96-4.51)	<b>4.14</b> (3.72-4.53)	<b>5.63</b> (5.11-5.91)	<b>7.06</b> (6.41-8.03)	<b>8.78</b> (7.48-10.3)	317
	13-14	<b>4.56</b> (4.37-4.74)	<b>4.40</b> (4.16-4.78)	<b>6.02</b> (5.61-6.35)	<b>7.58</b> (6.91-7.94)	<b>8.92</b> (7.94-10.0)	453
Non-Hispanic blacks	11-12	<b>3.09</b> (2.92-3.27)	<b>3.12</b> (2.89-3.32)	<b>4.13</b> (3.90-4.40)	<b>5.31</b> (4.98-5.63)	<b>6.29</b> (5.67-6.84)	669
	13-14	<b>3.35</b> (3.20-3.52)	<b>3.34</b> (3.14-3.54)	<b>4.37</b> (4.14-4.63)	<b>5.82</b> (5.37-6.27)	<b>7.18</b> (6.25-7.86)	581
Non-Hispanic whites	11-12	<b>4.56</b> (4.29-4.85)	<b>4.50</b> (4.19-4.80)	<b>6.34</b> (5.74-6.88)	<b>8.26</b> (7.86-9.36)	<b>10.3</b> (9.27-11.5)	818
	13-14	<b>4.70</b> (4.56-4.85)	<b>4.56</b> (4.30-4.84)	<b>6.63</b> (6.40-6.95)	<b>8.91</b> (8.37-9.67)	<b>10.5</b> (9.98-11.3)	984
All Hispanics	11-12	<b>4.25</b> (4.00-4.52)	<b>4.25</b> (3.88-4.49)	<b>5.69</b> (5.35-5.91)	<b>7.43</b> (6.61-8.23)	<b>8.67</b> (8.12-9.70)	573
	13-14	<b>4.51</b> (4.34-4.69)	<b>4.43</b> (4.25-4.64)	<b>5.89</b> (5.61-6.21)	<b>7.71</b> (7.12-8.15)	<b>8.93</b> (8.29-9.52)	701
Asians	11-12	<b>5.65</b> (5.13-6.22)	<b>5.40</b> (5.12-5.95)	<b>7.88</b> (6.84-9.33)	<b>12.0</b> (10.1-13.7)	<b>14.7</b> (12.2-19.4)	352
	13-14	<b>6.14</b> (5.49-6.86)	<b>6.12</b> (5.47-6.70)	<b>8.31</b> (7.23-9.63)	<b>11.5</b> (9.32-16.0)	<b>16.0</b> (10.8-18.2)	292

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Cesium\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Cesium_BiomonitoringSummary.html)



## Urinary Cobalt (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	<b>.375</b> (.336-.419)	<b>.410</b> (.370-.450)	<b>.630</b> (.570-.680)	<b>.950</b> (.890-1.03)	<b>1.32</b> (1.16-1.48)	2465
	01-02	<b>.379</b> (.355-.404)	<b>.410</b> (.380-.430)	<b>.610</b> (.570-.660)	<b>.940</b> (.870-1.00)	<b>1.28</b> (1.15-1.44)	2690
	03-04	<b>.316</b> (.291-.343)	<b>.330</b> (.300-.350)	<b>.520</b> (.490-.550)	<b>.820</b> (.750-.890)	<b>1.16</b> (1.08-1.26)	2558
	05-06	<b>.374</b> (.357-.392)	<b>.390</b> (.370-.410)	<b>.600</b> (.560-.630)	<b>.880</b> (.840-.950)	<b>1.33</b> (1.17-1.47)	2576
	07-08	<b>.369</b> (.351-.389)	<b>.380</b> (.360-.390)	<b>.580</b> (.550-.600)	<b>.920</b> (.840-1.01)	<b>1.32</b> (1.10-1.43)	2627
	09-10	<b>.369</b> (.341-.398)	<b>.380</b> (.350-.400)	<b>.600</b> (.560-.650)	<b>.960</b> (.870-1.06)	<b>1.40</b> (1.20-1.58)	2848
Age group 6-11 years	99-00	<b>.499</b> (.427-.583)	<b>.530</b> (.450-.640)	<b>.750</b> (.610-.900)	<b>1.03</b> (.880-1.12)	<b>1.22</b> (1.03-1.50)	340
	01-02	<b>.452</b> (.377-.543)	<b>.520</b> (.430-.610)	<b>.710</b> (.670-.810)	<b>1.07</b> (.940-1.21)	<b>1.32</b> (1.17-1.53)	368
	03-04	<b>.454</b> (.393-.523)	<b>.460</b> (.410-.520)	<b>.750</b> (.590-.900)	<b>1.24</b> (.910-1.47)	<b>1.68</b> (1.26-1.81)	290
	05-06	<b>.424</b> (.383-.468)	<b>.450</b> (.410-.490)	<b>.660</b> (.580-.710)	<b>.870</b> (.830-1.04)	<b>1.16</b> (.910-1.39)	355
	07-08	<b>.433</b> (.367-.509)	<b>.450</b> (.360-.550)	<b>.700</b> (.560-.810)	<b>.960</b> (.790-1.28)	<b>1.40</b> (.880-1.82)	394
	09-10	<b>.424</b> (.379-.474)	<b>.440</b> (.400-.490)	<b>.670</b> (.610-.740)	<b>.960</b> (.850-1.10)	<b>1.14</b> (1.01-1.69)	378
12-19 years	99-00	<b>.519</b> (.463-.581)	<b>.520</b> (.490-.570)	<b>.820</b> (.670-.890)	<b>1.17</b> (1.01-1.47)	<b>1.52</b> (1.26-2.56)	719
	01-02	<b>.515</b> (.469-.564)	<b>.520</b> (.480-.570)	<b>.750</b> (.690-.840)	<b>1.24</b> (1.07-1.32)	<b>1.59</b> (1.37-1.99)	762
	03-04	<b>.461</b> (.428-.496)	<b>.480</b> (.450-.520)	<b>.740</b> (.650-.800)	<b>1.03</b> (.940-1.23)	<b>1.60</b> (1.14-1.92)	725
	05-06	<b>.510</b> (.451-.577)	<b>.500</b> (.460-.570)	<b>.820</b> (.690-.980)	<b>1.30</b> (1.08-1.40)	<b>1.74</b> (1.39-2.08)	701
	07-08	<b>.529</b> (.478-.585)	<b>.510</b> (.450-.570)	<b>.820</b> (.690-.960)	<b>1.36</b> (1.09-1.53)	<b>1.70</b> (1.40-1.78)	376
	09-10	<b>.465</b> (.406-.533)	<b>.460</b> (.430-.530)	<b>.830</b> (.710-.920)	<b>1.21</b> (1.05-1.51)	<b>1.56</b> (1.19-2.11)	451
20 years and older	99-00	<b>.343</b> (.305-.386)	<b>.370</b> (.330-.420)	<b>.570</b> (.520-.640)	<b>.880</b> (.810-.980)	<b>1.28</b> (1.07-1.39)	1406
	01-02	<b>.352</b> (.333-.373)	<b>.380</b> (.350-.410)	<b>.560</b> (.520-.590)	<b>.860</b> (.800-.930)	<b>1.15</b> (1.04-1.42)	1560
	03-04	<b>.285</b> (.259-.313)	<b>.300</b> (.270-.330)	<b>.460</b> (.410-.510)	<b>.690</b> (.660-.730)	<b>1.06</b> (.890-1.14)	1543
	05-06	<b>.351</b> (.332-.371)	<b>.370</b> (.350-.390)	<b>.550</b> (.520-.600)	<b>.810</b> (.760-.880)	<b>1.30</b> (1.05-1.47)	1520
	07-08	<b>.343</b> (.326-.362)	<b>.350</b> (.340-.370)	<b>.530</b> (.500-.560)	<b>.830</b> (.750-.920)	<b>1.20</b> (1.00-1.38)	1857
	09-10	<b>.351</b> (.322-.382)	<b>.350</b> (.330-.380)	<b>.570</b> (.520-.630)	<b>.890</b> (.800-1.02)	<b>1.35</b> (1.12-1.58)	2019
Gender							
Males	99-00	<b>.371</b> (.331-.416)	<b>.410</b> (.370-.450)	<b>.580</b> (.540-.640)	<b>.820</b> (.740-.900)	<b>1.01</b> (.900-1.12)	1227
	01-02	<b>.367</b> (.338-.399)	<b>.390</b> (.360-.420)	<b>.550</b> (.520-.600)	<b>.790</b> (.740-.850)	<b>1.05</b> (.960-1.14)	1335
	03-04	<b>.294</b> (.270-.319)	<b>.320</b> (.290-.340)	<b>.480</b> (.440-.500)	<b>.670</b> (.620-.710)	<b>.870</b> (.790-.920)	1281
	05-06	<b>.369</b> (.354-.383)	<b>.380</b> (.370-.400)	<b>.540</b> (.510-.570)	<b>.760</b> (.690-.850)	<b>1.06</b> (.910-1.27)	1271
	07-08	<b>.350</b> (.330-.371)	<b>.370</b> (.350-.390)	<b>.530</b> (.500-.560)	<b>.750</b> (.690-.820)	<b>1.00</b> (.860-1.14)	1327
	09-10	<b>.336</b> (.307-.368)	<b>.360</b> (.330-.380)	<b>.530</b> (.480-.570)	<b>.750</b> (.690-.850)	<b>.960</b> (.850-1.12)	1398
Females	99-00	<b>.379</b> (.333-.431)	<b>.410</b> (.340-.460)	<b>.680</b> (.590-.790)	<b>1.17</b> (.930-1.36)	<b>1.50</b> (1.28-2.05)	1238
	01-02	<b>.390</b> (.364-.417)	<b>.430</b> (.400-.450)	<b>.670</b> (.620-.700)	<b>1.06</b> (.980-1.16)	<b>1.46</b> (1.22-1.81)	1355
	03-04	<b>.339</b> (.308-.372)	<b>.340</b> (.310-.370)	<b>.580</b> (.540-.610)	<b>1.04</b> (.900-1.13)	<b>1.47</b> (1.33-1.73)	1277
	05-06	<b>.379</b> (.351-.409)	<b>.410</b> (.370-.440)	<b>.660</b> (.620-.700)	<b>1.04</b> (.900-1.21)	<b>1.54</b> (1.30-1.93)	1305
	07-08	<b>.389</b> (.367-.411)	<b>.390</b> (.360-.410)	<b>.650</b> (.590-.690)	<b>1.08</b> (.980-1.26)	<b>1.43</b> (1.34-1.62)	1300
	09-10	<b>.403</b> (.364-.447)	<b>.400</b> (.360-.440)	<b>.700</b> (.640-.770)	<b>1.19</b> (1.05-1.36)	<b>1.68</b> (1.51-2.11)	1450

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.07, 0.07, 0.08, 0.041, 0.041, and 0.041 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Cobalt\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Cobalt_BiomonitoringSummary.html)

## Urinary Cobalt (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00	<b>.418</b> (.348-.502)	<b>.470</b> (.370-.530)	<b>.670</b> (.630-.770)	<b>1.05</b> (.950-1.19)	<b>1.47</b> (1.25-1.67)	884
	01-02	<b>.398</b> (.373-.424)	<b>.430</b> (.410-.450)	<b>.650</b> (.600-.710)	<b>.950</b> (.850-1.03)	<b>1.20</b> (1.06-1.48)	683
	03-04	<b>.374</b> (.350-.398)	<b>.350</b> (.340-.390)	<b>.580</b> (.530-.620)	<b>1.09</b> (.920-1.16)	<b>1.33</b> (1.16-1.73)	618
	05-06	<b>.437</b> (.404-.473)	<b>.450</b> (.420-.500)	<b>.680</b> (.620-.720)	<b>1.11</b> (.940-1.30)	<b>1.58</b> (1.33-1.79)	652
	07-08	<b>.396</b> (.349-.450)	<b>.400</b> (.330-.480)	<b>.610</b> (.560-.710)	<b>.980</b> (.870-1.08)	<b>1.26</b> (1.05-1.69)	515
	09-10	<b>.378</b> (.351-.407)	<b>.380</b> (.360-.410)	<b>.590</b> (.560-.640)	<b>.920</b> (.860-1.04)	<b>1.24</b> (1.04-1.58)	613
Non-Hispanic blacks	99-00	<b>.434</b> (.405-.465)	<b>.430</b> (.390-.470)	<b>.680</b> (.620-.760)	<b>1.17</b> (1.04-1.26)	<b>1.45</b> (1.23-2.04)	568
	01-02	<b>.435</b> (.388-.487)	<b>.420</b> (.380-.460)	<b>.650</b> (.540-.810)	<b>1.16</b> (.850-1.64)	<b>1.75</b> (1.32-2.22)	667
	03-04	<b>.380</b> (.348-.414)	<b>.380</b> (.360-.410)	<b>.600</b> (.540-.680)	<b>1.01</b> (.890-1.09)	<b>1.28</b> (1.01-2.03)	723
	05-06	<b>.412</b> (.374-.453)	<b>.410</b> (.360-.440)	<b>.600</b> (.560-.670)	<b>.930</b> (.830-1.11)	<b>1.47</b> (1.12-2.00)	692
	07-08	<b>.403</b> (.367-.443)	<b>.390</b> (.360-.420)	<b>.620</b> (.560-.740)	<b>1.06</b> (.880-1.31)	<b>1.57</b> (1.22-1.86)	589
	09-10	<b>.368</b> (.335-.403)	<b>.380</b> (.340-.400)	<b>.590</b> (.520-.650)	<b>.990</b> (.870-1.15)	<b>1.47</b> (1.20-1.58)	544
Non-Hispanic whites	99-00	<b>.369</b> (.316-.431)	<b>.410</b> (.350-.460)	<b>.630</b> (.550-.700)	<b>.930</b> (.830-1.08)	<b>1.29</b> (1.02-1.65)	822
	01-02	<b>.359</b> (.327-.394)	<b>.390</b> (.360-.430)	<b>.590</b> (.520-.660)	<b>.870</b> (.800-.950)	<b>1.16</b> (1.04-1.32)	1132
	03-04	<b>.301</b> (.270-.334)	<b>.310</b> (.280-.340)	<b>.500</b> (.460-.540)	<b>.760</b> (.690-.850)	<b>1.09</b> (.950-1.26)	1074
	05-06	<b>.361</b> (.340-.384)	<b>.380</b> (.360-.410)	<b>.580</b> (.530-.630)	<b>.860</b> (.800-.940)	<b>1.30</b> (1.06-1.50)	1041
	07-08	<b>.358</b> (.338-.379)	<b>.370</b> (.350-.390)	<b>.560</b> (.520-.600)	<b>.900</b> (.780-1.00)	<b>1.32</b> (1.02-1.46)	1095
	09-10	<b>.369</b> (.335-.408)	<b>.370</b> (.350-.400)	<b>.600</b> (.540-.660)	<b>.970</b> (.850-1.10)	<b>1.40</b> (1.17-1.64)	1225

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.07, 0.07, 0.08, 0.041, 0.041, and 0.041 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Cobalt\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Cobalt_BiomonitoringSummary.html)

## Urinary Cobalt (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>.326</b> (.309-.344)	<b>.323</b> (.306-.347)	<b>.543</b> (.510-.577)	<b>.860</b> (.800-.979)	<b>1.27</b> (1.09-1.45)	2504
	13-14	<b>.391</b> (.373-.411)	<b>.408</b> (.382-.435)	<b>.687</b> (.662-.713)	<b>1.04</b> (.976-1.09)	<b>1.35</b> (1.23-1.48)	2664
<b>Age group</b>							
6-11 years	11-12	<b>.397</b> (.356-.442)	<b>.452</b> (.361-.510)	<b>.704</b> (.616-.772)	<b>1.00</b> (.846-1.38)	<b>1.42</b> (1.00-1.78)	399
	13-14	<b>.447</b> (.411-.487)	<b>.479</b> (.408-.522)	<b>.789</b> (.718-.877)	<b>1.05</b> (.991-1.33)	<b>1.55</b> (1.14-1.84)	402
12-19 years	11-12	<b>.416</b> (.358-.484)	<b>.429</b> (.341-.527)	<b>.700</b> (.622-.806)	<b>1.12</b> (.960-1.30)	<b>1.56</b> (1.16-1.96)	390
	13-14	<b>.549</b> (.462-.653)	<b>.602</b> (.491-.701)	<b>.936</b> (.783-1.05)	<b>1.43</b> (1.08-1.75)	<b>1.76</b> (1.49-3.07)	451
20 years and older	11-12	<b>.307</b> (.288-.327)	<b>.308</b> (.289-.328)	<b>.491</b> (.457-.534)	<b>.800</b> (.695-.940)	<b>1.16</b> (.984-1.36)	1715
	13-14	<b>.367</b> (.349-.386)	<b>.382</b> (.357-.410)	<b>.647</b> (.614-.673)	<b>.930</b> (.882-1.04)	<b>1.23</b> (1.17-1.34)	1811
<b>Gender</b>							
Males	11-12	<b>.317</b> (.299-.336)	<b>.316</b> (.293-.339)	<b>.496</b> (.452-.547)	<b>.715</b> (.659-.798)	<b>.963</b> (.858-1.03)	1262
	13-14	<b>.380</b> (.355-.407)	<b>.414</b> (.374-.452)	<b>.641</b> (.604-.684)	<b>.883</b> (.820-.951)	<b>1.11</b> (1.04-1.26)	1318
Females	11-12	<b>.335</b> (.310-.361)	<b>.340</b> (.308-.382)	<b>.591</b> (.554-.643)	<b>1.07</b> (.891-1.20)	<b>1.49</b> (1.30-1.74)	1242
	13-14	<b>.402</b> (.374-.432)	<b>.398</b> (.366-.438)	<b>.741</b> (.701-.789)	<b>1.16</b> (1.06-1.23)	<b>1.50</b> (1.36-1.75)	1346
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>.350</b> (.322-.381)	<b>.350</b> (.307-.377)	<b>.550</b> (.490-.598)	<b>.891</b> (.721-1.18)	<b>1.41</b> (1.14-2.08)	317
	13-14	<b>.415</b> (.378-.456)	<b>.439</b> (.400-.482)	<b>.686</b> (.610-.766)	<b>.918</b> (.866-1.09)	<b>1.15</b> (1.06-1.56)	453
Non-Hispanic blacks	11-12	<b>.340</b> (.311-.373)	<b>.333</b> (.304-.358)	<b>.519</b> (.489-.576)	<b>.909</b> (.790-.986)	<b>1.44</b> (1.06-1.60)	669
	13-14	<b>.468</b> (.410-.535)	<b>.471</b> (.402-.561)	<b>.796</b> (.691-.877)	<b>1.26</b> (1.03-1.39)	<b>1.50</b> (1.35-1.67)	581
Non-Hispanic whites	11-12	<b>.320</b> (.295-.348)	<b>.320</b> (.296-.357)	<b>.543</b> (.485-.591)	<b>.858</b> (.750-.995)	<b>1.20</b> (1.03-1.35)	820
	13-14	<b>.374</b> (.349-.401)	<b>.387</b> (.345-.429)	<b>.681</b> (.638-.723)	<b>1.02</b> (.930-1.10)	<b>1.34</b> (1.21-1.56)	985
All Hispanics	11-12	<b>.338</b> (.321-.357)	<b>.326</b> (.306-.350)	<b>.530</b> (.490-.583)	<b>.891</b> (.763-1.14)	<b>1.41</b> (1.10-1.81)	573
	13-14	<b>.412</b> (.384-.442)	<b>.442</b> (.409-.481)	<b>.674</b> (.631-.731)	<b>.964</b> (.891-1.07)	<b>1.20</b> (1.09-1.36)	701
Asians	11-12	<b>.317</b> (.282-.357)	<b>.323</b> (.300-.355)	<b>.519</b> (.445-.634)	<b>.968</b> (.723-1.58)	<b>1.78</b> (.980-2.31)	353
	13-14	<b>.362</b> (.315-.416)	<b>.354</b> (.312-.434)	<b>.653</b> (.578-.789)	<b>1.05</b> (.854-1.25)	<b>1.57</b> (1.09-2.26)	292

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.048 and 0.023.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Cobalt\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Cobalt_BiomonitoringSummary.html)

## Urinary Cobalt (creatinine corrected) (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	<b>.353</b> (.319-.391)	<b>.328</b> (.302-.365)	<b>.515</b> (.457-.581)	<b>.821</b> (.679-.963)	<b>1.16</b> (.938-1.50)	2465
	01-02	<b>.358</b> (.333-.384)	<b>.335</b> (.313-.360)	<b>.523</b> (.487-.562)	<b>.844</b> (.750-.955)	<b>1.16</b> (1.00-1.28)	2689
	03-04	<b>.314</b> (.303-.325)	<b>.290</b> (.278-.306)	<b>.455</b> (.434-.481)	<b>.737</b> (.703-.781)	<b>1.02</b> (.911-1.10)	2558
	05-06	<b>.368</b> (.353-.384)	<b>.340</b> (.320-.360)	<b>.520</b> (.490-.550)	<b>.810</b> (.750-.920)	<b>1.17</b> (.990-1.27)	2576
	07-08	<b>.385</b> (.366-.406)	<b>.360</b> (.350-.380)	<b>.560</b> (.520-.590)	<b>.870</b> (.760-.990)	<b>1.22</b> (1.01-1.46)	2627
	09-10	<b>.393</b> (.372-.415)	<b>.370</b> (.350-.390)	<b>.560</b> (.530-.600)	<b>.890</b> (.830-.940)	<b>1.29</b> (1.08-1.49)	2848
Age group 6-11 years	99-00	<b>.547</b> (.467-.640)	<b>.554</b> (.449-.647)	<b>.774</b> (.626-.938)	<b>1.00</b> (.833-1.49)	<b>1.25</b> (.895-1.50)	340
	01-02	<b>.552</b> (.508-.599)	<b>.548</b> (.503-.609)	<b>.756</b> (.660-.829)	<b>1.00</b> (.900-1.27)	<b>1.30</b> (1.03-1.73)	368
	03-04	<b>.529</b> (.471-.593)	<b>.500</b> (.463-.543)	<b>.689</b> (.634-.750)	<b>1.04</b> (.760-1.29)	<b>1.29</b> (1.04-1.36)	290
	05-06	<b>.523</b> (.494-.554)	<b>.520</b> (.480-.570)	<b>.720</b> (.660-.760)	<b>.900</b> (.840-1.04)	<b>1.27</b> (.980-1.45)	355
	07-08	<b>.564</b> (.501-.635)	<b>.580</b> (.500-.630)	<b>.760</b> (.660-.910)	<b>1.12</b> (.830-1.46)	<b>1.39</b> (1.06-1.81)	394
	09-10	<b>.578</b> (.538-.620)	<b>.570</b> (.530-.620)	<b>.760</b> (.690-.840)	<b>1.06</b> (.920-1.21)	<b>1.26</b> (1.06-1.58)	378
12-19 years	99-00	<b>.391</b> (.353-.433)	<b>.378</b> (.329-.407)	<b>.537</b> (.469-.595)	<b>.824</b> (.638-1.17)	<b>1.44</b> (.821-3.54)	719
	01-02	<b>.368</b> (.343-.396)	<b>.352</b> (.327-.372)	<b>.534</b> (.471-.611)	<b>.851</b> (.673-.949)	<b>1.06</b> (.932-1.24)	762
	03-04	<b>.329</b> (.304-.355)	<b>.316</b> (.277-.348)	<b>.495</b> (.442-.561)	<b>.738</b> (.630-.847)	<b>.952</b> (.792-1.09)	725
	05-06	<b>.392</b> (.360-.427)	<b>.360</b> (.330-.400)	<b>.530</b> (.480-.620)	<b>.810</b> (.720-.920)	<b>1.02</b> (.870-1.48)	701
	07-08	<b>.414</b> (.382-.448)	<b>.390</b> (.340-.450)	<b>.610</b> (.520-.700)	<b>.880</b> (.750-1.13)	<b>1.17</b> (.890-1.35)	376
	09-10	<b>.435</b> (.398-.476)	<b>.410</b> (.370-.470)	<b>.610</b> (.550-.700)	<b>.960</b> (.790-1.07)	<b>1.30</b> (1.00-1.53)	451
20 years and older	99-00	<b>.328</b> (.297-.362)	<b>.306</b> (.280-.328)	<b>.471</b> (.428-.522)	<b>.727</b> (.632-.905)	<b>1.12</b> (.861-1.36)	1406
	01-02	<b>.337</b> (.313-.363)	<b>.313</b> (.294-.337)	<b>.475</b> (.435-.513)	<b>.792</b> (.704-.955)	<b>1.15</b> (.963-1.33)	1559
	03-04	<b>.293</b> (.282-.304)	<b>.271</b> (.257-.286)	<b>.400</b> (.380-.429)	<b>.691</b> (.616-.744)	<b>.976</b> (.829-1.10)	1543
	05-06	<b>.350</b> (.334-.367)	<b>.320</b> (.300-.340)	<b>.490</b> (.450-.520)	<b>.780</b> (.690-.940)	<b>1.17</b> (.970-1.31)	1520
	07-08	<b>.366</b> (.348-.384)	<b>.340</b> (.330-.360)	<b>.510</b> (.480-.540)	<b>.830</b> (.720-.960)	<b>1.19</b> (.980-1.47)	1857
	09-10	<b>.371</b> (.350-.394)	<b>.340</b> (.320-.360)	<b>.520</b> (.490-.550)	<b>.840</b> (.750-.930)	<b>1.29</b> (1.02-1.52)	2019
Gender Males	99-00	<b>.290</b> (.259-.324)	<b>.279</b> (.248-.301)	<b>.402</b> (.365-.449)	<b>.608</b> (.534-.728)	<b>.838</b> (.667-1.10)	1227
	01-02	<b>.290</b> (.272-.310)	<b>.278</b> (.256-.297)	<b>.392</b> (.361-.425)	<b>.644</b> (.574-.707)	<b>.848</b> (.786-.929)	1334
	03-04	<b>.247</b> (.237-.259)	<b>.234</b> (.215-.250)	<b>.333</b> (.313-.352)	<b>.513</b> (.476-.585)	<b>.700</b> (.630-.753)	1281
	05-06	<b>.302</b> (.289-.317)	<b>.290</b> (.270-.300)	<b>.410</b> (.370-.440)	<b>.610</b> (.580-.640)	<b>.770</b> (.710-.850)	1271
	07-08	<b>.313</b> (.298-.329)	<b>.300</b> (.280-.310)	<b>.420</b> (.400-.440)	<b>.630</b> (.580-.680)	<b>.830</b> (.680-1.02)	1327
	09-10	<b>.306</b> (.290-.323)	<b>.290</b> (.280-.300)	<b>.420</b> (.390-.450)	<b>.630</b> (.570-.690)	<b>.810</b> (.720-.920)	1398
Females	99-00	<b>.426</b> (.378-.479)	<b>.407</b> (.362-.457)	<b>.606</b> (.550-.694)	<b>.960</b> (.781-1.29)	<b>1.50</b> (1.11-1.83)	1238
	01-02	<b>.435</b> (.404-.468)	<b>.408</b> (.382-.438)	<b>.635</b> (.560-.708)	<b>1.00</b> (.879-1.19)	<b>1.29</b> (1.12-1.60)	1355
	03-04	<b>.393</b> (.378-.409)	<b>.361</b> (.342-.381)	<b>.554</b> (.513-.615)	<b>.937</b> (.850-1.00)	<b>1.29</b> (1.10-1.33)	1277
	05-06	<b>.445</b> (.423-.468)	<b>.420</b> (.400-.440)	<b>.630</b> (.590-.700)	<b>.990</b> (.900-1.17)	<b>1.34</b> (1.18-1.60)	1305
	07-08	<b>.470</b> (.442-.499)	<b>.450</b> (.430-.480)	<b>.690</b> (.630-.750)	<b>1.09</b> (.930-1.27)	<b>1.46</b> (1.26-1.69)	1300
	09-10	<b>.498</b> (.465-.534)	<b>.460</b> (.450-.480)	<b>.690</b> (.650-.720)	<b>1.09</b> (.990-1.33)	<b>1.64</b> (1.34-2.15)	1450

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Cobalt\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Cobalt_BiomonitoringSummary.html)

## Urinary Cobalt (creatinine corrected) (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00	<b>.386</b> (.339-.439)	<b>.376</b> (.333-.419)	<b>.598</b> (.500-.669)	<b>.898</b> (.826-1.00)	<b>1.23</b> (1.11-1.35)	884
	01-02	<b>.388</b> (.361-.417)	<b>.361</b> (.333-.394)	<b>.591</b> (.500-.662)	<b>.872</b> (.777-.990)	<b>1.10</b> (.990-1.27)	682
	03-04	<b>.346</b> (.326-.368)	<b>.327</b> (.296-.349)	<b>.542</b> (.487-.594)	<b>.850</b> (.753-.963)	<b>1.14</b> (.963-1.35)	618
	05-06	<b>.411</b> (.388-.436)	<b>.380</b> (.360-.400)	<b>.580</b> (.520-.650)	<b>.900</b> (.820-1.02)	<b>1.19</b> (1.05-1.35)	652
	07-08	<b>.396</b> (.348-.450)	<b>.370</b> (.330-.410)	<b>.560</b> (.470-.690)	<b>.900</b> (.770-1.12)	<b>1.17</b> (.990-1.54)	515
	09-10	<b>.396</b> (.367-.427)	<b>.380</b> (.340-.420)	<b>.590</b> (.530-.650)	<b>.930</b> (.820-1.03)	<b>1.22</b> (1.04-1.30)	613
Non-Hispanic blacks	99-00	<b>.282</b> (.275-.289)	<b>.257</b> (.243-.279)	<b>.417</b> (.378-.462)	<b>.723</b> (.600-.785)	<b>.975</b> (.757-1.60)	568
	01-02	<b>.298</b> (.275-.323)	<b>.268</b> (.251-.296)	<b>.444</b> (.393-.505)	<b>.728</b> (.582-.917)	<b>1.03</b> (.740-1.55)	667
	03-04	<b>.273</b> (.248-.300)	<b>.259</b> (.239-.281)	<b>.388</b> (.344-.461)	<b>.700</b> (.563-.842)	<b>.964</b> (.733-1.15)	723
	05-06	<b>.299</b> (.281-.318)	<b>.280</b> (.240-.300)	<b>.420</b> (.380-.460)	<b>.700</b> (.570-.780)	<b>.950</b> (.790-1.17)	692
	07-08	<b>.295</b> (.277-.314)	<b>.270</b> (.260-.290)	<b>.420</b> (.390-.450)	<b>.710</b> (.570-.860)	<b>1.07</b> (.850-1.28)	589
	09-10	<b>.291</b> (.271-.314)	<b>.280</b> (.240-.310)	<b>.420</b> (.380-.480)	<b>.700</b> (.610-.750)	<b>.840</b> (.750-1.06)	544
Non-Hispanic whites	99-00	<b>.369</b> (.324-.421)	<b>.352</b> (.313-.387)	<b>.533</b> (.452-.611)	<b>.861</b> (.667-1.16)	<b>1.25</b> (.895-1.57)	822
	01-02	<b>.362</b> (.331-.396)	<b>.343</b> (.313-.368)	<b>.523</b> (.479-.562)	<b>.830</b> (.736-.983)	<b>1.16</b> (.983-1.33)	1132
	03-04	<b>.317</b> (.301-.334)	<b>.291</b> (.274-.309)	<b>.457</b> (.425-.488)	<b>.738</b> (.683-.804)	<b>1.00</b> (.857-1.13)	1074
	05-06	<b>.376</b> (.357-.395)	<b>.350</b> (.330-.370)	<b>.520</b> (.490-.580)	<b>.810</b> (.710-.950)	<b>1.18</b> (.950-1.43)	1041
	07-08	<b>.401</b> (.380-.423)	<b>.380</b> (.360-.400)	<b>.590</b> (.530-.630)	<b>.890</b> (.760-1.06)	<b>1.27</b> (.980-1.55)	1095
	09-10	<b>.413</b> (.388-.440)	<b>.390</b> (.360-.410)	<b>.580</b> (.530-.620)	<b>.910</b> (.830-.980)	<b>1.33</b> (1.08-1.58)	1225

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Cobalt\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Cobalt_BiomonitoringSummary.html)

## Urinary Cobalt (creatinine corrected) (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>.370</b> (.349-.391)	<b>.347</b> (.330-.371)	<b>.557</b> (.513-.593)	<b>.880</b> (.768-1.03)	<b>1.29</b> (1.12-1.46)	2502
	13-14	<b>.452</b> (.437-.466)	<b>.443</b> (.427-.454)	<b>.656</b> (.625-.688)	<b>.969</b> (.920-1.03)	<b>1.31</b> (1.18-1.47)	2663
<b>Age group</b>							
6-11 years	11-12	<b>.567</b> (.535-.602)	<b>.571</b> (.526-.611)	<b>.778</b> (.713-.834)	<b>1.19</b> (.974-1.30)	<b>1.38</b> (1.10-1.67)	398
	13-14	<b>.667</b> (.614-.725)	<b>.646</b> (.593-.704)	<b>.914</b> (.853-.986)	<b>1.26</b> (1.09-1.40)	<b>1.57</b> (1.24-2.13)	402
12-19 years	11-12	<b>.398</b> (.349-.455)	<b>.373</b> (.316-.441)	<b>.585</b> (.454-.700)	<b>.832</b> (.688-1.09)	<b>1.26</b> (.830-2.77)	390
	13-14	<b>.497</b> (.463-.534)	<b>.480</b> (.446-.525)	<b>.692</b> (.597-.769)	<b>.920</b> (.819-1.10)	<b>1.30</b> (1.09-1.61)	451
20 years and older	11-12	<b>.349</b> (.330-.369)	<b>.327</b> (.300-.341)	<b>.508</b> (.467-.552)	<b>.803</b> (.711-.982)	<b>1.24</b> (1.10-1.50)	1714
	13-14	<b>.428</b> (.412-.444)	<b>.417</b> (.390-.441)	<b>.607</b> (.580-.643)	<b>.929</b> (.853-.994)	<b>1.27</b> (1.10-1.46)	1810
<b>Gender</b>							
Males	11-12	<b>.297</b> (.280-.315)	<b>.276</b> (.254-.294)	<b>.426</b> (.397-.456)	<b>.637</b> (.564-.750)	<b>.865</b> (.748-1.17)	1261
	13-14	<b>.379</b> (.362-.398)	<b>.368</b> (.344-.390)	<b>.529</b> (.493-.560)	<b>.758</b> (.689-.852)	<b>1.02</b> (.871-1.29)	1317
Females	11-12	<b>.455</b> (.418-.496)	<b>.433</b> (.407-.466)	<b>.660</b> (.600-.729)	<b>1.10</b> (.900-1.36)	<b>1.54</b> (1.28-1.84)	1241
	13-14	<b>.534</b> (.515-.553)	<b>.532</b> (.502-.549)	<b>.774</b> (.733-.816)	<b>1.12</b> (.991-1.27)	<b>1.48</b> (1.27-1.77)	1346
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>.394</b> (.357-.435)	<b>.374</b> (.322-.400)	<b>.576</b> (.531-.637)	<b>1.02</b> (.877-1.24)	<b>1.50</b> (.988-2.02)	317
	13-14	<b>.474</b> (.449-.500)	<b>.448</b> (.425-.473)	<b>.669</b> (.610-.721)	<b>.971</b> (.888-1.03)	<b>1.28</b> (1.03-1.51)	453
Non-Hispanic blacks	11-12	<b>.265</b> (.248-.282)	<b>.244</b> (.222-.267)	<b>.401</b> (.342-.457)	<b>.645</b> (.559-.816)	<b>1.02</b> (.737-1.41)	669
	13-14	<b>.356</b> (.332-.382)	<b>.337</b> (.315-.377)	<b>.545</b> (.490-.624)	<b>.841</b> (.754-.952)	<b>1.08</b> (.930-1.22)	581
Non-Hispanic whites	11-12	<b>.387</b> (.360-.417)	<b>.365</b> (.336-.400)	<b>.574</b> (.513-.615)	<b>.860</b> (.749-1.09)	<b>1.29</b> (1.04-1.57)	818
	13-14	<b>.461</b> (.442-.480)	<b>.447</b> (.430-.469)	<b>.669</b> (.613-.703)	<b>.987</b> (.912-1.13)	<b>1.32</b> (1.19-1.61)	984
All Hispanics	11-12	<b>.379</b> (.351-.409)	<b>.361</b> (.322-.384)	<b>.572</b> (.520-.626)	<b>.944</b> (.809-1.15)	<b>1.33</b> (1.13-1.91)	573
	13-14	<b>.460</b> (.444-.475)	<b>.448</b> (.429-.464)	<b>.663</b> (.619-.703)	<b>.952</b> (.888-1.00)	<b>1.17</b> (1.03-1.35)	701
Asians	11-12	<b>.424</b> (.378-.475)	<b>.386</b> (.329-.457)	<b>.659</b> (.531-.785)	<b>1.18</b> (.907-1.51)	<b>1.61</b> (1.14-2.72)	353
	13-14	<b>.567</b> (.516-.624)	<b>.540</b> (.482-.567)	<b>.814</b> (.670-.931)	<b>1.38</b> (1.07-1.97)	<b>2.09</b> (1.39-3.78)	292

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Cobalt\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Cobalt_BiomonitoringSummary.html)



## Serum Copper (2011 - 2014)

Geometric mean and selected percentiles of serum concentrations (in µg/dL) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Total</b>	11-12	<b>114</b> (111-116)	<b>112</b> (109-114)	<b>130</b> (127-134)	<b>152</b> (145-162)	<b>169</b> (161-183)	2329
	13-14	<b>115</b> (112-118)	<b>114</b> (110-117)	<b>132</b> (129-135)	<b>155</b> (150-160)	<b>171</b> (165-180)	2520
<b>Age group</b>							
6-11 years	11-12	<b>120</b> (117-124)	<b>121</b> (115-126)	<b>135</b> (130-140)	<b>154</b> (141-161)	<b>164</b> (154-175)	316
	13-14	<b>119</b> (114-123)	<b>119</b> (114-123)	<b>132</b> (127-141)	<b>148</b> (143-155)	<b>157</b> (148-175)	339
12-19 years	11-12	<b>106</b> (103-110)	<b>103</b> (99.7-106)	<b>120</b> (115-125)	<b>143</b> (130-161)	<b>169</b> (141-199)	366
	13-14	<b>106</b> (103-108)	<b>104</b> (101-106)	<b>120</b> (116-125)	<b>141</b> (132-147)	<b>164</b> (146-181)	418
20 years and older	11-12	<b>114</b> (111-117)	<b>112</b> (109-115)	<b>131</b> (127-136)	<b>153</b> (145-164)	<b>171</b> (162-184)	1647
	13-14	<b>116</b> (113-119)	<b>114</b> (111-118)	<b>134</b> (131-136)	<b>157</b> (150-164)	<b>175</b> (165-183)	1763
<b>Gender</b>							
Males	11-12	<b>103</b> (101-106)	<b>103</b> (101-105)	<b>116</b> (114-119)	<b>132</b> (126-139)	<b>143</b> (135-155)	1162
	13-14	<b>103</b> (99.8-107)	<b>103</b> (101-106)	<b>117</b> (113-122)	<b>131</b> (125-137)	<b>141</b> (134-148)	1235
Females	11-12	<b>124</b> (121-127)	<b>123</b> (119-125)	<b>142</b> (137-147)	<b>165</b> (160-172)	<b>187</b> (173-207)	1167
	13-14	<b>127</b> (124-130)	<b>124</b> (122-128)	<b>145</b> (142-149)	<b>168</b> (162-176)	<b>191</b> (175-214)	1285
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>111</b> (107-116)	<b>109</b> (105-115)	<b>125</b> (122-131)	<b>144</b> (137-152)	<b>156</b> (148-164)	285
	13-14	<b>116</b> (113-120)	<b>116</b> (110-119)	<b>135</b> (128-142)	<b>157</b> (147-164)	<b>174</b> (162-182)	431
Non-Hispanic blacks	11-12	<b>126</b> (122-130)	<b>127</b> (121-130)	<b>147</b> (142-151)	<b>168</b> (161-180)	<b>191</b> (176-214)	620
	13-14	<b>125</b> (121-129)	<b>124</b> (120-128)	<b>147</b> (143-151)	<b>165</b> (159-170)	<b>176</b> (169-188)	516
Non-Hispanic whites	11-12	<b>113</b> (110-115)	<b>111</b> (109-113)	<b>128</b> (125-132)	<b>150</b> (141-163)	<b>169</b> (155-192)	780
	13-14	<b>113</b> (110-116)	<b>111</b> (109-114)	<b>130</b> (125-133)	<b>150</b> (144-158)	<b>168</b> (158-188)	975
All Hispanics	11-12	<b>112</b> (108-115)	<b>109</b> (106-115)	<b>128</b> (124-132)	<b>145</b> (139-152)	<b>158</b> (151-164)	525
	13-14	<b>117</b> (113-121)	<b>116</b> (111-120)	<b>136</b> (129-142)	<b>157</b> (148-164)	<b>171</b> (162-182)	666
Asians	11-12	<b>105</b> (102-109)	<b>101</b> (96.2-107)	<b>120</b> (114-125)	<b>143</b> (132-151)	<b>166</b> (150-198)	323
	13-14	<b>107</b> (104-111)	<b>104</b> (99.8-108)	<b>125</b> (116-130)	<b>146</b> (132-162)	<b>162</b> (145-186)	267

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 2.5 and 2.5, respectively.

## Blood Lead (1999 – 2010)

Geometric mean and selected percentiles of blood concentrations (in µg/dL) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	<b>1.66</b> (1.60-1.72)	<b>1.60</b> (1.60-1.70)	<b>2.50</b> (2.40-2.60)	<b>3.80</b> (3.60-4.00)	<b>5.00</b> (4.70-5.50)	7970
	01-02	<b>1.45</b> (1.39-1.51)	<b>1.40</b> (1.40-1.50)	<b>2.20</b> (2.10-2.30)	<b>3.40</b> (3.20-3.60)	<b>4.50</b> (4.20-4.70)	8945
	03-04	<b>1.43</b> (1.36-1.50)	<b>1.40</b> (1.30-1.50)	<b>2.10</b> (2.10-2.20)	<b>3.20</b> (3.10-3.30)	<b>4.20</b> (3.90-4.40)	8373
	05-06	<b>1.29</b> (1.23-1.36)	<b>1.27</b> (1.20-1.34)	<b>2.01</b> (1.91-2.11)	<b>3.05</b> (2.86-3.22)	<b>3.91</b> (3.64-4.18)	8407
	07-08	<b>1.27</b> (1.21-1.34)	<b>1.22</b> (1.18-1.30)	<b>1.90</b> (1.80-2.00)	<b>2.80</b> (2.67-2.96)	<b>3.70</b> (3.50-3.90)	8266
	09-10	<b>1.12</b> (1.08-1.16)	<b>1.07</b> (1.03-1.12)	<b>1.70</b> (1.62-1.77)	<b>2.58</b> (2.45-2.71)	<b>3.34</b> (3.14-3.57)	8793
<b>Age group</b>							
1-5 years	99-00	<b>2.23</b> (1.96-2.53)	<b>2.20</b> (1.90-2.50)	<b>3.40</b> (2.80-3.90)	<b>4.90</b> (4.00-6.60)	<b>7.00</b> (6.10-8.30)	723
	01-02	<b>1.70</b> (1.55-1.87)	<b>1.60</b> (1.50-1.80)	<b>2.50</b> (2.20-2.90)	<b>4.20</b> (3.50-5.20)	<b>5.80</b> (4.70-6.90)	898
	03-04	<b>1.77</b> (1.60-1.95)	<b>1.70</b> (1.50-1.90)	<b>2.50</b> (2.30-2.80)	<b>3.90</b> (3.30-4.60)	<b>5.10</b> (4.10-6.60)	911
	05-06	<b>1.46</b> (1.36-1.57)	<b>1.43</b> (1.34-1.55)	<b>2.10</b> (1.97-2.20)	<b>2.98</b> (2.72-3.32)	<b>3.80</b> (3.49-4.54)	968
	07-08	<b>1.51</b> (1.37-1.66)	<b>1.43</b> (1.30-1.60)	<b>2.20</b> (1.98-2.31)	<b>3.20</b> (2.65-3.85)	<b>4.10</b> (3.40-5.19)	817
	09-10	<b>1.17</b> (1.08-1.26)	<b>1.15</b> (1.03-1.27)	<b>1.70</b> (1.50-1.87)	<b>2.39</b> (2.08-2.65)	<b>3.37</b> (2.63-4.11)	836
6-11 years	99-00	<b>1.51</b> (1.36-1.66)	<b>1.40</b> (1.30-1.60)	<b>2.10</b> (1.80-2.50)	<b>3.30</b> (2.80-3.80)	<b>4.50</b> (3.40-6.20)	905
	01-02	<b>1.25</b> (1.14-1.36)	<b>1.20</b> (1.00-1.30)	<b>1.70</b> (1.60-2.00)	<b>2.80</b> (2.50-3.10)	<b>3.70</b> (3.00-4.70)	1044
	03-04	<b>1.25</b> (1.12-1.39)	<b>1.20</b> (1.10-1.40)	<b>1.80</b> (1.50-2.10)	<b>2.60</b> (2.10-3.10)	<b>3.30</b> (2.50-4.60)	856
	05-06	<b>1.02</b> (.948-1.10)	<b>.970</b> (.890-1.01)	<b>1.40</b> (1.28-1.55)	<b>2.06</b> (1.80-2.72)	<b>3.00</b> (2.26-3.81)	934
	07-08	<b>.988</b> (.914-1.07)	<b>.960</b> (.880-1.07)	<b>1.31</b> (1.22-1.49)	<b>1.90</b> (1.70-2.11)	<b>2.50</b> (2.10-2.88)	1011
	09-10	<b>.838</b> (.792-.887)	<b>.810</b> (.740-.840)	<b>1.13</b> (1.06-1.21)	<b>1.64</b> (1.45-1.84)	<b>2.01</b> (1.88-2.25)	1009
12-19 years	99-00	<b>1.10</b> (1.04-1.17)	<b>1.10</b> (1.00-1.20)	<b>1.50</b> (1.40-1.70)	<b>2.30</b> (2.10-2.40)	<b>2.90</b> (2.70-3.00)	2135
	01-02	<b>.942</b> (.899-.986)	<b>.900</b> (.900-1.00)	<b>1.30</b> (1.20-1.40)	<b>2.00</b> (1.90-2.10)	<b>2.70</b> (2.40-2.90)	2231
	03-04	<b>.946</b> (.878-1.02)	<b>.900</b> (.800-1.00)	<b>1.30</b> (1.20-1.40)	<b>1.90</b> (1.70-2.10)	<b>2.60</b> (2.20-3.00)	2081
	05-06	<b>.797</b> (.746-.852)	<b>.740</b> (.690-.790)	<b>1.08</b> (.990-1.20)	<b>1.69</b> (1.50-1.85)	<b>2.23</b> (1.98-2.46)	1996
	07-08	<b>.800</b> (.744-.859)	<b>.760</b> (.720-.820)	<b>1.04</b> (.980-1.16)	<b>1.50</b> (1.35-1.70)	<b>1.90</b> (1.70-2.32)	1074
	09-10	<b>.680</b> (.636-.727)	<b>.660</b> (.590-.700)	<b>.910</b> (.840-.990)	<b>1.29</b> (1.19-1.43)	<b>1.72</b> (1.52-1.86)	1183
20 years and older	99-00	<b>1.75</b> (1.68-1.81)	<b>1.70</b> (1.60-1.80)	<b>2.60</b> (2.50-2.70)	<b>3.90</b> (3.70-4.10)	<b>5.20</b> (4.80-5.60)	4207
	01-02	<b>1.56</b> (1.49-1.62)	<b>1.60</b> (1.50-1.60)	<b>2.30</b> (2.30-2.40)	<b>3.60</b> (3.40-3.70)	<b>4.60</b> (4.30-5.00)	4772
	03-04	<b>1.52</b> (1.45-1.60)	<b>1.50</b> (1.40-1.60)	<b>2.30</b> (2.20-2.40)	<b>3.30</b> (3.20-3.50)	<b>4.30</b> (4.00-4.60)	4525
	05-06	<b>1.41</b> (1.34-1.48)	<b>1.41</b> (1.33-1.48)	<b>2.17</b> (2.04-2.31)	<b>3.22</b> (3.05-3.43)	<b>4.12</b> (3.82-4.38)	4509
	07-08	<b>1.38</b> (1.31-1.46)	<b>1.34</b> (1.26-1.42)	<b>2.06</b> (1.94-2.18)	<b>3.00</b> (2.80-3.14)	<b>3.90</b> (3.68-4.23)	5364
	09-10	<b>1.23</b> (1.19-1.28)	<b>1.20</b> (1.14-1.25)	<b>1.85</b> (1.78-1.93)	<b>2.77</b> (2.60-2.93)	<b>3.57</b> (3.29-3.84)	5765
<b>Gender</b>							
Males	99-00	<b>2.01</b> (1.93-2.09)	<b>1.90</b> (1.90-2.00)	<b>2.90</b> (2.80-3.00)	<b>4.50</b> (4.10-4.80)	<b>6.00</b> (5.50-6.50)	3913
	01-02	<b>1.78</b> (1.71-1.86)	<b>1.80</b> (1.70-1.80)	<b>2.70</b> (2.50-2.80)	<b>3.90</b> (3.80-4.10)	<b>5.40</b> (5.00-5.50)	4339
	03-04	<b>1.69</b> (1.62-1.75)	<b>1.60</b> (1.50-1.70)	<b>2.50</b> (2.40-2.60)	<b>3.70</b> (3.40-3.90)	<b>4.80</b> (4.50-5.20)	4132
	05-06	<b>1.52</b> (1.42-1.62)	<b>1.49</b> (1.41-1.58)	<b>2.30</b> (2.12-2.51)	<b>3.48</b> (3.20-3.75)	<b>4.36</b> (4.04-4.76)	4092
	07-08	<b>1.47</b> (1.39-1.56)	<b>1.40</b> (1.32-1.50)	<b>2.17</b> (2.00-2.30)	<b>3.21</b> (3.01-3.53)	<b>4.41</b> (4.10-4.88)	4147
	09-10	<b>1.31</b> (1.25-1.36)	<b>1.26</b> (1.20-1.32)	<b>1.96</b> (1.89-2.03)	<b>2.93</b> (2.72-3.15)	<b>3.84</b> (3.54-4.39)	4366
Females	99-00	<b>1.37</b> (1.32-1.43)	<b>1.30</b> (1.30-1.40)	<b>2.00</b> (1.90-2.10)	<b>3.10</b> (2.90-3.30)	<b>4.00</b> (3.80-4.20)	4057
	01-02	<b>1.19</b> (1.14-1.25)	<b>1.20</b> (1.10-1.20)	<b>1.80</b> (1.70-1.90)	<b>2.60</b> (2.50-2.80)	<b>3.60</b> (3.10-4.00)	4606
	03-04	<b>1.22</b> (1.14-1.31)	<b>1.20</b> (1.10-1.30)	<b>1.80</b> (1.70-2.00)	<b>2.70</b> (2.50-3.00)	<b>3.50</b> (3.10-3.80)	4241
	05-06	<b>1.11</b> (1.05-1.17)	<b>1.06</b> (.980-1.15)	<b>1.73</b> (1.61-1.84)	<b>2.59</b> (2.44-2.74)	<b>3.25</b> (3.12-3.44)	4315
	07-08	<b>1.11</b> (1.06-1.16)	<b>1.09</b> (1.00-1.14)	<b>1.64</b> (1.54-1.74)	<b>2.41</b> (2.35-2.50)	<b>3.00</b> (2.81-3.20)	4119
	09-10	<b>.966</b> (.929-1.01)	<b>.940</b> (.890-.970)	<b>1.43</b> (1.36-1.53)	<b>2.18</b> (2.08-2.30)	<b>2.81</b> (2.63-2.93)	4427

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.3, 0.3, 0.28, 0.25, 0.25, and 0.25 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Lead\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Lead_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Lead\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Lead_FactSheet.html)



## Blood Lead (1999 – 2010)

Geometric mean and selected percentiles of blood concentrations (in µg/dL) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00	<b>1.83</b> (1.75-1.91)	<b>1.80</b> (1.70-1.90)	<b>2.80</b> (2.60-2.90)	<b>4.20</b> (3.90-4.60)	<b>5.80</b> (5.10-6.60)	2742
	01-02	<b>1.46</b> (1.34-1.60)	<b>1.50</b> (1.30-1.60)	<b>2.30</b> (2.10-2.60)	<b>3.60</b> (3.40-4.20)	<b>5.40</b> (4.40-6.70)	2268
	03-04	<b>1.55</b> (1.43-1.69)	<b>1.50</b> (1.40-1.60)	<b>2.30</b> (2.10-2.50)	<b>3.50</b> (2.90-4.20)	<b>4.90</b> (3.90-6.40)	2085
	05-06	<b>1.29</b> (1.21-1.38)	<b>1.26</b> (1.15-1.36)	<b>2.00</b> (1.87-2.20)	<b>3.16</b> (2.79-3.58)	<b>4.22</b> (3.47-5.36)	2236
	07-08	<b>1.25</b> (1.15-1.36)	<b>1.20</b> (1.10-1.31)	<b>1.88</b> (1.70-2.06)	<b>2.81</b> (2.60-3.20)	<b>3.92</b> (3.20-5.00)	1712
	09-10	<b>1.14</b> (1.03-1.28)	<b>1.04</b> (.940-1.18)	<b>1.76</b> (1.52-1.99)	<b>2.93</b> (2.63-3.30)	<b>3.92</b> (3.60-4.69)	1966
Non-Hispanic blacks	99-00	<b>1.87</b> (1.75-2.00)	<b>1.80</b> (1.70-2.00)	<b>2.80</b> (2.60-3.00)	<b>4.30</b> (4.00-4.60)	<b>5.70</b> (5.20-6.10)	1842
	01-02	<b>1.65</b> (1.52-1.80)	<b>1.60</b> (1.40-1.70)	<b>2.60</b> (2.30-2.90)	<b>4.20</b> (3.80-4.70)	<b>5.80</b> (5.30-6.50)	2219
	03-04	<b>1.69</b> (1.52-1.89)	<b>1.60</b> (1.40-1.80)	<b>2.60</b> (2.20-3.00)	<b>4.10</b> (3.50-4.70)	<b>5.30</b> (4.60-6.60)	2293
	05-06	<b>1.39</b> (1.26-1.53)	<b>1.31</b> (1.19-1.45)	<b>2.16</b> (1.95-2.42)	<b>3.48</b> (3.19-3.80)	<b>4.65</b> (4.21-5.14)	2193
	07-08	<b>1.39</b> (1.30-1.48)	<b>1.30</b> (1.20-1.42)	<b>2.10</b> (2.00-2.20)	<b>3.22</b> (3.08-3.50)	<b>4.50</b> (4.00-4.80)	1746
	09-10	<b>1.24</b> (1.18-1.30)	<b>1.19</b> (1.12-1.25)	<b>1.87</b> (1.76-1.99)	<b>2.90</b> (2.68-3.18)	<b>3.86</b> (3.57-4.29)	1593
Non-Hispanic whites	99-00	<b>1.62</b> (1.55-1.69)	<b>1.60</b> (1.50-1.70)	<b>2.40</b> (2.30-2.50)	<b>3.60</b> (3.40-3.90)	<b>5.00</b> (4.40-5.70)	2716
	01-02	<b>1.43</b> (1.37-1.48)	<b>1.40</b> (1.30-1.50)	<b>2.20</b> (2.10-2.20)	<b>3.20</b> (3.10-3.40)	<b>4.20</b> (3.90-4.50)	3806
	03-04	<b>1.37</b> (1.32-1.43)	<b>1.30</b> (1.30-1.40)	<b>2.10</b> (2.00-2.10)	<b>3.00</b> (2.80-3.20)	<b>3.90</b> (3.60-4.30)	3478
	05-06	<b>1.28</b> (1.19-1.37)	<b>1.27</b> (1.17-1.38)	<b>1.97</b> (1.86-2.14)	<b>2.99</b> (2.73-3.25)	<b>3.82</b> (3.41-4.20)	3310
	07-08	<b>1.24</b> (1.16-1.33)	<b>1.20</b> (1.10-1.30)	<b>1.86</b> (1.72-2.00)	<b>2.70</b> (2.54-2.90)	<b>3.50</b> (3.20-3.89)	3461
	09-10	<b>1.10</b> (1.04-1.16)	<b>1.07</b> (1.00-1.15)	<b>1.67</b> (1.59-1.76)	<b>2.49</b> (2.35-2.63)	<b>3.14</b> (2.99-3.36)	3760

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.3, 0.3, 0.28, 0.25, 0.25, and 0.25 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Lead\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Lead_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Lead\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Lead_FactSheet.html)

## Blood Lead (2011 - 2014)

Geometric mean and selected percentiles of blood concentrations (in µg/dL) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>.973</b> (.916-1.04)	<b>.930</b> (.880-.980)	<b>1.52</b> (1.41-1.61)	<b>2.38</b> (2.17-2.61)	<b>3.16</b> (2.77-3.68)	7920
	13-14	<b>.858</b> (.813-.906)	<b>.830</b> (.780-.870)	<b>1.32</b> (1.24-1.42)	<b>2.10</b> (1.96-2.30)	<b>2.81</b> (2.49-3.14)	5215
<b>Age group</b>							
1-5 years	11-12	<b>.970</b> (.877-1.07)	<b>.950</b> (.870-1.04)	<b>1.34</b> (1.20-1.65)	<b>2.26</b> (1.88-2.65)	<b>2.91</b> (2.41-3.83)	713
	13-14	<b>.782</b> (.705-.869)	<b>.740</b> (.680-.800)	<b>1.08</b> (.940-1.24)	<b>1.58</b> (1.33-1.90)	<b>2.24</b> (1.68-2.64)	818
6-11 years	11-12	<b>.681</b> (.623-.744)	<b>.640</b> (.600-.700)	<b>.930</b> (.820-1.05)	<b>1.34</b> (1.14-1.60)	<b>1.89</b> (1.36-2.94)	1048
	13-14	<b>.567</b> (.529-.607)	<b>.530</b> (.500-.570)	<b>.760</b> (.700-.820)	<b>1.13</b> (1.01-1.23)	<b>1.42</b> (1.21-1.83)	1075
12-19 years	11-12	<b>.554</b> (.511-.601)	<b>.530</b> (.490-.570)	<b>.740</b> (.660-.830)	<b>1.09</b> (.960-1.19)	<b>1.31</b> (1.16-1.65)	1129
	13-14	<b>.506</b> (.464-.551)	<b>.460</b> (.420-.500)	<b>.670</b> (.600-.750)	<b>1.13</b> (.870-1.53)	<b>1.69</b> (1.27-2.06)	627
20 years and older	11-12	<b>1.09</b> (1.03-1.16)	<b>1.05</b> (1.00-1.12)	<b>1.67</b> (1.56-1.79)	<b>2.56</b> (2.33-2.77)	<b>3.36</b> (2.98-3.93)	5030
	13-14	<b>.967</b> (.921-1.02)	<b>.940</b> (.900-.980)	<b>1.45</b> (1.37-1.55)	<b>2.26</b> (2.09-2.49)	<b>3.03</b> (2.65-3.55)	2695
<b>Gender</b>							
Males	11-12	<b>1.13</b> (1.06-1.21)	<b>1.07</b> (1.01-1.14)	<b>1.74</b> (1.63-1.88)	<b>2.73</b> (2.48-3.01)	<b>3.68</b> (3.18-4.22)	3968
	13-14	<b>.994</b> (.919-1.08)	<b>.940</b> (.890-1.00)	<b>1.48</b> (1.35-1.61)	<b>2.41</b> (2.07-2.90)	<b>3.47</b> (2.89-4.32)	2587
Females	11-12	<b>.842</b> (.796-.890)	<b>.820</b> (.780-.860)	<b>1.30</b> (1.22-1.39)	<b>1.98</b> (1.83-2.22)	<b>2.59</b> (2.32-2.94)	3952
	13-14	<b>.746</b> (.715-.777)	<b>.730</b> (.700-.760)	<b>1.19</b> (1.11-1.28)	<b>1.86</b> (1.69-2.02)	<b>2.33</b> (2.24-2.42)	2628
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>.838</b> (.767-.916)	<b>.780</b> (.690-.880)	<b>1.27</b> (1.15-1.40)	<b>2.05</b> (1.81-2.36)	<b>3.06</b> (2.34-3.59)	1077
	13-14	<b>.746</b> (.685-.813)	<b>.690</b> (.650-.750)	<b>1.17</b> (1.10-1.28)	<b>1.88</b> (1.61-2.04)	<b>2.38</b> (2.03-2.74)	969
Non-Hispanic blacks	11-12	<b>.998</b> (.947-1.05)	<b>.910</b> (.850-.990)	<b>1.53</b> (1.45-1.60)	<b>2.58</b> (2.31-2.91)	<b>3.72</b> (3.04-4.58)	2195
	13-14	<b>.871</b> (.787-.963)	<b>.830</b> (.720-.940)	<b>1.39</b> (1.27-1.48)	<b>2.17</b> (2.00-2.38)	<b>3.03</b> (2.48-4.00)	1119
Non-Hispanic whites	11-12	<b>.993</b> (.914-1.08)	<b>.960</b> (.880-1.03)	<b>1.56</b> (1.40-1.73)	<b>2.43</b> (2.11-2.74)	<b>3.14</b> (2.67-3.85)	2493
	13-14	<b>.882</b> (.820-.950)	<b>.870</b> (.800-.920)	<b>1.34</b> (1.24-1.48)	<b>2.20</b> (1.94-2.48)	<b>2.97</b> (2.43-3.58)	1848
All Hispanics	11-12	<b>.855</b> (.793-.922)	<b>.820</b> (.750-.880)	<b>1.27</b> (1.18-1.39)	<b>2.00</b> (1.86-2.23)	<b>2.84</b> (2.41-3.34)	1931
	13-14	<b>.742</b> (.695-.793)	<b>.690</b> (.660-.730)	<b>1.14</b> (1.08-1.24)	<b>1.80</b> (1.62-1.99)	<b>2.36</b> (2.03-2.72)	1481
Asians	11-12	<b>1.15</b> (1.06-1.24)	<b>1.14</b> (1.02-1.26)	<b>1.70</b> (1.56-1.86)	<b>2.56</b> (2.36-2.72)	<b>3.28</b> (2.80-3.65)	1005
	13-14	<b>1.01</b> (.923-1.11)	<b>1.02</b> (.900-1.19)	<b>1.48</b> (1.35-1.66)	<b>2.25</b> (2.06-2.39)	<b>2.67</b> (2.37-2.86)	510

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.25 and 0.07.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Lead\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Lead_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Lead\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Lead_FactSheet.html)

## Urinary Lead (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size		
Total	99-00	.766 (.708-.828)	.800 (.800-.900)	1.40 (1.30-1.50)	2.20 (2.00-2.30)	2.90 (2.60-3.30)	2465		
	01-02	.677 (.637-.718)	.700 (.700-.800)	1.20 (1.20-1.30)	2.00 (1.90-2.20)	2.70 (2.50-2.80)	2690		
	03-04	.636 (.595-.680)	.640 (.580-.690)	1.04 (.960-1.12)	1.73 (1.52-1.86)	2.29 (2.03-2.62)	2558		
	05-06	.554 (.523-.587)	.570 (.540-.600)	.990 (.910-1.05)	1.58 (1.44-1.73)	2.14 (1.94-2.45)	2576		
	07-08	.493 (.467-.520)	.500 (.470-.530)	.850 (.790-.910)	1.38 (1.23-1.58)	1.97 (1.75-2.17)	2627		
	09-10	.458 (.441-.476)	.470 (.450-.480)	.790 (.750-.830)	1.24 (1.11-1.38)	1.65 (1.46-1.84)	2848		
	Age group	6-11 years	99-00	1.07 (.955-1.20)	1.10 (.900-1.30)	1.50 (1.40-1.70)	2.40 (1.80-3.10)	3.40 (2.40-5.00)	340
01-02			.753 (.661-.857)	.800 (.600-.900)	1.20 (1.10-1.40)	2.10 (1.60-2.40)	2.60 (2.10-3.70)	368	
03-04			.795 (.671-.941)	.790 (.640-.900)	1.35 (.970-1.86)	2.27 (1.62-4.09)	3.33 (2.23-4.41)	290	
05-06			.508 (.447-.579)	.510 (.440-.560)	.740 (.620-.980)	1.33 (1.00-1.86)	1.90 (1.33-2.60)	355	
07-08			.494 (.411-.593)	.520 (.410-.590)	.790 (.660-.900)	1.23 (.980-1.73)	1.90 (1.51-2.18)	394	
12-19 years		09-10	.443 (.399-.493)	.460 (.430-.490)	.710 (.630-.820)	1.09 (.880-1.33)	1.40 (1.06-1.82)	378	
		99-00	.659 (.579-.749)	.700 (.600-.800)	1.10 (.900-1.30)	1.80 (1.40-2.20)	2.20 (1.90-2.80)	719	
		01-02	.564 (.526-.605)	.600 (.500-.600)	1.00 (.800-1.10)	1.60 (1.40-1.70)	2.00 (1.80-2.40)	762	
		03-04	.604 (.553-.660)	.630 (.570-.680)	.920 (.810-1.02)	1.32 (1.14-1.80)	1.86 (1.44-2.29)	725	
		05-06	.472 (.421-.530)	.490 (.450-.540)	.780 (.710-.830)	1.19 (1.10-1.45)	1.65 (1.34-1.80)	701	
		07-08	.386 (.346-.431)	.380 (.350-.410)	.640 (.560-.720)	1.03 (.870-1.24)	1.38 (1.09-1.91)	376	
		09-10	.320 (.283-.361)	.320 (.270-.370)	.530 (.460-.630)	.830 (.710-1.10)	1.16 (.860-1.37)	451	
		20 years and older	99-00	.752 (.691-.818)	.800 (.700-.900)	1.40 (1.30-1.50)	2.20 (2.00-2.40)	2.90 (2.60-3.30)	1406
			01-02	.688 (.641-.738)	.700 (.700-.800)	1.20 (1.20-1.30)	2.00 (1.90-2.30)	2.80 (2.50-2.90)	1560
03-04	.625 (.579-.674)		.620 (.560-.700)	1.04 (.960-1.11)	1.70 (1.52-1.80)	2.21 (2.04-2.49)	1543		
05-06	.574 (.539-.612)		.600 (.560-.640)	1.02 (.970-1.13)	1.65 (1.53-1.81)	2.21 (1.99-2.57)	1520		
07-08	.512 (.485-.540)		.530 (.490-.560)	.900 (.820-.950)	1.49 (1.29-1.64)	2.01 (1.78-2.33)	1857		
Gender	Males	09-10	.486 (.465-.507)	.490 (.470-.520)	.830 (.780-.880)	1.32 (1.16-1.46)	1.71 (1.52-2.03)	2019	
		99-00	.923 (.822-1.04)	.900 (.900-1.00)	1.60 (1.40-1.80)	2.50 (2.20-2.90)	3.40 (2.90-3.80)	1227	
		01-02	.808 (.757-.862)	.800 (.800-.900)	1.40 (1.30-1.50)	2.50 (2.20-2.70)	3.20 (2.90-3.50)	1335	
		03-04	.731 (.680-.785)	.730 (.680-.800)	1.17 (1.07-1.27)	2.03 (1.78-2.22)	2.66 (2.33-2.91)	1281	
		05-06	.672 (.638-.707)	.690 (.620-.760)	1.16 (1.04-1.28)	1.78 (1.60-2.00)	2.45 (2.00-2.97)	1271	
		07-08	.560 (.518-.606)	.570 (.530-.620)	.930 (.840-1.02)	1.63 (1.36-1.97)	2.30 (1.97-3.07)	1327	
		09-10	.527 (.491-.566)	.540 (.480-.580)	.880 (.820-.960)	1.41 (1.25-1.58)	1.83 (1.62-2.21)	1398	
		Females	99-00	.642 (.589-.701)	.700 (.600-.800)	1.20 (1.10-1.30)	1.90 (1.60-2.20)	2.40 (2.10-3.00)	1238
			01-02	.573 (.535-.613)	.600 (.600-.600)	1.10 (1.00-1.10)	1.60 (1.50-1.80)	2.20 (1.90-2.40)	1355
	03-04		.558 (.506-.616)	.540 (.480-.620)	.920 (.820-1.04)	1.49 (1.24-1.75)	1.82 (1.59-2.30)	1277	
	05-06		.461 (.425-.499)	.460 (.430-.510)	.810 (.730-.880)	1.27 (1.17-1.46)	1.86 (1.54-2.17)	1305	
	07-08		.436 (.412-.461)	.430 (.400-.480)	.760 (.690-.830)	1.22 (1.05-1.34)	1.67 (1.44-1.81)	1300	
	09-10		.400 (.378-.424)	.420 (.390-.440)	.690 (.660-.740)	1.05 (.990-1.13)	1.42 (1.26-1.59)	1450	

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.1, 0.1, 0.33, 0.1, 0.1, and 0.1 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Lead\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Lead_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Lead\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Lead_FactSheet.html)

## Urinary Lead (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00	<b>1.02</b> (.915-1.13)	<b>1.10</b> (.900-1.20)	<b>1.80</b> (1.60-1.90)	<b>2.90</b> (2.50-3.40)	<b>4.30</b> (3.10-5.40)	884
	01-02	<b>.833</b> (.745-.931)	<b>.900</b> (.700-1.00)	<b>1.50</b> (1.20-1.70)	<b>2.50</b> (2.00-2.90)	<b>3.30</b> (2.70-3.80)	683
	03-04	<b>.815</b> (.710-.935)	<b>.840</b> (.700-.990)	<b>1.31</b> (1.18-1.59)	<b>2.19</b> (1.86-2.50)	<b>2.66</b> (2.13-3.97)	618
	05-06	<b>.729</b> (.653-.815)	<b>.770</b> (.680-.860)	<b>1.32</b> (1.15-1.59)	<b>2.22</b> (1.81-2.64)	<b>3.08</b> (2.50-4.03)	652
	07-08	<b>.607</b> (.528-.698)	<b>.610</b> (.530-.690)	<b>.990</b> (.890-1.21)	<b>1.76</b> (1.37-2.17)	<b>2.29</b> (1.82-2.80)	515
	09-10	<b>.546</b> (.483-.618)	<b>.520</b> (.460-.580)	<b>.930</b> (.800-1.09)	<b>1.66</b> (1.34-1.89)	<b>2.16</b> (1.80-2.87)	613
Non-Hispanic blacks	99-00	<b>1.11</b> (1.00-1.23)	<b>1.10</b> (1.00-1.20)	<b>1.90</b> (1.50-2.10)	<b>3.00</b> (2.40-3.50)	<b>4.20</b> (3.30-5.70)	568
	01-02	<b>.940</b> (.833-1.06)	<b>.900</b> (.800-1.00)	<b>1.60</b> (1.30-1.80)	<b>2.70</b> (2.10-3.40)	<b>3.70</b> (2.90-4.80)	667
	03-04	<b>.848</b> (.729-.986)	<b>.850</b> (.710-1.00)	<b>1.40</b> (1.10-1.72)	<b>2.14</b> (1.78-2.64)	<b>2.82</b> (2.31-3.89)	723
	05-06	<b>.666</b> (.604-.734)	<b>.660</b> (.590-.760)	<b>1.09</b> (.980-1.18)	<b>1.62</b> (1.42-1.85)	<b>2.24</b> (1.65-2.90)	692
	07-08	<b>.618</b> (.558-.685)	<b>.620</b> (.560-.690)	<b>1.01</b> (.920-1.13)	<b>1.56</b> (1.38-1.90)	<b>2.06</b> (1.88-2.60)	589
	09-10	<b>.560</b> (.522-.601)	<b>.550</b> (.490-.600)	<b>.910</b> (.830-1.01)	<b>1.53</b> (1.26-1.71)	<b>1.96</b> (1.68-2.80)	544
Non-Hispanic whites	99-00	<b>.695</b> (.625-.773)	<b>.700</b> (.700-.900)	<b>1.30</b> (1.10-1.40)	<b>2.00</b> (1.80-2.40)	<b>2.70</b> (2.30-3.10)	822
	01-02	<b>.610</b> (.572-.651)	<b>.700</b> (.600-.700)	<b>1.10</b> (1.10-1.20)	<b>1.90</b> (1.70-2.00)	<b>2.40</b> (2.30-2.60)	1132
	03-04	<b>.591</b> (.556-.628)	<b>.590</b> (.540-.650)	<b>.960</b> (.910-.990)	<b>1.52</b> (1.40-1.75)	<b>2.14</b> (1.78-2.51)	1074
	05-06	<b>.520</b> (.477-.566)	<b>.540</b> (.490-.580)	<b>.950</b> (.820-1.05)	<b>1.53</b> (1.30-1.76)	<b>2.07</b> (1.78-2.45)	1041
	07-08	<b>.452</b> (.422-.485)	<b>.460</b> (.430-.490)	<b>.780</b> (.700-.880)	<b>1.23</b> (1.03-1.50)	<b>1.79</b> (1.58-1.97)	1095
	09-10	<b>.431</b> (.406-.458)	<b>.450</b> (.410-.480)	<b>.750</b> (.690-.820)	<b>1.11</b> (1.05-1.24)	<b>1.51</b> (1.39-1.67)	1225

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.1, 0.1, 0.33, 0.1, 0.1, and 0.1 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Lead\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Lead_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Lead\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Lead_FactSheet.html)

## Urinary Lead (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>.360</b> (.328-.396)	<b>.370</b> (.340-.400)	<b>.650</b> (.580-.720)	<b>1.05</b> (.980-1.17)	<b>1.49</b> (1.26-1.75)	2504
	13-14	<b>.277</b> (.257-.298)	<b>.290</b> (.270-.300)	<b>.500</b> (.480-.530)	<b>.840</b> (.780-.900)	<b>1.17</b> (1.01-1.41)	2664
<b>Age group</b>							
6-11 years	11-12	<b>.346</b> (.292-.410)	<b>.370</b> (.300-.440)	<b>.610</b> (.540-.770)	<b>1.12</b> (.830-1.51)	<b>1.54</b> (1.28-1.85)	399
	13-14	<b>.222</b> (.192-.258)	<b>.240</b> (.200-.270)	<b>.390</b> (.330-.450)	<b>.630</b> (.560-.810)	<b>.870</b> (.710-1.09)	402
12-19 years	11-12	<b>.259</b> (.219-.305)	<b>.260</b> (.220-.340)	<b>.470</b> (.380-.530)	<b>.720</b> (.540-.900)	<b>.970</b> (.720-1.17)	390
	13-14	<b>.201</b> (.166-.245)	<b>.220</b> (.190-.260)	<b>.360</b> (.290-.440)	<b>.550</b> (.450-.700)	<b>.750</b> (.570-.880)	451
20 years and older	11-12	<b>.381</b> (.348-.416)	<b>.390</b> (.360-.420)	<b>.680</b> (.640-.730)	<b>1.11</b> (1.01-1.21)	<b>1.58</b> (1.28-1.90)	1715
	13-14	<b>.297</b> (.280-.315)	<b>.300</b> (.290-.320)	<b>.540</b> (.510-.580)	<b>.900</b> (.820-.980)	<b>1.27</b> (1.08-1.55)	1811
<b>Gender</b>							
Males	11-12	<b>.414</b> (.367-.466)	<b>.420</b> (.380-.460)	<b>.730</b> (.640-.800)	<b>1.16</b> (.990-1.47)	<b>1.73</b> (1.33-2.18)	1262
	13-14	<b>.315</b> (.295-.337)	<b>.320</b> (.290-.340)	<b>.580</b> (.520-.620)	<b>.940</b> (.840-1.08)	<b>1.48</b> (1.15-1.92)	1318
Females	11-12	<b>.316</b> (.282-.355)	<b>.320</b> (.290-.360)	<b>.580</b> (.500-.660)	<b>.970</b> (.830-1.14)	<b>1.31</b> (1.15-1.41)	1242
	13-14	<b>.245</b> (.222-.269)	<b>.260</b> (.240-.280)	<b>.460</b> (.430-.480)	<b>.720</b> (.670-.790)	<b>1.00</b> (.870-1.16)	1346
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>.372</b> (.320-.431)	<b>.380</b> (.320-.480)	<b>.670</b> (.550-.780)	<b>1.17</b> (.820-1.58)	<b>1.67</b> (1.17-2.18)	317
	13-14	<b>.277</b> (.240-.319)	<b>.290</b> (.250-.320)	<b>.480</b> (.440-.580)	<b>.890</b> (.690-1.15)	<b>1.21</b> (.930-1.97)	453
Non-Hispanic blacks	11-12	<b>.431</b> (.385-.483)	<b>.440</b> (.370-.520)	<b>.730</b> (.660-.830)	<b>1.15</b> (1.00-1.39)	<b>1.64</b> (1.39-1.87)	669
	13-14	<b>.371</b> (.320-.429)	<b>.380</b> (.310-.440)	<b>.620</b> (.530-.730)	<b>1.09</b> (.830-1.34)	<b>1.45</b> (1.24-1.72)	581
Non-Hispanic whites	11-12	<b>.346</b> (.311-.385)	<b>.360</b> (.330-.390)	<b>.610</b> (.540-.700)	<b>1.02</b> (.920-1.16)	<b>1.38</b> (1.14-1.85)	820
	13-14	<b>.267</b> (.245-.290)	<b>.280</b> (.260-.300)	<b>.500</b> (.450-.540)	<b>.820</b> (.730-.920)	<b>1.16</b> (.950-1.60)	985
All Hispanics	11-12	<b>.372</b> (.327-.423)	<b>.370</b> (.320-.420)	<b>.670</b> (.590-.750)	<b>1.15</b> (.950-1.31)	<b>1.51</b> (1.18-2.13)	573
	13-14	<b>.270</b> (.239-.305)	<b>.280</b> (.240-.320)	<b>.480</b> (.440-.540)	<b>.820</b> (.690-.930)	<b>1.17</b> (.940-1.47)	701
Asians	11-12	<b>.383</b> (.341-.429)	<b>.380</b> (.350-.460)	<b>.690</b> (.620-.790)	<b>1.15</b> (.950-1.32)	<b>1.38</b> (1.21-1.72)	353
	13-14	<b>.257</b> (.230-.287)	<b>.290</b> (.240-.350)	<b>.470</b> (.410-.510)	<b>.710</b> (.560-.790)	<b>.890</b> (.750-.980)	292

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.08 and 0.03.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Lead\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Lead_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Lead\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Lead_FactSheet.html)

## Urinary Lead (creatinine corrected) (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	.721 (.700-.742)	.701 (.677-.725)	1.11 (1.05-1.15)	1.70 (1.62-1.85)	2.38 (2.22-2.79)	2465
	01-02	.639 (.603-.677)	.635 (.588-.676)	1.03 (.963-1.08)	1.52 (1.43-1.61)	2.03 (1.89-2.22)	2689
	03-04	.632 (.603-.662)	.622 (.594-.655)	.979 (.920-1.03)	1.49 (1.33-1.64)	1.97 (1.73-2.26)	2558
	05-06	.546 (.520-.573)	.530 (.510-.560)	.860 (.810-.900)	1.27 (1.15-1.37)	1.71 (1.50-1.89)	2576
	07-08	.514 (.482-.548)	.500 (.460-.530)	.800 (.720-.880)	1.30 (1.23-1.42)	1.85 (1.73-1.96)	2627
	09-10	.488 (.466-.512)	.470 (.440-.500)	.760 (.710-.810)	1.16 (1.08-1.28)	1.53 (1.41-1.62)	2848
	Age group 6-11 years	99-00	1.17 (.975-1.41)	1.06 (.918-1.22)	1.55 (1.22-1.97)	2.71 (1.67-4.66)	4.66 (1.97-18.0)
01-02		.918 (.841-1.00)	.870 (.800-.933)	1.27 (1.12-1.43)	2.33 (1.59-3.64)	3.64 (1.89-5.56)	368
03-04		.926 (.812-1.06)	.914 (.781-1.03)	1.45 (1.17-1.72)	2.14 (1.62-3.47)	3.47 (2.19-5.31)	290
05-06		.628 (.563-.701)	.590 (.530-.680)	.870 (.770-.940)	1.29 (1.03-1.82)	1.96 (1.32-2.42)	355
07-08		.643 (.543-.763)	.630 (.530-.730)	1.02 (.770-1.24)	1.50 (1.24-2.02)	2.04 (1.70-2.58)	394
09-10		.604 (.551-.662)	.580 (.520-.650)	.870 (.780-1.00)	1.32 (1.09-1.51)	1.60 (1.38-1.75)	378
12-19 years		99-00	.496 (.460-.535)	.469 (.408-.508)	.709 (.655-.828)	1.11 (.981-1.28)	1.65 (1.15-2.79)
	01-02	.404 (.380-.428)	.375 (.342-.400)	.603 (.541-.702)	.990 (.882-1.18)	1.41 (1.07-1.63)	762
	03-04	.432 (.404-.461)	.404 (.383-.436)	.623 (.551-.730)	.938 (.828-1.06)	1.23 (1.09-1.35)	725
	05-06	.363 (.333-.395)	.340 (.310-.360)	.510 (.460-.600)	.800 (.690-.930)	1.07 (.940-1.23)	701
	07-08	.302 (.270-.337)	.290 (.250-.340)	.430 (.400-.490)	.670 (.550-.790)	.900 (.700-1.09)	376
	09-10	.299 (.273-.328)	.290 (.260-.320)	.420 (.370-.490)	.620 (.550-.760)	.880 (.740-1.01)	451
	20 years and older	99-00	.720 (.683-.758)	.712 (.667-.739)	1.10 (1.02-1.18)	1.69 (1.53-1.87)	2.31 (2.15-2.62)
01-02		.658 (.617-.703)	.652 (.608-.702)	1.05 (.992-1.11)	1.51 (1.40-1.61)	2.00 (1.85-2.19)	1559
03-04		.641 (.606-.679)	.633 (.605-.670)	.988 (.917-1.04)	1.47 (1.28-1.63)	1.94 (1.72-2.12)	1543
05-06		.573 (.548-.600)	.570 (.530-.600)	.890 (.850-.960)	1.32 (1.22-1.41)	1.77 (1.53-1.94)	1520
07-08		.545 (.513-.579)	.530 (.490-.570)	.840 (.760-.910)	1.36 (1.27-1.49)	1.92 (1.78-2.08)	1857
09-10		.514 (.489-.539)	.500 (.460-.530)	.790 (.730-.840)	1.22 (1.10-1.35)	1.57 (1.46-1.71)	2019
Gender Males		99-00	.720 (.679-.763)	.693 (.645-.734)	1.10 (.992-1.22)	1.68 (1.50-2.09)	2.43 (2.15-3.03)
	01-02	.639 (.607-.673)	.638 (.586-.686)	1.01 (.957-1.08)	1.55 (1.41-1.61)	2.06 (1.88-2.43)	1334
	03-04	.615 (.588-.644)	.593 (.561-.639)	.914 (.862-.977)	1.44 (1.25-1.53)	2.00 (1.71-2.28)	1281
	05-06	.551 (.522-.582)	.530 (.510-.580)	.830 (.770-.910)	1.25 (1.13-1.39)	1.77 (1.42-2.20)	1271
	07-08	.501 (.471-.534)	.490 (.450-.530)	.750 (.700-.810)	1.29 (1.15-1.49)	1.88 (1.71-1.98)	1327
	09-10	.481 (.458-.505)	.450 (.430-.490)	.740 (.690-.800)	1.15 (1.04-1.29)	1.56 (1.37-1.70)	1398
	Females	99-00	.722 (.681-.765)	.707 (.667-.746)	1.11 (1.05-1.18)	1.74 (1.50-2.02)	2.38 (2.03-2.88)
01-02		.639 (.594-.688)	.625 (.571-.682)	1.03 (.946-1.11)	1.50 (1.39-1.61)	1.98 (1.85-2.15)	1355
03-04		.648 (.601-.698)	.649 (.604-.718)	1.03 (.938-1.10)	1.56 (1.34-1.73)	1.96 (1.72-2.20)	1277
05-06		.541 (.507-.577)	.530 (.500-.580)	.880 (.820-.940)	1.28 (1.12-1.41)	1.64 (1.38-1.91)	1305
07-08		.527 (.489-.568)	.500 (.470-.550)	.840 (.740-.960)	1.34 (1.23-1.47)	1.79 (1.56-2.08)	1300
09-10		.495 (.466-.526)	.480 (.450-.520)	.780 (.710-.830)	1.20 (1.08-1.32)	1.52 (1.39-1.62)	1450

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Lead\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Lead_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Lead\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Lead_FactSheet.html)



## Urinary Lead (creatinine corrected) (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00	<b>.940</b> (.876-1.01)	<b>.887</b> (.796-1.03)	<b>1.43</b> (1.37-1.58)	<b>2.38</b> (2.08-2.77)	<b>3.46</b> (2.78-4.18)	884
	01-02	<b>.810</b> (.731-.898)	<b>.774</b> (.702-.893)	<b>1.29</b> (1.09-1.44)	<b>2.05</b> (1.75-2.50)	<b>2.78</b> (2.56-3.33)	682
	03-04	<b>.755</b> (.681-.838)	<b>.708</b> (.612-.851)	<b>1.18</b> (1.09-1.31)	<b>1.86</b> (1.50-2.26)	<b>2.31</b> (1.98-2.92)	618
	05-06	<b>.686</b> (.638-.737)	<b>.680</b> (.620-.740)	<b>1.00</b> (.930-1.13)	<b>1.63</b> (1.39-1.88)	<b>2.20</b> (1.77-3.20)	652
	07-08	<b>.607</b> (.514-.717)	<b>.590</b> (.500-.690)	<b>.970</b> (.770-1.19)	<b>1.56</b> (1.25-2.07)	<b>2.20</b> (1.78-2.46)	515
	09-10	<b>.573</b> (.526-.623)	<b>.540</b> (.470-.610)	<b>.950</b> (.780-1.06)	<b>1.59</b> (1.41-1.82)	<b>2.02</b> (1.82-2.40)	613
Non-Hispanic blacks	99-00	<b>.722</b> (.659-.790)	<b>.671</b> (.583-.753)	<b>1.11</b> (.988-1.20)	<b>2.00</b> (1.56-2.51)	<b>2.83</b> (2.20-3.88)	568
	01-02	<b>.644</b> (.559-.742)	<b>.608</b> (.510-.710)	<b>.962</b> (.853-1.20)	<b>1.79</b> (1.36-2.33)	<b>2.75</b> (2.04-3.98)	667
	03-04	<b>.609</b> (.529-.701)	<b>.569</b> (.492-.698)	<b>.900</b> (.793-1.03)	<b>1.48</b> (1.11-1.97)	<b>2.24</b> (1.65-2.88)	723
	05-06	<b>.483</b> (.459-.508)	<b>.470</b> (.440-.490)	<b>.740</b> (.670-.820)	<b>1.18</b> (1.06-1.29)	<b>1.60</b> (1.37-1.85)	692
	07-08	<b>.452</b> (.414-.492)	<b>.440</b> (.400-.490)	<b>.710</b> (.610-.780)	<b>1.13</b> (.930-1.33)	<b>1.57</b> (1.21-1.88)	589
	09-10	<b>.444</b> (.417-.473)	<b>.420</b> (.390-.470)	<b>.680</b> (.600-.740)	<b>1.07</b> (.940-1.18)	<b>1.51</b> (1.18-1.65)	544
Non-Hispanic whites	99-00	<b>.696</b> (.668-.725)	<b>.677</b> (.645-.718)	<b>1.07</b> (.997-1.14)	<b>1.66</b> (1.50-1.83)	<b>2.31</b> (1.94-2.82)	822
	01-02	<b>.615</b> (.579-.654)	<b>.621</b> (.571-.667)	<b>1.00</b> (.933-1.07)	<b>1.46</b> (1.37-1.52)	<b>1.88</b> (1.62-2.03)	1132
	03-04	<b>.623</b> (.592-.655)	<b>.618</b> (.587-.657)	<b>.971</b> (.914-1.03)	<b>1.44</b> (1.25-1.61)	<b>1.85</b> (1.64-2.10)	1074
	05-06	<b>.541</b> (.500-.585)	<b>.530</b> (.490-.580)	<b>.850</b> (.790-.920)	<b>1.24</b> (1.12-1.37)	<b>1.62</b> (1.37-1.94)	1041
	07-08	<b>.506</b> (.466-.550)	<b>.490</b> (.460-.540)	<b>.790</b> (.700-.880)	<b>1.27</b> (1.15-1.42)	<b>1.81</b> (1.59-1.96)	1095
	09-10	<b>.482</b> (.448-.518)	<b>.460</b> (.430-.500)	<b>.740</b> (.690-.820)	<b>1.15</b> (1.01-1.30)	<b>1.46</b> (1.32-1.59)	1225

### Biomonitoring Summary

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### Factsheet

[http://www.cdc.gov/biomonitoring/Lead\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Lead_FactSheet.html)

## Urinary Lead (creatinine corrected) (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>.409</b> (.380-.440)	<b>.396</b> (.374-.418)	<b>.634</b> (.583-.675)	<b>1.00</b> (.878-1.16)	<b>1.51</b> (1.24-1.71)	2502
	13-14	<b>.320</b> (.302-.339)	<b>.313</b> (.294-.331)	<b>.519</b> (.491-.554)	<b>.823</b> (.756-.907)	<b>1.16</b> (1.00-1.30)	2663
<b>Age group</b>							
6-11 years	11-12	<b>.494</b> (.430-.567)	<b>.459</b> (.414-.529)	<b>.708</b> (.559-.930)	<b>1.18</b> (.884-1.56)	<b>1.56</b> (1.12-2.22)	398
	13-14	<b>.331</b> (.297-.370)	<b>.313</b> (.273-.370)	<b>.500</b> (.452-.571)	<b>.833</b> (.667-.938)	<b>1.07</b> (.905-1.34)	402
12-19 years	11-12	<b>.247</b> (.218-.281)	<b>.224</b> (.206-.264)	<b>.385</b> (.317-.429)	<b>.541</b> (.440-.667)	<b>.667</b> (.513-1.03)	390
	13-14	<b>.182</b> (.160-.208)	<b>.169</b> (.142-.194)	<b>.276</b> (.225-.330)	<b>.457</b> (.339-.640)	<b>.640</b> (.438-.908)	451
20 years and older	11-12	<b>.433</b> (.402-.466)	<b>.414</b> (.389-.437)	<b>.660</b> (.619-.712)	<b>1.05</b> (.929-1.22)	<b>1.61</b> (1.28-1.87)	1714
	13-14	<b>.346</b> (.331-.363)	<b>.337</b> (.321-.353)	<b>.554</b> (.505-.592)	<b>.861</b> (.789-.935)	<b>1.23</b> (1.04-1.46)	1810
<b>Gender</b>							
Males	11-12	<b>.388</b> (.346-.436)	<b>.377</b> (.338-.418)	<b>.590</b> (.524-.658)	<b>.987</b> (.833-1.17)	<b>1.51</b> (1.16-1.89)	1261
	13-14	<b>.315</b> (.293-.339)	<b>.303</b> (.278-.327)	<b>.486</b> (.440-.541)	<b>.758</b> (.692-.913)	<b>1.16</b> (.956-1.58)	1317
Females	11-12	<b>.430</b> (.405-.457)	<b>.416</b> (.385-.444)	<b>.667</b> (.626-.709)	<b>1.03</b> (.905-1.21)	<b>1.49</b> (1.21-1.71)	1241
	13-14	<b>.325</b> (.303-.348)	<b>.325</b> (.308-.336)	<b>.545</b> (.500-.580)	<b>.864</b> (.785-.929)	<b>1.18</b> (.970-1.33)	1346
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>.418</b> (.370-.471)	<b>.409</b> (.356-.462)	<b>.667</b> (.598-.716)	<b>1.05</b> (.822-1.25)	<b>1.32</b> (1.16-1.54)	317
	13-14	<b>.316</b> (.283-.352)	<b>.319</b> (.278-.336)	<b>.500</b> (.450-.589)	<b>.845</b> (.720-1.04)	<b>1.16</b> (.908-1.36)	453
Non-Hispanic blacks	11-12	<b>.335</b> (.301-.374)	<b>.316</b> (.269-.357)	<b>.529</b> (.464-.598)	<b>.906</b> (.770-1.07)	<b>1.34</b> (1.06-1.55)	669
	13-14	<b>.282</b> (.251-.317)	<b>.275</b> (.237-.316)	<b>.455</b> (.398-.515)	<b>.750</b> (.611-.920)	<b>.977</b> (.836-1.21)	581
Non-Hispanic whites	11-12	<b>.419</b> (.378-.465)	<b>.404</b> (.369-.439)	<b>.642</b> (.559-.722)	<b>.966</b> (.826-1.22)	<b>1.62</b> (1.16-2.00)	818
	13-14	<b>.329</b> (.306-.353)	<b>.317</b> (.293-.344)	<b>.541</b> (.486-.589)	<b>.860</b> (.750-.933)	<b>1.23</b> (.983-1.60)	984
All Hispanics	11-12	<b>.416</b> (.377-.460)	<b>.401</b> (.366-.442)	<b>.641</b> (.561-.694)	<b>1.02</b> (.851-1.24)	<b>1.40</b> (1.16-1.65)	573
	13-14	<b>.301</b> (.276-.328)	<b>.307</b> (.269-.327)	<b>.473</b> (.438-.508)	<b>.795</b> (.667-.882)	<b>1.07</b> (.882-1.24)	701
Asians	11-12	<b>.511</b> (.453-.577)	<b>.512</b> (.440-.588)	<b>.829</b> (.706-.980)	<b>1.28</b> (1.05-1.57)	<b>1.61</b> (1.40-2.22)	353
	13-14	<b>.403</b> (.360-.451)	<b>.417</b> (.342-.503)	<b>.619</b> (.549-.708)	<b>.929</b> (.767-1.03)	<b>1.12</b> (.955-1.33)	292

### Biomonitoring Summary

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### Factsheet

[http://www.cdc.gov/biomonitoring/Lead\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Lead_FactSheet.html)



## Blood Manganese (2011 - 2014)

Geometric mean and selected percentiles of blood concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>9.35</b> (9.19-9.51)	<b>9.22</b> (9.04-9.40)	<b>11.5</b> (11.3-11.7)	<b>14.4</b> (14.2-14.6)	<b>16.7</b> (16.2-17.3)	7920
	13-14	<b>9.52</b> (9.35-9.70)	<b>9.41</b> (9.23-9.62)	<b>11.8</b> (11.5-12.1)	<b>14.6</b> (14.2-15.0)	<b>16.7</b> (15.9-17.3)	5215
<b>Age group</b>							
1-5 years	11-12	<b>10.7</b> (10.2-11.2)	<b>10.6</b> (10.1-11.2)	<b>13.2</b> (12.6-13.5)	<b>15.3</b> (14.5-16.8)	<b>18.2</b> (15.3-19.7)	713
	13-14	<b>10.9</b> (10.6-11.1)	<b>10.7</b> (10.5-11.0)	<b>13.2</b> (12.6-13.6)	<b>16.1</b> (14.8-16.9)	<b>18.3</b> (16.9-19.0)	818
6-11 years	11-12	<b>10.3</b> (9.98-10.6)	<b>10.2</b> (9.83-10.4)	<b>12.6</b> (12.2-12.8)	<b>14.9</b> (14.2-15.5)	<b>16.5</b> (16.0-17.6)	1048
	13-14	<b>10.2</b> (9.87-10.6)	<b>10.2</b> (9.95-10.6)	<b>12.4</b> (12.0-13.0)	<b>14.8</b> (14.2-15.6)	<b>16.4</b> (15.5-17.1)	1075
12-19 years	11-12	<b>10.1</b> (9.67-10.5)	<b>9.90</b> (9.42-10.8)	<b>12.5</b> (11.7-13.2)	<b>14.8</b> (14.1-15.4)	<b>16.6</b> (15.3-17.9)	1129
	13-14	<b>10.4</b> (10.0-10.8)	<b>10.1</b> (9.55-10.6)	<b>13.4</b> (12.5-13.9)	<b>16.1</b> (15.0-17.4)	<b>17.9</b> (16.1-20.3)	627
20 years and older	11-12	<b>9.09</b> (8.94-9.24)	<b>8.96</b> (8.83-9.11)	<b>11.1</b> (10.9-11.3)	<b>14.1</b> (13.7-14.5)	<b>16.7</b> (16.1-17.3)	5030
	13-14	<b>9.27</b> (9.11-9.43)	<b>9.22</b> (9.01-9.39)	<b>11.4</b> (11.2-11.7)	<b>14.1</b> (13.9-14.6)	<b>16.2</b> (15.5-17.0)	2695
<b>Gender</b>							
Males	11-12	<b>8.74</b> (8.58-8.91)	<b>8.78</b> (8.65-8.91)	<b>10.6</b> (10.3-10.9)	<b>13.0</b> (12.7-13.4)	<b>14.9</b> (14.4-15.3)	3968
	13-14	<b>8.92</b> (8.76-9.09)	<b>8.96</b> (8.70-9.19)	<b>10.9</b> (10.6-11.1)	<b>13.3</b> (12.9-13.6)	<b>14.7</b> (14.2-15.2)	2587
Females	11-12	<b>9.96</b> (9.75-10.2)	<b>9.72</b> (9.52-10.0)	<b>12.4</b> (12.0-12.9)	<b>15.5</b> (15.2-15.9)	<b>17.8</b> (17.4-18.4)	3952
	13-14	<b>10.1</b> (9.86-10.4)	<b>9.93</b> (9.57-10.4)	<b>12.6</b> (12.3-13.0)	<b>15.7</b> (15.1-16.4)	<b>17.9</b> (17.0-19.2)	2628
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>10.7</b> (10.4-11.0)	<b>10.7</b> (10.3-11.0)	<b>13.2</b> (12.9-13.5)	<b>16.4</b> (15.2-17.1)	<b>19.1</b> (17.7-20.3)	1077
	13-14	<b>10.9</b> (10.6-11.3)	<b>11.0</b> (10.6-11.3)	<b>13.6</b> (13.1-14.0)	<b>16.4</b> (15.2-17.4)	<b>18.0</b> (17.1-19.9)	969
Non-Hispanic blacks	11-12	<b>8.34</b> (8.19-8.49)	<b>8.18</b> (8.04-8.33)	<b>10.1</b> (9.81-10.4)	<b>12.7</b> (12.0-13.3)	<b>15.5</b> (14.5-16.5)	2195
	13-14	<b>8.23</b> (8.04-8.43)	<b>8.17</b> (7.87-8.47)	<b>10.0</b> (9.72-10.4)	<b>12.5</b> (12.1-12.8)	<b>14.0</b> (13.4-15.1)	1119
Non-Hispanic whites	11-12	<b>9.08</b> (8.91-9.26)	<b>9.01</b> (8.79-9.21)	<b>11.1</b> (10.9-11.3)	<b>13.7</b> (13.3-14.2)	<b>15.9</b> (15.2-16.4)	2493
	13-14	<b>9.27</b> (9.07-9.48)	<b>9.18</b> (8.96-9.38)	<b>11.2</b> (10.9-11.5)	<b>14.0</b> (13.0-14.5)	<b>15.7</b> (14.7-17.0)	1848
All Hispanics	11-12	<b>10.4</b> (10.1-10.8)	<b>10.3</b> (9.95-10.7)	<b>12.8</b> (12.3-13.3)	<b>15.7</b> (14.9-16.7)	<b>18.3</b> (17.3-19.2)	1931
	13-14	<b>10.6</b> (10.3-10.9)	<b>10.6</b> (10.4-10.8)	<b>13.2</b> (12.9-13.5)	<b>16.1</b> (15.2-16.7)	<b>17.8</b> (17.1-18.7)	1481
Asians	11-12	<b>11.9</b> (11.5-12.4)	<b>11.8</b> (11.4-12.3)	<b>14.7</b> (14.1-15.3)	<b>17.6</b> (16.8-18.4)	<b>19.8</b> (19.0-21.1)	1005
	13-14	<b>12.4</b> (12.0-12.8)	<b>12.6</b> (12.0-13.0)	<b>15.0</b> (14.7-15.5)	<b>17.5</b> (16.8-18.4)	<b>19.4</b> (18.4-20.4)	510

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 1.06 and 0.99.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

## Urinary Manganese (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	.123 (.112-.136)	.120 (.100-.140)	.200 (.180-.230)	.300 (.270-.310)	.370 (.320-.450)	2504
	13-14	*	< LOD	.130 (<LOD-.150)	.220 (.200-.230)	.300 (.260-.330)	2664
<b>Age group</b>							
6-11 years	11-12	.143 (.126-.162)	.150 (.120-.180)	.250 (.210-.300)	.340 (.310-.450)	.460 (.350-.540)	399
	13-14	*	< LOD	.150 (<LOD-.190)	.220 (.180-.320)	.310 (.220-.460)	402
12-19 years	11-12	.128 (.107-.153)	.120 (.090-.160)	.220 (.160-.280)	.310 (.250-.420)	.430 (.310-.570)	390
	13-14	*	< LOD	.140 (.130-.170)	.250 (.220-.330)	.380 (.300-.520)	451
20 years and older	11-12	.121 (.109-.134)	.120 (.100-.140)	.190 (.180-.220)	.280 (.250-.300)	.350 (.300-.440)	1715
	13-14	*	< LOD	.130 (<LOD-.140)	.210 (.190-.220)	.280 (.240-.320)	1811
<b>Gender</b>							
Males	11-12	.121 (.108-.136)	.120 (.100-.140)	.190 (.170-.220)	.280 (.250-.310)	.350 (.300-.390)	1262
	13-14	*	< LOD	< LOD	.190 (.160-.210)	.240 (.210-.260)	1318
Females	11-12	.126 (.114-.138)	.120 (.100-.140)	.210 (.190-.240)	.300 (.270-.350)	.410 (.340-.520)	1242
	13-14	*	< LOD	.150 (.130-.160)	.240 (.210-.290)	.350 (.300-.400)	1346
<b>Race/ethnicity</b>							
Mexican Americans	11-12	.129 (.116-.144)	.130 (.110-.150)	.220 (.190-.250)	.300 (.260-.360)	.360 (.300-.440)	317
	13-14	*	< LOD	.150 (<LOD-.180)	.220 (.180-.250)	.250 (.220-.410)	453
Non-Hispanic blacks	11-12	.132 (.116-.150)	.140 (.100-.170)	.220 (.200-.240)	.310 (.280-.360)	.380 (.320-.480)	669
	13-14	*	< LOD	.150 (.140-.180)	.250 (.200-.310)	.350 (.290-.410)	581
Non-Hispanic whites	11-12	.123 (.109-.138)	.120 (.100-.140)	.200 (.170-.230)	.300 (.250-.340)	.390 (.300-.510)	820
	13-14	*	< LOD	.130 (<LOD-.140)	.210 (.180-.240)	.290 (.240-.340)	985
All Hispanics	11-12	.120 (.110-.132)	.120 (.100-.150)	.200 (.180-.230)	.290 (.260-.300)	.330 (.300-.380)	573
	13-14	*	< LOD	.140 (<LOD-.160)	.210 (.190-.240)	.250 (.220-.380)	701
Asians	11-12	.125 (.108-.143)	.120 (.090-.160)	.220 (.180-.250)	.300 (.270-.360)	.410 (.300-.490)	353
	13-14	*	< LOD	< LOD	.190 (.150-.250)	.260 (.200-.300)	292

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.08 and 0.13.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

## Urinary Manganese (creatinine corrected) (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	.140 (.126-.155)	.139 (.119-.154)	.233 (.206-.273)	.389 (.354-.444)	.548 (.500-.625)	2502
	13-14	*	< LOD	.219 (<LOD-.240)	.368 (.329-.418)	.541 (.438-.657)	2663
<b>Age group</b>							
6-11 years	11-12	.201 (.175-.231)	.197 (.173-.238)	.308 (.285-.358)	.486 (.388-.600)	.633 (.511-.750)	398
	13-14	*	< LOD	.297 (<LOD-.400)	.495 (.383-.657)	.708 (.532-.844)	402
12-19 years	11-12	.122 (.105-.143)	.125 (.099-.150)	.200 (.174-.213)	.297 (.220-.429)	.490 (.271-.814)	390
	13-14	*	< LOD	.180 (.148-.204)	.279 (.228-.354)	.396 (.288-.460)	451
20 years and older	11-12	.137 (.124-.151)	.133 (.117-.148)	.232 (.197-.276)	.389 (.347-.455)	.545 (.487-.600)	1714
	13-14	*	< LOD	.217 (<LOD-.237)	.355 (.329-.400)	.541 (.434-.657)	1810
<b>Gender</b>							
Males	11-12	.113 (.101-.127)	.111 (.098-.127)	.182 (.165-.197)	.318 (.248-.357)	.388 (.349-.487)	1261
	13-14	*	< LOD	< LOD	.279 (.263-.297)	.383 (.317-.460)	1317
Females	11-12	.171 (.153-.191)	.161 (.145-.194)	.286 (.250-.324)	.500 (.406-.571)	.635 (.571-.980)	1241
	13-14	*	< LOD	.271 (.237-.307)	.438 (.368-.511)	.613 (.511-.836)	1346
<b>Race/ethnicity</b>							
Mexican Americans	11-12	.145 (.125-.169)	.139 (.119-.172)	.237 (.196-.277)	.359 (.300-.419)	.439 (.375-.600)	317
	13-14	*	< LOD	.212 (<LOD-.233)	.341 (.288-.368)	.405 (.341-.651)	453
Non-Hispanic blacks	11-12	.102 (.090-.117)	.102 (.085-.117)	.172 (.149-.200)	.272 (.231-.351)	.406 (.351-.547)	669
	13-14	*	< LOD	.146 (.133-.155)	.242 (.219-.271)	.333 (.283-.540)	581
Non-Hispanic whites	11-12	.148 (.132-.166)	.145 (.127-.162)	.248 (.212-.300)	.410 (.375-.490)	.550 (.512-.633)	818
	13-14	*	< LOD	.237 (<LOD-.271)	.402 (.329-.483)	.541 (.484-.700)	984
All Hispanics	11-12	.135 (.121-.150)	.129 (.114-.146)	.221 (.190-.250)	.356 (.317-.380)	.469 (.386-.574)	573
	13-14	*	< LOD	.200 (<LOD-.219)	.329 (.271-.368)	.400 (.345-.541)	701
Asians	11-12	.167 (.138-.201)	.164 (.133-.198)	.271 (.219-.360)	.462 (.406-.577)	.641 (.500-.980)	353
	13-14	*	< LOD	< LOD	.383 (.341-.484)	.514 (.418-.769)	292

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

## Blood Total Mercury (2003 – 2010)

Geometric mean and selected percentiles of blood concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Total</b>	03-04	<b>.797</b> (.703-.903)	<b>.800</b> (.700-.900)	<b>1.70</b> (1.50-1.90)	<b>3.30</b> (2.90-3.90)	<b>4.90</b> (4.30-5.50)	8373
	05-06	<b>.863</b> (.787-.946)	<b>.830</b> (.760-.920)	<b>1.66</b> (1.48-1.93)	<b>3.20</b> (2.87-3.54)	<b>4.64</b> (4.17-5.25)	8407
	07-08	<b>.769</b> (.689-.859)	<b>.740</b> (.660-.830)	<b>1.48</b> (1.29-1.69)	<b>2.95</b> (2.46-3.59)	<b>4.64</b> (3.74-5.79)	8266
	09-10	<b>.863</b> (.792-.941)	<b>.790</b> (.730-.880)	<b>1.68</b> (1.49-1.91)	<b>3.43</b> (3.07-3.84)	<b>5.13</b> (4.57-5.67)	8793
<b>Age group</b> 1-5 years	03-04	<b>.326</b> (.285-.372)	<b>.300</b> (.300-.300)	<b>.500</b> (.500-.700)	<b>1.00</b> (.800-1.60)	<b>1.80</b> (1.30-2.50)	911
	05-06	*	< LOD	<b>.500</b> (.470-.550)	<b>.940</b> (.820-1.24)	<b>1.43</b> (1.25-1.59)	968
	07-08	*	< LOD	<b>.440</b> (.380-.540)	<b>.830</b> (.620-1.12)	<b>1.32</b> (.960-2.40)	817
	09-10	*	< LOD	<b>.490</b> (.430-.590)	<b>.890</b> (.740-1.08)	<b>1.30</b> (1.08-1.52)	836
6-11 years	03-04	<b>.419</b> (.363-.484)	<b>.400</b> (.400-.500)	<b>.700</b> (.700-.900)	<b>1.30</b> (1.00-1.60)	<b>1.90</b> (1.40-3.50)	856
	05-06	*	<b>.410</b> (.330-.460)	<b>.740</b> (.630-1.00)	<b>1.43</b> (1.21-1.87)	<b>2.34</b> (1.53-3.42)	934
	07-08	*	<b>.380</b> (.340-.440)	<b>.700</b> (.600-.790)	<b>1.21</b> (.970-1.36)	<b>1.56</b> (1.34-1.80)	1011
	09-10	*	<b>.360</b> (<LOD-.400)	<b>.670</b> (.590-.770)	<b>1.22</b> (1.05-1.45)	<b>1.88</b> (1.43-2.61)	1009
12-19 years	03-04	<b>.490</b> (.418-.574)	<b>.500</b> (.400-.600)	<b>1.00</b> (.800-1.20)	<b>1.80</b> (1.40-2.30)	<b>2.60</b> (2.10-3.30)	2081
	05-06	<b>.513</b> (.461-.570)	<b>.460</b> (.390-.530)	<b>.850</b> (.740-1.04)	<b>1.66</b> (1.31-1.98)	<b>2.41</b> (2.12-2.90)	1996
	07-08	<b>.469</b> (.426-.516)	<b>.440</b> (.390-.490)	<b>.800</b> (.670-.970)	<b>1.55</b> (1.30-1.72)	<b>2.05</b> (1.77-2.34)	1074
	09-10	<b>.534</b> (.473-.602)	<b>.450</b> (.370-.540)	<b>.910</b> (.770-1.11)	<b>2.04</b> (1.53-2.55)	<b>3.01</b> (2.53-3.63)	1183
20 years and older	03-04	<b>.979</b> (.860-1.12)	<b>1.00</b> (.800-1.10)	<b>2.00</b> (1.70-2.30)	<b>3.80</b> (3.20-4.40)	<b>5.40</b> (4.60-6.70)	4525
	05-06	<b>1.06</b> (.967-1.15)	<b>1.03</b> (.930-1.15)	<b>1.98</b> (1.73-2.22)	<b>3.64</b> (3.33-4.01)	<b>5.31</b> (4.82-5.67)	4509
	07-08	<b>.944</b> (.833-1.07)	<b>.890</b> (.780-1.03)	<b>1.73</b> (1.47-2.09)	<b>3.41</b> (2.82-4.17)	<b>5.32</b> (4.32-6.72)	5364
	09-10	<b>1.04</b> (.956-1.14)	<b>.970</b> (.870-1.08)	<b>2.00</b> (1.80-2.20)	<b>3.96</b> (3.55-4.27)	<b>5.75</b> (5.14-6.50)	5765
<b>Gender</b> Males	03-04	<b>.814</b> (.714-.927)	<b>.800</b> (.700-.900)	<b>1.80</b> (1.50-2.00)	<b>3.70</b> (3.20-4.30)	<b>5.40</b> (4.60-6.50)	4132
	05-06	<b>.864</b> (.783-.954)	<b>.810</b> (.720-.940)	<b>1.69</b> (1.48-2.01)	<b>3.30</b> (2.86-3.73)	<b>4.83</b> (4.08-5.45)	4092
	07-08	<b>.809</b> (.709-.923)	<b>.760</b> (.670-.850)	<b>1.56</b> (1.31-1.81)	<b>3.21</b> (2.72-4.06)	<b>5.16</b> (4.12-6.97)	4147
	09-10	<b>.883</b> (.810-.962)	<b>.790</b> (.730-.870)	<b>1.75</b> (1.54-2.02)	<b>3.84</b> (3.35-4.26)	<b>5.65</b> (5.13-6.34)	4366
Females	03-04	<b>.781</b> (.689-.886)	<b>.800</b> (.700-.900)	<b>1.60</b> (1.40-1.80)	<b>3.00</b> (2.50-3.50)	<b>4.40</b> (3.60-5.30)	4241
	05-06	<b>.864</b> (.791-.943)	<b>.850</b> (.770-.920)	<b>1.63</b> (1.44-1.89)	<b>3.09</b> (2.75-3.46)	<b>4.51</b> (4.01-5.28)	4315
	07-08	<b>.748</b> (.677-.827)	<b>.720</b> (.660-.810)	<b>1.42</b> (1.24-1.60)	<b>2.70</b> (2.27-3.27)	<b>3.93</b> (3.17-5.16)	4119
	09-10	<b>.845</b> (.772-.924)	<b>.800</b> (.720-.880)	<b>1.61</b> (1.43-1.81)	<b>3.13</b> (2.76-3.48)	<b>4.43</b> (4.04-5.11)	4427
<b>Race/ethnicity</b> Mexican Americans	03-04	<b>.563</b> (.472-.672)	<b>.600</b> (.500-.700)	<b>1.00</b> (.800-1.30)	<b>1.90</b> (1.60-2.40)	<b>3.00</b> (2.20-3.80)	2085
	05-06	<b>.597</b> (.524-.679)	<b>.580</b> (.490-.670)	<b>1.04</b> (.870-1.24)	<b>1.70</b> (1.40-2.12)	<b>2.58</b> (1.96-3.31)	2236
	07-08	<b>.594</b> (.536-.658)	<b>.580</b> (.520-.670)	<b>1.03</b> (.900-1.17)	<b>1.73</b> (1.49-2.04)	<b>2.48</b> (2.10-2.91)	1712
	09-10	<b>.613</b> (.571-.659)	<b>.580</b> (.540-.630)	<b>1.01</b> (.890-1.15)	<b>1.63</b> (1.47-1.90)	<b>2.45</b> (2.03-2.93)	1966
Non-Hispanic blacks	03-04	<b>.877</b> (.753-1.02)	<b>.900</b> (.800-1.00)	<b>1.60</b> (1.40-1.80)	<b>3.00</b> (2.30-4.00)	<b>4.40</b> (3.30-6.00)	2293
	05-06	<b>.823</b> (.697-.972)	<b>.800</b> (.670-.940)	<b>1.50</b> (1.21-1.92)	<b>2.72</b> (2.14-3.59)	<b>4.09</b> (3.22-5.16)	2193
	07-08	<b>.766</b> (.711-.825)	<b>.780</b> (.710-.830)	<b>1.32</b> (1.23-1.42)	<b>2.25</b> (1.99-2.58)	<b>3.42</b> (2.74-3.90)	1746
	09-10	<b>.928</b> (.805-1.07)	<b>.900</b> (.800-1.02)	<b>1.67</b> (1.38-1.96)	<b>2.93</b> (2.20-4.21)	<b>4.56</b> (3.34-6.69)	1593
Non-Hispanic whites	03-04	<b>.776</b> (.655-.919)	<b>.800</b> (.700-.900)	<b>1.70</b> (1.40-2.00)	<b>3.20</b> (2.60-3.90)	<b>4.70</b> (4.00-5.60)	3478
	05-06	<b>.891</b> (.801-.992)	<b>.870</b> (.770-1.00)	<b>1.74</b> (1.50-2.10)	<b>3.37</b> (2.88-3.76)	<b>4.76</b> (4.18-5.37)	3310
	07-08	<b>.743</b> (.651-.847)	<b>.720</b> (.620-.820)	<b>1.43</b> (1.18-1.70)	<b>2.79</b> (2.33-3.41)	<b>4.18</b> (3.57-4.83)	3461
	09-10	<b>.856</b> (.766-.957)	<b>.790</b> (.690-.920)	<b>1.70</b> (1.46-1.98)	<b>3.43</b> (2.94-3.94)	<b>4.92</b> (4.30-5.65)	3760

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08 and 09-10 are 0.2, 0.33, 0.33, and 0.33 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Mercury\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Mercury_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Mercury\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Mercury_FactSheet.html)

## Blood Total Mercury (2011 - 2014)

Geometric mean and selected percentiles of blood concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>.703</b> (.617-.801)	<b>.640</b> (.580-.730)	<b>1.38</b> (1.14-1.72)	<b>2.87</b> (2.39-3.62)	<b>4.40</b> (3.50-5.71)	7920
	13-14	<b>.683</b> (.621-.751)	<b>.620</b> (.540-.690)	<b>1.29</b> (1.14-1.46)	<b>2.65</b> (2.32-3.08)	<b>4.36</b> (3.65-4.97)	5215
<b>Age group</b>							
1-5 years	11-12	<b>.262</b> (.237-.291)	<b>.250</b> (.220-.270)	<b>.390</b> (.340-.450)	<b>.680</b> (.540-.880)	<b>.990</b> (.790-1.21)	713
	13-14	*	< LOD	<b>.410</b> (.370-.450)	<b>.810</b> (.710-.990)	<b>1.21</b> (1.05-1.48)	818
6-11 years	11-12	<b>.330</b> (.287-.379)	<b>.320</b> (.280-.360)	<b>.530</b> (.480-.600)	<b>.930</b> (.780-1.20)	<b>1.40</b> (1.02-2.17)	1048
	13-14	*	<b>.300</b> (<LOD-.360)	<b>.570</b> (.470-.680)	<b>1.12</b> (.980-1.36)	<b>1.62</b> (1.38-2.19)	1075
12-19 years	11-12	<b>.411</b> (.355-.476)	<b>.370</b> (.320-.450)	<b>.680</b> (.590-.800)	<b>1.32</b> (1.08-1.75)	<b>2.25</b> (1.46-2.87)	1129
	13-14	<b>.412</b> (.367-.463)	<b>.350</b> (.310-.420)	<b>.630</b> (.530-.750)	<b>1.20</b> (.900-1.67)	<b>1.87</b> (1.30-2.38)	627
20 years and older	11-12	<b>.863</b> (.753-.990)	<b>.790</b> (.690-.940)	<b>1.68</b> (1.36-2.12)	<b>3.35</b> (2.71-4.31)	<b>5.02</b> (3.94-6.96)	5030
	13-14	<b>.814</b> (.736-.900)	<b>.740</b> (.650-.850)	<b>1.54</b> (1.36-1.71)	<b>3.08</b> (2.73-3.56)	<b>4.88</b> (4.36-5.21)	2695
<b>Gender</b>							
Males	11-12	<b>.712</b> (.623-.815)	<b>.650</b> (.570-.730)	<b>1.40</b> (1.17-1.72)	<b>3.00</b> (2.44-3.91)	<b>4.94</b> (3.50-6.79)	3968
	13-14	<b>.688</b> (.617-.767)	<b>.620</b> (.530-.720)	<b>1.30</b> (1.12-1.54)	<b>2.76</b> (2.36-3.34)	<b>4.52</b> (3.65-5.23)	2587
Females	11-12	<b>.694</b> (.609-.791)	<b>.640</b> (.580-.740)	<b>1.36</b> (1.09-1.75)	<b>2.81</b> (2.28-3.50)	<b>4.03</b> (3.29-5.08)	3952
	13-14	<b>.678</b> (.617-.745)	<b>.610</b> (.530-.700)	<b>1.27</b> (1.14-1.42)	<b>2.56</b> (2.17-3.08)	<b>4.15</b> (3.37-4.93)	2628
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>.483</b> (.424-.550)	<b>.480</b> (.400-.560)	<b>.810</b> (.720-.900)	<b>1.44</b> (1.16-1.63)	<b>1.90</b> (1.57-2.19)	1077
	13-14	<b>.487</b> (.433-.547)	<b>.430</b> (.390-.510)	<b>.760</b> (.690-.870)	<b>1.41</b> (1.14-1.69)	<b>1.98</b> (1.70-2.38)	969
Non-Hispanic blacks	11-12	<b>.679</b> (.542-.852)	<b>.630</b> (.500-.790)	<b>1.24</b> (.880-1.72)	<b>2.45</b> (1.84-3.14)	<b>3.80</b> (2.70-5.37)	2195
	13-14	<b>.699</b> (.614-.796)	<b>.650</b> (.570-.750)	<b>1.20</b> (1.08-1.40)	<b>2.30</b> (1.65-2.96)	<b>3.34</b> (2.35-5.93)	1119
Non-Hispanic whites	11-12	<b>.688</b> (.582-.813)	<b>.630</b> (.550-.750)	<b>1.38</b> (1.09-1.82)	<b>2.83</b> (2.18-3.82)	<b>4.25</b> (3.02-6.24)	2493
	13-14	<b>.672</b> (.598-.755)	<b>.620</b> (.520-.720)	<b>1.30</b> (1.12-1.51)	<b>2.61</b> (2.18-3.08)	<b>4.15</b> (3.35-4.98)	1848
All Hispanics	11-12	<b>.612</b> (.527-.710)	<b>.590</b> (.490-.700)	<b>1.08</b> (.890-1.33)	<b>1.96</b> (1.60-2.68)	<b>3.03</b> (2.37-3.86)	1931
	13-14	<b>.551</b> (.486-.624)	<b>.490</b> (.420-.580)	<b>.910</b> (.820-1.10)	<b>1.76</b> (1.44-2.12)	<b>2.59</b> (2.06-3.14)	1481
Asians	11-12	<b>1.86</b> (1.58-2.19)	<b>2.30</b> (1.84-2.64)	<b>4.32</b> (3.71-5.21)	<b>7.71</b> (6.38-8.79)	<b>10.3</b> (8.85-12.0)	1005
	13-14	<b>1.72</b> (1.46-2.03)	<b>1.77</b> (1.42-2.26)	<b>3.92</b> (3.35-4.55)	<b>7.78</b> (6.39-9.16)	<b>9.99</b> (9.16-13.7)	510

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.16 and 0.28.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Mercury\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Mercury_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Mercury\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Mercury_FactSheet.html)

## Blood Inorganic Mercury (2003 – 2010)

Geometric mean and selected percentiles of blood concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	.600 (.500-.600)	.700 (.700-.700)	8147
	05-06	*	< LOD	< LOD	.540 (.500-.580)	.660 (.620-.710)	8371
	07-08	*	< LOD	.350 (<LOD-.370)	.520 (.500-.540)	.650 (.620-.690)	8162
	09-10	*	< LOD	< LOD	.390 (.360-.430)	.510 (.480-.570)	8733
<b>Age group</b>							
1-5 years	03-04	*	< LOD	< LOD	< LOD	.500 (<LOD-.600)	792
	05-06	*	< LOD	< LOD	.430 (<LOD-.470)	.510 (.430-.670)	948
	07-08	*	< LOD	< LOD	.350 (<LOD-.450)	.500 (.410-.550)	726
	09-10	*	< LOD	< LOD	< LOD	.360 (<LOD-.460)	789
6-11 years	03-04	*	< LOD	< LOD	< LOD	.600 (.500-.600)	842
	05-06	*	< LOD	< LOD	.450 (<LOD-.520)	.560 (.470-.640)	932
	07-08	*	< LOD	< LOD	.380 (.350-.410)	.470 (.420-.520)	1010
	09-10	*	< LOD	< LOD	< LOD	.380 (.350-.440)	1006
12-19 years	03-04	*	< LOD	< LOD	.500 (<LOD-.500)	.600 (.500-.600)	2060
	05-06	*	< LOD	< LOD	.430 (.410-.460)	.540 (.480-.590)	1984
	07-08	*	< LOD	< LOD	.370 (<LOD-.400)	.480 (.410-.530)	1069
	09-10	*	< LOD	< LOD	< LOD	.420 (.350-.500)	1184
20 years and older	03-04	*	< LOD	< LOD	.600 (.500-.600)	.700 (.700-.800)	4453
	05-06	*	< LOD	< LOD	.570 (.530-.610)	.690 (.650-.750)	4507
	07-08	*	< LOD	.380 (.360-.390)	.550 (.530-.570)	.700 (.660-.730)	5357
	09-10	*	< LOD	< LOD	.420 (.390-.450)	.540 (.490-.600)	5754
<b>Gender</b>							
Males	03-04	*	< LOD	< LOD	.500 (.500-.600)	.600 (.600-.700)	4015
	05-06	*	< LOD	< LOD	.480 (.450-.520)	.600 (.550-.640)	4076
	07-08	*	< LOD	< LOD	.500 (.470-.520)	.600 (.570-.650)	4093
	09-10	*	< LOD	< LOD	.370 (<LOD-.420)	.500 (.440-.560)	4336
Females	03-04	*	< LOD	< LOD	.600 (.500-.600)	.700 (.700-.800)	4132
	05-06	*	< LOD	< LOD	.580 (.550-.640)	.700 (.670-.780)	4295
	07-08	*	< LOD	.380 (.360-.390)	.550 (.520-.570)	.700 (.670-.740)	4069
	09-10	*	< LOD	< LOD	.410 (.380-.440)	.530 (.490-.600)	4397

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08, and 09-10 are 0.42, 0.4, 0.35, and 0.35 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Mercury\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Mercury_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Mercury\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Mercury_FactSheet.html)



## Blood Inorganic Mercury (2003 – 2010)

Geometric mean and selected percentiles of blood concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	.500 (.500-.600)	.700 (.600-.800)	2007
	05-06	*	< LOD	< LOD	.530 (.470-.580)	.670 (.560-.830)	2224
	07-08	*	< LOD	< LOD	.430 (.400-.480)	.560 (.520-.610)	1685
	09-10	*	< LOD	< LOD	< LOD	.470 (.390-.530)	1947
Non-Hispanic blacks	03-04	*	< LOD	< LOD	.600 (.500-.600)	.700 (.600-.800)	2240
	05-06	*	< LOD	< LOD	.530 (.470-.600)	.670 (.600-.760)	2183
	07-08	*	< LOD	< LOD	.490 (.450-.530)	.610 (.560-.650)	1729
	09-10	*	< LOD	< LOD	.370 (.350-.390)	.480 (.410-.530)	1580
Non-Hispanic whites	03-04	*	< LOD	< LOD	.600 (.500-.600)	.700 (.600-.700)	3406
	05-06	*	< LOD	< LOD	.540 (.500-.580)	.650 (.610-.710)	3298
	07-08	*	< LOD	.360 (<LOD-.390)	.530 (.500-.550)	.660 (.620-.700)	3421
	09-10	*	< LOD	< LOD	.410 (.370-.450)	.520 (.480-.590)	3739

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08, and 09-10 are 0.42, 0.4, 0.35, and 0.35 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Mercury\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Mercury_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Mercury\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Mercury_FactSheet.html)

## Blood Inorganic Mercury (2011 - 2014)

Geometric mean and selected percentiles of blood concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	.440 (.390-.480)	.600 (.520-.680)	7841
	13-14	*	< LOD	< LOD	.410 (.380-.440)	.530 (.490-.570)	5175
<b>Age group</b>							
1-5 years	11-12	*	< LOD	< LOD	< LOD	.280 (<LOD-.360)	657
	13-14	*	< LOD	< LOD	< LOD	< LOD	779
6-11 years	11-12	*	< LOD	< LOD	.280 (<LOD-.320)	.360 (.290-.450)	1044
	13-14	*	< LOD	< LOD	< LOD	.340 (<LOD-.420)	1074
12-19 years	11-12	*	< LOD	< LOD	.280 (<LOD-.350)	.400 (.300-.540)	1121
	13-14	*	< LOD	< LOD	< LOD	.360 (.290-.420)	627
20 years and older	11-12	*	< LOD	.290 (.270-.310)	.470 (.420-.530)	.630 (.550-.760)	5019
	13-14	*	< LOD	.270 (<LOD-.300)	.440 (.410-.470)	.560 (.510-.660)	2695
<b>Gender</b>							
Males	11-12	*	< LOD	< LOD	.420 (.370-.480)	.600 (.490-.680)	3925
	13-14	*	< LOD	< LOD	.400 (.340-.430)	.510 (.450-.560)	2570
Females	11-12	*	< LOD	.280 (<LOD-.300)	.450 (.390-.490)	.610 (.520-.700)	3916
	13-14	*	< LOD	< LOD	.420 (.390-.450)	.550 (.510-.590)	2605
<b>Race/ethnicity</b>							
Mexican Americans	11-12	*	< LOD	< LOD	.390 (.330-.460)	.580 (.460-.710)	1058
	13-14	*	< LOD	< LOD	.380 (.330-.410)	.540 (.420-.640)	958
Non-Hispanic blacks	11-12	*	< LOD	< LOD	.410 (.370-.470)	.570 (.480-.670)	2170
	13-14	*	< LOD	< LOD	.380 (.330-.430)	.530 (.440-.630)	1110
Non-Hispanic whites	11-12	*	< LOD	.270 (<LOD-.300)	.430 (.370-.490)	.590 (.480-.690)	2477
	13-14	*	< LOD	< LOD	.420 (.360-.450)	.510 (.460-.570)	1835
All Hispanics	11-12	*	< LOD	< LOD	.430 (.370-.490)	.630 (.540-.760)	1902
	13-14	*	< LOD	< LOD	.380 (.330-.410)	.540 (.440-.650)	1467
Asians	11-12	*	< LOD	.350 (.310-.390)	.550 (.500-.590)	.700 (.630-.760)	997
	13-14	*	< LOD	.330 (.270-.390)	.570 (.420-.680)	.750 (.580-1.10)	508

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.27 and 0.27.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Mercury\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Mercury_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Mercury\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Mercury_FactSheet.html)



## Blood Ethyl Mercury (2011 - 2014)

Geometric mean and selected percentiles of blood concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	7841
	13-14	*	< LOD	< LOD	< LOD	< LOD	5175
<b>Age group</b>							
1-5 years	11-12	*	< LOD	< LOD	< LOD	< LOD	657
	13-14	*	< LOD	< LOD	< LOD	< LOD	779
6-11 years	11-12	*	< LOD	< LOD	< LOD	< LOD	1044
	13-14	*	< LOD	< LOD	< LOD	< LOD	1074
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	1121
	13-14	*	< LOD	< LOD	< LOD	< LOD	627
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	5019
	13-14	*	< LOD	< LOD	< LOD	< LOD	2695
<b>Gender</b>							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	3925
	13-14	*	< LOD	< LOD	< LOD	< LOD	2570
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	3916
	13-14	*	< LOD	< LOD	< LOD	< LOD	2605
<b>Race/ethnicity</b>							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	1058
	13-14	*	< LOD	< LOD	< LOD	< LOD	958
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	2170
	13-14	*	< LOD	< LOD	< LOD	< LOD	1110
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	2477
	13-14	*	< LOD	< LOD	< LOD	< LOD	1835
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	1902
	13-14	*	< LOD	< LOD	< LOD	< LOD	1467
Asians	11-12	*	< LOD	< LOD	< LOD	.160 (<LOD-.280)	997
	13-14	*	< LOD	< LOD	< LOD	< LOD	508

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.16 and 0.16.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Mercury\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Mercury_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Mercury\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Mercury_FactSheet.html)

## Blood Methyl Mercury (2011 - 2014)

Geometric mean and selected percentiles of blood concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>.498</b> (.423-.587)	<b>.480</b> (.400-.570)	<b>1.25</b> (.950-1.61)	<b>2.81</b> (2.29-3.55)	<b>4.43</b> (3.46-5.49)	7841
	13-14	<b>.434</b> (.381-.495)	<b>.420</b> (.340-.510)	<b>1.09</b> (.940-1.27)	<b>2.62</b> (2.18-3.04)	<b>4.28</b> (3.74-4.93)	5175
<b>Age group</b>							
1-5 years	11-12	*	<b>.140</b> (.120-.170)	<b>.270</b> (.220-.350)	<b>.540</b> (.420-.780)	<b>.970</b> (.590-1.14)	657
	13-14	*	< LOD	<b>.260</b> (.230-.310)	<b>.660</b> (.550-.810)	<b>1.11</b> (.960-1.48)	779
6-11 years	11-12	<b>.209</b> (.182-.241)	<b>.180</b> (.150-.220)	<b>.400</b> (.330-.490)	<b>.820</b> (.630-1.06)	<b>1.34</b> (.940-1.84)	1044
	13-14	*	<b>.150</b> (<LOD-.200)	<b>.380</b> (.280-.530)	<b>.960</b> (.700-1.26)	<b>1.58</b> (1.26-2.11)	1074
12-19 years	11-12	<b>.276</b> (.237-.322)	<b>.270</b> (.210-.310)	<b>.570</b> (.460-.670)	<b>1.27</b> (.870-1.67)	<b>2.15</b> (1.40-2.81)	1121
	13-14	<b>.233</b> (.202-.269)	<b>.190</b> (.140-.260)	<b>.480</b> (.380-.560)	<b>1.02</b> (.730-1.60)	<b>1.84</b> (1.20-2.57)	627
20 years and older	11-12	<b>.624</b> (.523-.746)	<b>.610</b> (.500-.760)	<b>1.53</b> (1.18-2.00)	<b>3.28</b> (2.56-4.31)	<b>4.97</b> (3.91-6.89)	5019
	13-14	<b>.541</b> (.473-.618)	<b>.540</b> (.450-.630)	<b>1.32</b> (1.17-1.54)	<b>3.05</b> (2.64-3.60)	<b>4.92</b> (4.34-5.41)	2695
<b>Gender</b>							
Males	11-12	<b>.509</b> (.433-.598)	<b>.490</b> (.400-.590)	<b>1.30</b> (.990-1.62)	<b>2.84</b> (2.29-3.68)	<b>4.77</b> (3.44-6.74)	3925
	13-14	<b>.448</b> (.390-.515)	<b>.430</b> (.350-.530)	<b>1.10</b> (.940-1.37)	<b>2.67</b> (2.22-3.33)	<b>4.44</b> (3.88-5.40)	2570
Females	11-12	<b>.489</b> (.413-.580)	<b>.470</b> (.380-.560)	<b>1.19</b> (.900-1.61)	<b>2.72</b> (2.18-3.46)	<b>3.99</b> (3.28-4.99)	3916
	13-14	<b>.422</b> (.367-.485)	<b>.400</b> (.330-.490)	<b>1.08</b> (.900-1.22)	<b>2.46</b> (2.03-2.92)	<b>3.91</b> (3.32-4.93)	2605
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>.320</b> (.264-.387)	<b>.330</b> (.260-.410)	<b>.610</b> (.500-.770)	<b>1.23</b> (.920-1.40)	<b>1.66</b> (1.33-2.06)	1058
	13-14	<b>.276</b> (.239-.318)	<b>.260</b> (.210-.310)	<b>.540</b> (.440-.650)	<b>1.06</b> (.770-1.43)	<b>1.72</b> (1.27-2.34)	958
Non-Hispanic blacks	11-12	<b>.517</b> (.392-.681)	<b>.510</b> (.380-.660)	<b>1.13</b> (.750-1.61)	<b>2.37</b> (1.66-3.08)	<b>3.63</b> (2.57-5.16)	2170
	13-14	<b>.481</b> (.407-.569)	<b>.460</b> (.370-.580)	<b>1.03</b> (.900-1.22)	<b>2.08</b> (1.55-2.72)	<b>3.33</b> (2.15-5.12)	1110
Non-Hispanic whites	11-12	<b>.478</b> (.392-.583)	<b>.470</b> (.360-.580)	<b>1.25</b> (.870-1.69)	<b>2.76</b> (2.06-3.69)	<b>4.24</b> (2.92-6.38)	2477
	13-14	<b>.420</b> (.357-.495)	<b>.420</b> (.310-.530)	<b>1.10</b> (.910-1.32)	<b>2.62</b> (2.07-3.12)	<b>4.01</b> (3.46-5.00)	1835
All Hispanics	11-12	<b>.429</b> (.350-.525)	<b>.420</b> (.340-.520)	<b>.890</b> (.700-1.17)	<b>1.81</b> (1.39-2.46)	<b>2.94</b> (2.19-3.71)	1902
	13-14	<b>.326</b> (.278-.382)	<b>.310</b> (.250-.350)	<b>.680</b> (.580-.790)	<b>1.50</b> (1.15-1.89)	<b>2.34</b> (1.79-3.00)	1467
Asians	11-12	<b>1.58</b> (1.29-1.94)	<b>2.16</b> (1.68-2.55)	<b>4.35</b> (3.64-5.13)	<b>7.57</b> (6.21-8.61)	<b>10.5</b> (8.48-12.5)	997
	13-14	<b>1.42</b> (1.16-1.74)	<b>1.71</b> (1.17-2.07)	<b>3.90</b> (3.31-4.54)	<b>7.93</b> (6.42-9.21)	<b>10.8</b> (9.57-13.6)	508

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.12 and 0.12.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

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### Factsheet

[http://www.cdc.gov/biomonitoring/Mercury\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Mercury_FactSheet.html)

## Urinary Mercury (2003 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	.447 (.406-.492)	.420 (.360-.480)	1.00 (.870-1.14)	2.08 (1.78-2.42)	3.19 (2.76-3.55)	2538
	05-06	.468 (.426-.514)	.460 (.410-.510)	1.03 (.900-1.12)	2.11 (1.88-2.36)	2.94 (2.58-3.26)	2578
	07-08	.443 (.408-.482)	.440 (.400-.470)	.880 (.760-1.00)	1.74 (1.62-1.96)	2.66 (2.29-3.08)	2634
	09-10	*	.400 (.360-.450)	.850 (.770-.910)	1.53 (1.30-1.81)	2.42 (2.07-2.72)	2865
<b>Age group</b>							
6-11 years	03-04	.254 (.213-.304)	.200 (.160-.250)	.440 (.330-.580)	1.16 (.610-1.61)	1.96 (1.13-2.97)	287
	05-06	.333 (.267-.416)	.320 (.250-.390)	.650 (.470-.840)	1.32 (.930-1.88)	2.18 (1.28-3.40)	355
	07-08	.301 (.260-.347)	.290 (.230-.340)	.520 (.430-.620)	1.03 (.770-1.23)	1.87 (1.03-3.48)	398
	09-10	*	.260 (.220-.320)	.510 (.430-.620)	1.03 (.730-1.31)	1.58 (1.18-1.88)	379
12-19 years	03-04	.358 (.313-.408)	.330 (.290-.370)	.700 (.530-.840)	1.60 (1.14-2.52)	2.93 (1.88-3.66)	722
	05-06	.372 (.286-.486)	.350 (.270-.470)	.740 (.580-.920)	1.61 (.970-2.81)	2.59 (1.40-4.45)	703
	07-08	.364 (.326-.406)	.380 (.320-.450)	.590 (.550-.650)	1.24 (.830-1.71)	1.82 (1.41-2.29)	375
	09-10	*	.290 (.230-.360)	.530 (.470-.630)	1.09 (.890-1.31)	1.73 (1.28-2.31)	455
20 years and older	03-04	.495 (.442-.555)	.480 (.410-.570)	1.12 (.930-1.29)	2.20 (1.85-2.65)	3.33 (2.76-3.88)	1529
	05-06	.505 (.468-.545)	.510 (.460-.560)	1.11 (1.04-1.16)	2.23 (1.97-2.50)	3.11 (2.64-3.37)	1520
	07-08	.477 (.435-.523)	.470 (.430-.520)	.970 (.850-1.10)	1.89 (1.69-2.20)	2.82 (2.33-3.56)	1861
	09-10	*	.450 (.390-.510)	.890 (.810-1.00)	1.66 (1.40-2.01)	2.53 (2.21-2.84)	2031
<b>Gender</b>							
Males	03-04	.433 (.405-.463)	.400 (.350-.460)	.940 (.840-1.05)	1.88 (1.63-2.18)	2.68 (2.34-3.05)	1266
	05-06	.464 (.411-.523)	.450 (.400-.520)	.980 (.860-1.11)	2.03 (1.57-2.48)	3.00 (2.48-3.37)	1270
	07-08	.457 (.417-.501)	.460 (.400-.520)	.880 (.780-1.01)	1.68 (1.53-1.77)	2.40 (2.11-2.76)	1326
	09-10	*	.410 (.340-.480)	.860 (.750-.950)	1.46 (1.29-1.66)	2.21 (1.93-2.53)	1404
Females	03-04	.460 (.396-.534)	.430 (.330-.530)	1.07 (.870-1.28)	2.26 (1.77-2.90)	3.54 (2.76-4.31)	1272
	05-06	.472 (.424-.525)	.470 (.390-.550)	1.07 (.900-1.19)	2.14 (1.84-2.50)	2.89 (2.60-3.38)	1308
	07-08	.431 (.388-.478)	.430 (.380-.460)	.870 (.710-1.05)	1.88 (1.55-2.38)	2.92 (2.27-4.17)	1308
	09-10	*	.390 (.360-.450)	.840 (.730-.940)	1.61 (1.29-2.03)	2.61 (2.16-3.12)	1461
<b>Race/ethnicity</b>							
Mexican Americans	03-04	.416 (.340-.509)	.360 (.280-.430)	.960 (.700-1.23)	2.19 (1.39-3.24)	3.16 (1.99-6.30)	619
	05-06	.451 (.369-.551)	.420 (.310-.560)	1.01 (.780-1.25)	2.22 (1.48-2.64)	3.00 (2.27-4.01)	651
	07-08	.409 (.349-.480)	.370 (.330-.450)	.780 (.700-.950)	1.82 (1.26-1.97)	2.55 (1.87-3.08)	514
	09-10	*	.350 (.280-.430)	.670 (.520-.890)	1.53 (1.06-1.84)	2.29 (1.81-2.76)	615
Non-Hispanic blacks	03-04	.476 (.413-.549)	.430 (.360-.530)	.890 (.770-1.00)	1.96 (1.60-2.31)	3.09 (2.03-4.89)	713
	05-06	.453 (.384-.533)	.450 (.380-.550)	.890 (.710-1.13)	1.78 (1.34-2.29)	2.57 (2.21-3.15)	691
	07-08	.478 (.411-.556)	.460 (.380-.540)	.910 (.770-1.06)	1.85 (1.42-2.41)	2.76 (1.97-4.19)	589
	09-10	*	.410 (.340-.490)	.840 (.650-1.08)	1.66 (1.34-1.95)	2.64 (1.88-3.30)	546
Non-Hispanic whites	03-04	.441 (.382-.509)	.420 (.330-.520)	1.01 (.840-1.23)	2.08 (1.67-2.46)	3.24 (2.67-3.60)	1066
	05-06	.459 (.409-.513)	.440 (.400-.510)	1.00 (.860-1.12)	2.07 (1.77-2.40)	2.81 (2.47-3.37)	1044
	07-08	.431 (.378-.493)	.430 (.380-.480)	.880 (.700-1.07)	1.71 (1.50-2.18)	2.70 (2.18-3.59)	1100
	09-10	*	.390 (.330-.470)	.850 (.750-.950)	1.52 (1.26-2.01)	2.42 (1.93-2.85)	1225

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08 and 09-10 are 0.14, 0.11, 0.08, and 0.08 respectively.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Mercury\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Mercury_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Mercury\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Mercury_FactSheet.html)

## Urinary Mercury (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>.324</b> (.285-.368)	<b>.320</b> (.280-.370)	<b>.660</b> (.580-.770)	<b>1.37</b> (1.15-1.59)	<b>1.83</b> (1.62-2.14)	2507
	13-14	<b>.246</b> (.221-.273)	<b>.200</b> (.170-.240)	<b>.470</b> (.400-.570)	<b>1.07</b> (.900-1.22)	<b>1.64</b> (1.35-1.96)	2666
<b>Age group</b>							
6-11 years	11-12	<b>.241</b> (.206-.283)	<b>.220</b> (.190-.270)	<b>.450</b> (.390-.530)	<b>.930</b> (.680-1.36)	<b>1.37</b> (.990-2.03)	401
	13-14	*	< LOD	<b>.220</b> (.150-.310)	<b>.560</b> (.340-.840)	<b>.890</b> (.640-1.10)	401
12-19 years	11-12	<b>.257</b> (.212-.312)	<b>.270</b> (.220-.340)	<b>.490</b> (.390-.600)	<b>.840</b> (.650-1.24)	<b>1.31</b> (.920-1.75)	390
	13-14	*	< LOD	<b>.240</b> (.200-.310)	<b>.560</b> (.400-.860)	<b>1.02</b> (.610-1.81)	452
20 years and older	11-12	<b>.346</b> (.303-.396)	<b>.340</b> (.290-.400)	<b>.720</b> (.620-.850)	<b>1.49</b> (1.20-1.67)	<b>1.93</b> (1.67-2.29)	1716
	13-14	<b>.274</b> (.246-.305)	<b>.240</b> (.200-.280)	<b>.540</b> (.450-.630)	<b>1.16</b> (1.00-1.33)	<b>1.76</b> (1.44-2.04)	1813
<b>Gender</b>							
Males	11-12	<b>.342</b> (.293-.399)	<b>.330</b> (.290-.380)	<b>.670</b> (.580-.810)	<b>1.34</b> (1.03-1.67)	<b>1.91</b> (1.54-2.51)	1260
	13-14	<b>.243</b> (.219-.268)	<b>.200</b> (.170-.220)	<b>.480</b> (.390-.600)	<b>1.07</b> (.840-1.33)	<b>1.55</b> (1.28-1.96)	1319
Females	11-12	<b>.307</b> (.262-.360)	<b>.300</b> (.250-.360)	<b>.660</b> (.540-.770)	<b>1.37</b> (1.17-1.54)	<b>1.82</b> (1.54-2.14)	1247
	13-14	<b>.249</b> (.218-.284)	<b>.210</b> (.170-.260)	<b>.470</b> (.390-.570)	<b>1.07</b> (.820-1.27)	<b>1.75</b> (1.25-2.26)	1347
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>.301</b> (.261-.348)	<b>.300</b> (.200-.400)	<b>.620</b> (.510-.680)	<b>1.25</b> (.910-1.53)	<b>1.75</b> (1.32-2.25)	317
	13-14	<b>.229</b> (.198-.265)	<b>.160</b> (.150-.210)	<b>.450</b> (.300-.620)	<b>1.12</b> (.780-1.35)	<b>1.47</b> (.970-2.38)	454
Non-Hispanic blacks	11-12	<b>.360</b> (.316-.410)	<b>.360</b> (.320-.400)	<b>.670</b> (.570-.800)	<b>1.33</b> (1.06-1.60)	<b>1.99</b> (1.48-3.06)	671
	13-14	<b>.279</b> (.228-.340)	<b>.250</b> (.190-.320)	<b>.530</b> (.400-.690)	<b>1.10</b> (.900-1.49)	<b>1.82</b> (1.11-2.48)	580
Non-Hispanic whites	11-12	<b>.308</b> (.260-.365)	<b>.290</b> (.260-.360)	<b>.630</b> (.510-.810)	<b>1.37</b> (1.09-1.64)	<b>1.77</b> (1.49-2.14)	819
	13-14	<b>.240</b> (.211-.271)	<b>.200</b> (.160-.230)	<b>.460</b> (.370-.580)	<b>1.06</b> (.840-1.24)	<b>1.64</b> (1.24-2.04)	988
All Hispanics	11-12	<b>.330</b> (.299-.364)	<b>.330</b> (.270-.390)	<b>.680</b> (.610-.760)	<b>1.30</b> (1.15-1.53)	<b>1.98</b> (1.61-2.42)	574
	13-14	<b>.239</b> (.207-.276)	<b>.180</b> (.150-.240)	<b>.460</b> (.360-.620)	<b>1.14</b> (.800-1.35)	<b>1.57</b> (1.24-2.15)	702
Asians	11-12	<b>.430</b> (.351-.527)	<b>.450</b> (.330-.580)	<b>.910</b> (.750-1.12)	<b>1.69</b> (1.31-2.06)	<b>2.41</b> (1.77-3.53)	355
	13-14	<b>.313</b> (.269-.363)	<b>.270</b> (.220-.340)	<b>.620</b> (.520-.710)	<b>1.18</b> (.890-1.66)	<b>1.78</b> (1.20-3.10)	291

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.05 and 0.13.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Mercury\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Mercury_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Mercury\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Mercury_FactSheet.html)

## Urinary Mercury (creatinine corrected) (2003 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	.443 (.404-.486)	.447 (.392-.498)	.909 (.785-1.00)	1.65 (1.40-1.86)	2.35 (1.88-2.85)	2537
	05-06	.460 (.414-.511)	.450 (.410-.510)	.870 (.790-1.00)	1.63 (1.44-1.75)	2.26 (2.12-2.50)	2578
	07-08	.462 (.425-.502)	.450 (.400-.490)	.820 (.750-.960)	1.57 (1.38-1.73)	2.32 (2.00-2.89)	2634
	09-10	*	.409 (.367-.459)	.793 (.691-.893)	1.43 (1.24-1.67)	2.09 (1.79-2.39)	2865
<b>Age group</b>							
6-11 years	03-04	.297 (.246-.358)	.276 (.208-.347)	.485 (.391-.630)	1.25 (.667-1.79)	1.79 (1.11-2.61)	286
	05-06	.411 (.323-.524)	.390 (.290-.500)	.710 (.510-.960)	1.30 (.990-2.12)	2.55 (1.38-3.50)	355
	07-08	.393 (.351-.440)	.350 (.300-.440)	.630 (.540-.770)	1.15 (.860-1.50)	1.68 (1.18-2.99)	398
	09-10	*	.357 (.306-.406)	.632 (.500-.750)	1.04 (.863-1.26)	1.62 (1.19-1.98)	379
12-19 years	03-04	.255 (.225-.289)	.217 (.196-.275)	.464 (.376-.535)	1.06 (.714-1.39)	1.67 (1.13-2.03)	722
	05-06	.286 (.230-.356)	.260 (.200-.320)	.500 (.380-.660)	1.09 (.660-1.70)	1.76 (1.11-2.67)	703
	07-08	.284 (.251-.320)	.280 (.230-.300)	.500 (.400-.550)	.890 (.620-1.08)	1.18 (.980-1.36)	375
	09-10	*	.226 (.202-.287)	.481 (.429-.553)	.917 (.736-1.18)	1.41 (1.12-1.62)	455
20 years and older	03-04	.508 (.455-.566)	.525 (.447-.616)	1.00 (.875-1.09)	1.76 (1.46-2.11)	2.54 (2.04-3.00)	1529
	05-06	.503 (.461-.549)	.510 (.470-.550)	.940 (.850-1.07)	1.69 (1.50-1.86)	2.31 (2.12-2.54)	1520
	07-08	.507 (.463-.555)	.500 (.450-.550)	.940 (.810-1.02)	1.69 (1.51-2.01)	2.56 (2.09-3.17)	1861
	09-10	*	.454 (.395-.517)	.861 (.731-.988)	1.51 (1.29-1.85)	2.15 (1.88-2.57)	2031
<b>Gender</b>							
Males	03-04	.365 (.333-.400)	.362 (.309-.417)	.696 (.620-.784)	1.31 (1.18-1.44)	1.87 (1.51-2.30)	1266
	05-06	.380 (.336-.431)	.390 (.330-.440)	.740 (.600-.890)	1.27 (1.09-1.47)	1.73 (1.62-1.85)	1270
	07-08	.408 (.374-.445)	.390 (.350-.450)	.730 (.650-.810)	1.22 (1.11-1.36)	1.69 (1.54-2.11)	1326
	09-10	*	.337 (.298-.391)	.675 (.585-.802)	1.19 (1.06-1.29)	1.50 (1.33-1.78)	1404
Females	03-04	.532 (.472-.599)	.545 (.455-.652)	1.06 (.969-1.21)	1.88 (1.64-2.30)	2.77 (2.12-3.56)	1271
	05-06	.552 (.494-.617)	.540 (.490-.620)	1.09 (.850-1.27)	1.96 (1.72-2.14)	2.78 (2.35-3.17)	1308
	07-08	.520 (.469-.576)	.490 (.460-.540)	.960 (.820-1.11)	1.92 (1.58-2.24)	2.83 (2.24-3.50)	1308
	09-10	*	.475 (.423-.552)	.890 (.771-1.07)	1.81 (1.43-2.09)	2.57 (2.09-2.94)	1461
<b>Race/ethnicity</b>							
Mexican Americans	03-04	.384 (.307-.480)	.365 (.280-.455)	.768 (.619-.990)	1.62 (1.23-2.16)	2.32 (1.78-4.01)	618
	05-06	.425 (.337-.536)	.400 (.310-.490)	.840 (.560-1.29)	1.82 (1.30-2.47)	2.63 (2.22-3.20)	651
	07-08	.409 (.350-.479)	.380 (.310-.480)	.790 (.690-.850)	1.55 (1.08-1.98)	2.03 (1.55-2.70)	514
	09-10	*	.333 (.272-.400)	.660 (.494-.861)	1.29 (1.02-1.54)	1.95 (1.52-2.89)	615
Non-Hispanic blacks	03-04	.343 (.301-.391)	.306 (.265-.368)	.587 (.522-.687)	1.28 (.964-1.63)	2.13 (1.41-2.87)	713
	05-06	.328 (.285-.378)	.320 (.270-.370)	.610 (.470-.780)	1.15 (.930-1.40)	1.64 (1.29-1.96)	691
	07-08	.350 (.303-.404)	.330 (.280-.380)	.590 (.490-.690)	1.10 (.840-1.46)	1.85 (1.13-2.77)	589
	09-10	*	.317 (.259-.393)	.582 (.500-.659)	1.05 (.900-1.30)	1.55 (1.18-1.96)	546
Non-Hispanic whites	03-04	.463 (.400-.537)	.476 (.385-.588)	.970 (.800-1.07)	1.67 (1.32-2.11)	2.40 (1.88-2.90)	1066
	05-06	.475 (.426-.531)	.490 (.440-.540)	.890 (.820-1.02)	1.61 (1.42-1.75)	2.23 (1.98-2.50)	1044
	07-08	.481 (.423-.546)	.480 (.390-.540)	.890 (.750-1.03)	1.58 (1.34-2.02)	2.49 (1.89-3.18)	1100
	09-10	*	.434 (.370-.500)	.833 (.689-1.04)	1.50 (1.26-1.87)	2.12 (1.80-2.64)	1225

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Mercury\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Mercury_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Mercury\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Mercury_FactSheet.html)

## Urinary Mercury (creatinine corrected) (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>.367</b> (.333-.405)	<b>.353</b> (.306-.394)	<b>.676</b> (.623-.754)	<b>1.33</b> (1.13-1.50)	<b>1.75</b> (1.49-2.32)	2505
	13-14	<b>.283</b> (.260-.309)	<b>.270</b> (.250-.290)	<b>.571</b> (.511-.644)	<b>1.20</b> (1.05-1.36)	<b>1.61</b> (1.47-1.81)	2665
<b>Age group</b>							
6-11 years	11-12	<b>.345</b> (.298-.398)	<b>.306</b> (.276-.344)	<b>.537</b> (.441-.613)	<b>1.08</b> (.884-1.43)	<b>1.62</b> (1.07-2.34)	400
	13-14	*	< LOD	<b>.429</b> (.310-.529)	<b>.750</b> (.563-.897)	<b>1.11</b> (.713-1.72)	401
12-19 years	11-12	<b>.246</b> (.219-.277)	<b>.221</b> (.190-.269)	<b>.405</b> (.368-.453)	<b>.735</b> (.571-1.11)	<b>1.21</b> (.742-1.49)	390
	13-14	*	< LOD	<b>.257</b> (.200-.281)	<b>.580</b> (.391-.735)	<b>.846</b> (.580-1.07)	452
20 years and older	11-12	<b>.393</b> (.351-.439)	<b>.383</b> (.330-.437)	<b>.750</b> (.673-.805)	<b>1.38</b> (1.17-1.63)	<b>1.95</b> (1.50-2.48)	1715
	13-14	<b>.318</b> (.291-.349)	<b>.304</b> (.281-.333)	<b>.644</b> (.561-.741)	<b>1.32</b> (1.13-1.47)	<b>1.76</b> (1.50-1.88)	1812
<b>Gender</b>							
Males	11-12	<b>.320</b> (.278-.368)	<b>.294</b> (.267-.358)	<b>.558</b> (.478-.667)	<b>1.11</b> (.791-1.44)	<b>1.57</b> (1.21-2.00)	1259
	13-14	<b>.242</b> (.223-.263)	<b>.231</b> (.206-.259)	<b>.476</b> (.429-.542)	<b>.902</b> (.779-1.11)	<b>1.31</b> (1.13-1.49)	1318
Females	11-12	<b>.418</b> (.374-.466)	<b>.409</b> (.355-.453)	<b>.800</b> (.706-.900)	<b>1.46</b> (1.29-1.65)	<b>2.00</b> (1.63-2.60)	1246
	13-14	<b>.330</b> (.297-.367)	<b>.315</b> (.273-.356)	<b>.692</b> (.600-.822)	<b>1.44</b> (1.18-1.68)	<b>1.83</b> (1.60-2.12)	1347
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>.339</b> (.288-.399)	<b>.286</b> (.225-.393)	<b>.641</b> (.433-.789)	<b>1.17</b> (1.00-1.42)	<b>1.70</b> (1.31-2.24)	317
	13-14	<b>.261</b> (.231-.295)	<b>.237</b> (.209-.273)	<b>.516</b> (.409-.709)	<b>1.04</b> (.810-1.48)	<b>1.62</b> (1.11-2.55)	454
Non-Hispanic blacks	11-12	<b>.280</b> (.245-.320)	<b>.261</b> (.224-.294)	<b>.467</b> (.411-.529)	<b>.896</b> (.638-1.14)	<b>1.43</b> (1.10-1.57)	671
	13-14	<b>.211</b> (.169-.264)	<b>.202</b> (.152-.269)	<b>.409</b> (.333-.516)	<b>.794</b> (.643-1.10)	<b>1.34</b> (.880-1.52)	580
Non-Hispanic whites	11-12	<b>.372</b> (.323-.428)	<b>.364</b> (.294-.433)	<b>.700</b> (.619-.805)	<b>1.35</b> (1.05-1.63)	<b>1.75</b> (1.41-2.48)	817
	13-14	<b>.295</b> (.269-.323)	<b>.278</b> (.257-.310)	<b>.602</b> (.516-.689)	<b>1.27</b> (1.08-1.45)	<b>1.64</b> (1.46-1.82)	987
All Hispanics	11-12	<b>.369</b> (.342-.399)	<b>.331</b> (.283-.384)	<b>.674</b> (.612-.772)	<b>1.24</b> (1.13-1.44)	<b>1.86</b> (1.47-2.92)	574
	13-14	<b>.267</b> (.237-.300)	<b>.237</b> (.214-.273)	<b>.541</b> (.448-.634)	<b>1.07</b> (.837-1.36)	<b>1.61</b> (1.24-1.86)	702
Asians	11-12	<b>.577</b> (.473-.705)	<b>.562</b> (.467-.700)	<b>1.16</b> (.872-1.44)	<b>1.82</b> (1.54-2.00)	<b>2.29</b> (1.90-3.12)	355
	13-14	<b>.488</b> (.422-.565)	<b>.475</b> (.373-.600)	<b>.917</b> (.779-1.06)	<b>1.88</b> (1.35-2.19)	<b>2.57</b> (1.88-4.24)	291

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Mercury\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Mercury_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Mercury\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Mercury_FactSheet.html)



## Urinary Molybdenum (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	45.9 (40.1-52.6)	50.7 (44.6-58.4)	84.9 (78.7-92.3)	135 (125-146)	180 (154-216)	2257
	01-02	45.0 (42.1-48.0)	52.4 (48.9-55.5)	83.4 (79.1-88.7)	124 (117-130)	165 (145-176)	2690
	03-04	39.7 (37.7-41.7)	44.5 (41.6-46.7)	78.5 (74.9-82.3)	111 (105-118)	138 (133-146)	2558
	05-06	45.0 (42.4-47.8)	51.0 (47.2-54.7)	81.5 (77.4-85.8)	127 (117-132)	158 (144-174)	2576
	07-08	45.2 (43.1-47.3)	49.7 (47.4-52.0)	86.2 (82.3-89.3)	136 (128-142)	163 (154-171)	2627
	09-10	42.7 (40.8-44.7)	45.2 (43.6-47.3)	79.9 (75.9-83.0)	121 (112-130)	160 (147-180)	2848
	Age group 6-11 years	99-00	78.2 (61.0-100)	84.8 (67.7-105)	126 (106-147)	178 (147-259)	267 (159-840)
01-02		63.3 (53.4-75.0)	69.2 (63.0-77.6)	109 (94.5-124)	169 (138-197)	197 (161-291)	368
03-04		62.2 (56.7-68.3)	71.3 (55.7-84.1)	108 (92.7-122)	138 (127-152)	181 (138-235)	290
05-06		65.6 (56.6-76.0)	73.5 (62.8-85.5)	108 (98.6-115)	154 (130-176)	181 (154-205)	355
07-08		69.3 (60.8-79.0)	72.8 (62.1-83.9)	123 (99.9-148)	169 (154-217)	235 (169-282)	394
09-10		65.0 (57.8-73.2)	69.7 (61.1-84.2)	123 (103-138)	180 (146-205)	218 (180-263)	378
12-19 years		99-00	54.3 (47.6-62.0)	60.6 (52.2-70.3)	93.3 (79.9-109)	146 (112-171)	188 (146-216)
	01-02	60.6 (55.5-66.2)	65.7 (58.7-73.1)	97.1 (91.8-108)	145 (129-159)	179 (155-227)	762
	03-04	52.5 (49.0-56.3)	59.6 (55.5-65.1)	87.3 (84.5-91.4)	118 (105-125)	143 (130-156)	725
	05-06	59.1 (53.7-65.1)	63.8 (57.9-69.4)	96.6 (86.3-103)	136 (127-147)	173 (148-202)	701
	07-08	64.1 (58.6-70.2)	68.6 (63.7-80.2)	107 (97.2-118)	149 (125-167)	174 (151-196)	376
	09-10	52.4 (47.5-57.7)	58.5 (51.4-65.6)	96.2 (85.0-104)	148 (120-170)	178 (151-201)	451
	20 years and older	99-00	41.7 (36.7-47.4)	46.6 (40.5-52.5)	76.7 (73.4-82.2)	126 (114-134)	168 (143-206)
01-02		41.1 (38.3-44.1)	47.6 (43.7-51.2)	79.1 (71.9-83.6)	114 (103-124)	150 (130-166)	1560
03-04		35.9 (34.0-38.0)	40.3 (37.6-42.1)	71.5 (67.3-75.2)	105 (98.6-111)	133 (119-144)	1543
05-06		41.3 (38.7-44.0)	46.0 (41.7-49.6)	75.7 (72.1-80.3)	116 (107-127)	153 (135-171)	1520
07-08		40.8 (38.7-43.0)	44.5 (42.2-47.8)	77.7 (74.1-81.2)	123 (114-135)	152 (145-164)	1857
09-10		39.6 (37.5-41.8)	42.0 (39.8-43.9)	73.5 (69.0-76.8)	107 (100-113)	144 (130-163)	2019
Gender Males		99-00	52.7 (45.7-60.7)	57.5 (48.5-68.4)	93.2 (83.8-106)	150 (128-187)	215 (161-278)
	01-02	51.0 (46.6-55.7)	56.9 (52.0-62.6)	88.5 (81.6-96.5)	130 (120-141)	169 (145-194)	1335
	03-04	45.5 (43.3-47.8)	51.0 (48.1-55.4)	85.8 (82.8-90.7)	119 (112-130)	148 (136-163)	1281
	05-06	50.9 (48.2-53.9)	56.0 (51.0-60.3)	85.7 (80.3-92.8)	130 (122-136)	161 (145-177)	1271
	07-08	50.6 (48.1-53.2)	56.7 (52.4-60.6)	93.6 (88.7-98.7)	148 (137-150)	171 (159-178)	1327
	09-10	46.2 (43.5-49.1)	50.2 (46.4-52.7)	81.8 (77.0-85.9)	127 (113-144)	169 (147-197)	1398
	Females	99-00	40.4 (34.8-46.8)	45.6 (40.4-52.0)	77.3 (71.0-85.7)	119 (105-138)	154 (132-180)
01-02		39.9 (37.2-42.9)	45.8 (42.8-49.3)	78.4 (72.6-82.9)	115 (104-128)	158 (130-177)	1355
03-04		34.9 (32.2-37.7)	37.9 (33.5-41.6)	67.3 (64.6-72.2)	101 (97.3-108)	127 (114-139)	1277
05-06		40.0 (36.4-43.8)	45.6 (40.0-51.0)	75.6 (71.2-82.0)	118 (107-128)	154 (136-179)	1305
07-08		40.5 (38.1-43.0)	43.5 (39.0-48.0)	77.0 (72.0-84.5)	123 (114-134)	152 (142-165)	1300
09-10		39.6 (36.9-42.4)	41.4 (39.0-43.8)	76.8 (70.7-82.0)	114 (106-127)	151 (135-170)	1450

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.8, 0.8, 1.5, 0.92, 0.92, and 0.92 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Molybdenum\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Molybdenum_BiomonitoringSummary.html)

## Urinary Molybdenum (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00	<b>47.0</b> (42.1-52.4)	<b>53.2</b> (49.2-59.0)	<b>80.6</b> (73.7-91.7)	<b>121</b> (103-139)	<b>152</b> (120-217)	780
	01-02	<b>49.3</b> (46.5-52.3)	<b>55.7</b> (50.4-61.0)	<b>86.4</b> (80.8-94.1)	<b>133</b> (113-155)	<b>177</b> (142-207)	683
	03-04	<b>47.0</b> (43.1-51.1)	<b>54.4</b> (48.2-59.9)	<b>82.9</b> (73.2-91.0)	<b>121</b> (106-143)	<b>152</b> (141-169)	618
	05-06	<b>55.1</b> (51.7-58.7)	<b>58.4</b> (54.1-63.6)	<b>98.3</b> (91.5-105)	<b>140</b> (134-150)	<b>177</b> (153-200)	652
	07-08	<b>53.3</b> (47.6-59.6)	<b>57.3</b> (49.6-64.3)	<b>90.4</b> (82.5-97.2)	<b>140</b> (125-156)	<b>176</b> (154-191)	515
	09-10	<b>49.4</b> (45.9-53.2)	<b>51.1</b> (46.4-55.4)	<b>81.4</b> (76.2-85.9)	<b>134</b> (115-149)	<b>180</b> (148-231)	613
Non-Hispanic blacks	99-00	<b>57.7</b> (51.0-65.2)	<b>62.2</b> (55.0-71.5)	<b>97.8</b> (85.0-110)	<b>153</b> (126-188)	<b>206</b> (150-274)	546
	01-02	<b>53.2</b> (49.9-56.7)	<b>60.3</b> (55.1-63.8)	<b>90.0</b> (81.0-101)	<b>132</b> (121-147)	<b>166</b> (147-170)	667
	03-04	<b>46.0</b> (41.7-50.8)	<b>46.2</b> (40.9-55.2)	<b>82.3</b> (73.3-91.3)	<b>117</b> (109-129)	<b>156</b> (135-175)	723
	05-06	<b>48.1</b> (44.7-51.8)	<b>52.0</b> (48.3-55.7)	<b>80.0</b> (71.6-89.4)	<b>125</b> (112-133)	<b>160</b> (139-189)	692
	07-08	<b>51.9</b> (45.6-59.1)	<b>56.9</b> (47.5-65.8)	<b>90.3</b> (83.0-102)	<b>137</b> (118-158)	<b>168</b> (147-180)	589
	09-10	<b>45.8</b> (41.4-50.8)	<b>52.1</b> (47.9-55.6)	<b>85.6</b> (77.7-94.0)	<b>132</b> (107-166)	<b>184</b> (152-216)	544
Non-Hispanic whites	99-00	<b>44.5</b> (37.0-53.4)	<b>48.5</b> (41.1-59.8)	<b>85.0</b> (76.7-96.5)	<b>135</b> (119-154)	<b>187</b> (146-223)	760
	01-02	<b>42.2</b> (38.5-46.2)	<b>48.9</b> (44.2-53.2)	<b>80.7</b> (71.9-85.8)	<b>117</b> (108-129)	<b>152</b> (134-180)	1132
	03-04	<b>37.1</b> (34.7-39.6)	<b>41.3</b> (38.1-44.5)	<b>75.2</b> (69.2-79.6)	<b>107</b> (99.3-115)	<b>130</b> (119-142)	1074
	05-06	<b>42.8</b> (39.7-46.1)	<b>48.6</b> (42.3-53.4)	<b>79.0</b> (73.5-84.0)	<b>123</b> (108-132)	<b>156</b> (136-178)	1041
	07-08	<b>41.7</b> (39.2-44.5)	<b>46.5</b> (42.9-49.8)	<b>81.2</b> (76.6-86.6)	<b>131</b> (119-142)	<b>153</b> (149-164)	1095
	09-10	<b>40.6</b> (38.1-43.1)	<b>42.6</b> (39.6-45.3)	<b>75.9</b> (70.6-81.0)	<b>114</b> (104-123)	<b>148</b> (134-166)	1225

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.8, 0.8, 1.5, 0.92, 0.92, and 0.92 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Molybdenum\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Molybdenum_BiomonitoringSummary.html)



## Urinary Molybdenum (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>37.1</b> (35.1-39.1)	<b>40.0</b> (37.6-42.2)	<b>69.1</b> (64.9-74.8)	<b>111</b> (102-123)	<b>146</b> (140-160)	2504
	13-14	<b>33.9</b> (31.6-36.4)	<b>36.0</b> (32.1-40.3)	<b>68.0</b> (63.2-72.9)	<b>105</b> (98.7-112)	<b>139</b> (128-156)	2664
<b>Age group</b>							
6-11 years	11-12	<b>58.4</b> (51.5-66.2)	<b>65.1</b> (52.8-74.5)	<b>116</b> (95.6-129)	<b>168</b> (145-199)	<b>211</b> (187-283)	399
	13-14	<b>51.7</b> (47.1-56.6)	<b>54.7</b> (49.3-61.9)	<b>98.2</b> (82.2-105)	<b>144</b> (130-164)	<b>182</b> (159-210)	402
12-19 years	11-12	<b>46.4</b> (40.2-53.7)	<b>51.0</b> (44.2-61.8)	<b>83.6</b> (70.1-97.7)	<b>141</b> (106-153)	<b>163</b> (145-173)	390
	13-14	<b>48.2</b> (41.5-55.8)	<b>55.9</b> (49.0-64.8)	<b>89.3</b> (80.1-97.2)	<b>128</b> (105-150)	<b>156</b> (136-180)	451
20 years and older	11-12	<b>34.1</b> (31.8-36.5)	<b>37.3</b> (33.6-39.8)	<b>63.6</b> (59.2-69.2)	<b>101</b> (92.9-109)	<b>136</b> (120-146)	1715
	13-14	<b>30.8</b> (28.5-33.3)	<b>32.7</b> (28.3-36.0)	<b>61.6</b> (55.9-67.4)	<b>95.4</b> (89.3-99.4)	<b>129</b> (116-137)	1811
<b>Gender</b>							
Males	11-12	<b>42.5</b> (38.6-46.9)	<b>45.9</b> (39.7-52.6)	<b>77.1</b> (71.2-84.0)	<b>122</b> (105-135)	<b>146</b> (136-173)	1262
	13-14	<b>37.9</b> (35.2-40.9)	<b>41.3</b> (38.0-45.9)	<b>73.9</b> (68.4-79.2)	<b>113</b> (104-127)	<b>152</b> (134-173)	1318
Females	11-12	<b>32.5</b> (30.0-35.2)	<b>33.7</b> (30.5-38.7)	<b>61.5</b> (57.7-66.9)	<b>102</b> (92.9-117)	<b>148</b> (121-170)	1242
	13-14	<b>30.4</b> (28.2-32.8)	<b>31.7</b> (26.8-36.0)	<b>62.6</b> (56.0-67.2)	<b>96.3</b> (87.1-105)	<b>129</b> (115-142)	1346
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>44.1</b> (39.8-49.0)	<b>49.4</b> (41.6-52.9)	<b>78.8</b> (72.1-87.0)	<b>117</b> (102-146)	<b>167</b> (136-214)	317
	13-14	<b>40.9</b> (34.4-48.7)	<b>43.7</b> (34.8-55.7)	<b>79.3</b> (64.6-90.8)	<b>119</b> (96.6-149)	<b>161</b> (133-205)	453
Non-Hispanic blacks	11-12	<b>44.4</b> (41.3-47.7)	<b>48.6</b> (44.6-51.8)	<b>78.5</b> (70.8-89.4)	<b>125</b> (110-139)	<b>158</b> (138-177)	669
	13-14	<b>43.8</b> (39.0-49.2)	<b>49.3</b> (40.6-55.9)	<b>79.6</b> (70.0-89.3)	<b>116</b> (105-132)	<b>150</b> (124-182)	581
Non-Hispanic whites	11-12	<b>33.8</b> (31.4-36.4)	<b>36.9</b> (32.0-40.2)	<b>64.4</b> (59.4-69.4)	<b>103</b> (94.2-117)	<b>141</b> (125-146)	820
	13-14	<b>30.5</b> (27.5-33.8)	<b>32.1</b> (26.5-37.4)	<b>63.0</b> (54.7-68.4)	<b>96.7</b> (88.9-105)	<b>129</b> (113-143)	985
All Hispanics	11-12	<b>43.3</b> (38.9-48.2)	<b>47.6</b> (40.2-53.7)	<b>81.4</b> (70.5-90.3)	<b>123</b> (113-141)	<b>167</b> (145-184)	573
	13-14	<b>39.8</b> (34.7-45.7)	<b>42.5</b> (34.3-52.5)	<b>78.2</b> (68.4-86.4)	<b>115</b> (98.0-134)	<b>150</b> (134-183)	701
Asians	11-12	<b>44.2</b> (38.8-50.4)	<b>49.7</b> (44.0-55.2)	<b>83.0</b> (72.0-95.9)	<b>124</b> (106-157)	<b>166</b> (126-227)	353
	13-14	<b>36.0</b> (31.3-41.4)	<b>34.9</b> (31.2-40.5)	<b>70.0</b> (56.1-77.6)	<b>127</b> (99.4-166)	<b>196</b> (133-259)	292

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.99 and 0.8.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Molybdenum\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Molybdenum_BiomonitoringSummary.html)

## Urinary Molybdenum (creatinine corrected) (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	<b>43.2</b> (40.0-46.6)	<b>41.6</b> (38.5-45.2)	<b>63.5</b> (59.3-68.8)	<b>108</b> (97.3-115)	<b>144</b> (125-171)	2257
	01-02	<b>42.5</b> (39.9-45.2)	<b>42.2</b> (40.1-45.2)	<b>62.0</b> (58.4-66.4)	<b>98.8</b> (90.1-109)	<b>130</b> (120-149)	2689
	03-04	<b>39.4</b> (37.6-41.3)	<b>39.2</b> (37.9-40.7)	<b>58.3</b> (55.6-61.5)	<b>89.0</b> (80.5-99.0)	<b>120</b> (107-135)	2558
	05-06	<b>44.3</b> (42.4-46.3)	<b>43.9</b> (41.8-45.7)	<b>65.9</b> (61.8-68.6)	<b>97.3</b> (92.5-103)	<b>132</b> (125-143)	2576
	07-08	<b>47.1</b> (45.8-48.4)	<b>46.3</b> (44.8-47.7)	<b>72.4</b> (68.7-74.3)	<b>104</b> (96.7-111)	<b>137</b> (127-152)	2627
	09-10	<b>45.5</b> (43.2-47.8)	<b>44.4</b> (41.9-47.4)	<b>67.2</b> (64.7-69.4)	<b>105</b> (95.4-121)	<b>143</b> (129-157)	2848
	Age group 6-11 years	99-00	<b>85.9</b> (73.7-100)	<b>79.3</b> (71.6-88.4)	<b>122</b> (107-133)	<b>173</b> (130-243)	<b>214</b> (154-1040)
01-02		<b>77.2</b> (73.1-81.5)	<b>77.6</b> (71.8-84.5)	<b>109</b> (99.4-120)	<b>159</b> (129-170)	<b>185</b> (165-219)	368
03-04		<b>72.5</b> (65.2-80.7)	<b>73.5</b> (65.1-79.9)	<b>101</b> (84.9-117)	<b>132</b> (107-158)	<b>160</b> (129-257)	290
05-06		<b>81.0</b> (71.9-91.3)	<b>78.6</b> (72.1-89.0)	<b>112</b> (93.7-134)	<b>161</b> (133-199)	<b>201</b> (160-261)	355
07-08		<b>90.4</b> (81.8-99.8)	<b>88.2</b> (79.2-101)	<b>133</b> (113-147)	<b>206</b> (159-259)	<b>274</b> (224-354)	394
09-10		<b>88.6</b> (81.9-95.9)	<b>89.0</b> (79.2-95.4)	<b>131</b> (123-148)	<b>174</b> (154-191)	<b>195</b> (178-216)	378
12-19 years		99-00	<b>41.9</b> (39.3-44.6)	<b>40.5</b> (37.7-44.4)	<b>57.3</b> (51.5-62.5)	<b>85.4</b> (67.4-107)	<b>112</b> (78.4-185)
	01-02	<b>43.4</b> (40.8-46.1)	<b>44.1</b> (40.8-47.2)	<b>60.8</b> (57.6-63.7)	<b>85.5</b> (79.7-93.8)	<b>106</b> (94.8-118)	762
	03-04	<b>37.5</b> (35.4-39.8)	<b>38.9</b> (36.9-41.8)	<b>53.2</b> (50.3-56.1)	<b>71.9</b> (64.6-76.9)	<b>81.0</b> (74.3-102)	725
	05-06	<b>45.5</b> (42.5-48.7)	<b>45.7</b> (41.3-49.2)	<b>64.6</b> (58.5-71.2)	<b>91.4</b> (75.3-102)	<b>109</b> (95.0-131)	701
	07-08	<b>50.1</b> (47.2-53.2)	<b>50.1</b> (44.2-53.4)	<b>71.6</b> (64.0-79.6)	<b>95.8</b> (85.1-107)	<b>129</b> (99.5-138)	376
	09-10	<b>49.0</b> (45.3-53.0)	<b>50.7</b> (44.6-56.2)	<b>67.6</b> (63.0-73.1)	<b>93.6</b> (85.8-101)	<b>126</b> (96.4-134)	451
	20 years and older	99-00	<b>39.6</b> (36.9-42.6)	<b>38.5</b> (36.1-41.0)	<b>56.4</b> (53.5-60.7)	<b>92.5</b> (83.1-100)	<b>122</b> (116-147)
01-02		<b>39.3</b> (36.8-42.0)	<b>39.6</b> (36.4-42.1)	<b>57.2</b> (52.9-61.0)	<b>86.7</b> (75.2-96.8)	<b>123</b> (109-139)	1559
03-04		<b>36.9</b> (35.0-38.9)	<b>37.0</b> (35.7-38.4)	<b>53.5</b> (50.0-56.9)	<b>79.8</b> (75.9-87.5)	<b>118</b> (101-134)	1543
05-06		<b>41.2</b> (39.3-43.1)	<b>40.5</b> (38.8-42.7)	<b>59.1</b> (55.6-62.8)	<b>87.9</b> (79.7-96.9)	<b>119</b> (103-132)	1520
07-08		<b>43.5</b> (42.1-44.9)	<b>42.9</b> (41.3-44.7)	<b>64.9</b> (61.7-69.9)	<b>94.7</b> (90.8-97.1)	<b>122</b> (110-132)	1857
09-10		<b>41.9</b> (40.0-43.9)	<b>41.2</b> (39.4-43.0)	<b>61.9</b> (59.0-64.0)	<b>90.4</b> (84.3-98.5)	<b>127</b> (115-141)	2019
Gender							
Males	99-00	<b>40.8</b> (37.5-44.3)	<b>38.5</b> (37.2-40.4)	<b>62.4</b> (55.9-68.4)	<b>101</b> (83.9-118)	<b>131</b> (112-179)	1121
	01-02	<b>40.3</b> (37.1-43.8)	<b>40.2</b> (36.3-43.3)	<b>60.5</b> (54.8-66.3)	<b>91.3</b> (83.4-106)	<b>123</b> (107-155)	1334
	03-04	<b>38.3</b> (36.1-40.7)	<b>37.8</b> (36.1-39.3)	<b>56.3</b> (53.3-59.3)	<b>85.7</b> (77.2-96.7)	<b>118</b> (100-139)	1281
	05-06	<b>41.8</b> (39.5-44.2)	<b>41.7</b> (39.2-44.1)	<b>62.1</b> (58.1-67.4)	<b>94.6</b> (84.2-101)	<b>126</b> (112-132)	1271
	07-08	<b>45.3</b> (43.8-46.8)	<b>44.6</b> (42.9-46.7)	<b>72.3</b> (65.4-74.8)	<b>105</b> (96.0-118)	<b>135</b> (126-152)	1327
	09-10	<b>42.1</b> (39.6-44.9)	<b>41.3</b> (38.7-44.2)	<b>63.4</b> (59.4-67.4)	<b>101</b> (88.3-121)	<b>139</b> (123-151)	1398
	Females	99-00	<b>45.5</b> (41.5-50.0)	<b>44.1</b> (39.5-48.8)	<b>64.4</b> (59.5-70.5)	<b>112</b> (95.2-121)	<b>152</b> (122-181)
01-02		<b>44.6</b> (42.2-47.1)	<b>45.1</b> (42.2-46.9)	<b>63.6</b> (59.5-69.4)	<b>107</b> (92.5-119)	<b>136</b> (117-169)	1355
03-04		<b>40.5</b> (38.1-43.0)	<b>41.1</b> (38.7-43.7)	<b>61.4</b> (56.8-65.1)	<b>90.1</b> (82.2-103)	<b>122</b> (115-142)	1277
05-06		<b>46.9</b> (44.7-49.2)	<b>46.5</b> (43.9-48.8)	<b>67.2</b> (63.3-71.7)	<b>103</b> (93.6-110)	<b>157</b> (126-173)	1305
07-08		<b>48.9</b> (47.2-50.7)	<b>48.3</b> (45.7-51.0)	<b>72.6</b> (69.2-74.4)	<b>103</b> (93.6-116)	<b>139</b> (113-177)	1300
09-10		<b>48.9</b> (46.4-51.5)	<b>48.8</b> (45.8-51.5)	<b>70.1</b> (67.2-73.9)	<b>109</b> (97.1-125)	<b>148</b> (137-162)	1450

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Molybdenum\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Molybdenum_BiomonitoringSummary.html)

## Urinary Molybdenum (creatinine corrected) (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Race/ethnicity</b>							
Mexican Americans	99-00	<b>42.9</b> (40.6-45.4)	<b>43.2</b> (40.9-45.6)	<b>61.6</b> (57.2-65.5)	<b>89.5</b> (80.0-103)	<b>115</b> (93.7-137)	780
	01-02	<b>48.1</b> (44.3-52.2)	<b>48.4</b> (44.8-52.3)	<b>71.7</b> (66.4-76.0)	<b>103</b> (90.0-120)	<b>129</b> (109-155)	682
	03-04	<b>43.5</b> (40.5-46.8)	<b>43.5</b> (41.0-46.2)	<b>62.8</b> (56.8-67.2)	<b>85.9</b> (79.5-97.0)	<b>112</b> (97.0-133)	618
	05-06	<b>51.8</b> (49.9-53.8)	<b>52.1</b> (49.7-54.7)	<b>73.5</b> (69.5-77.4)	<b>106</b> (99.5-111)	<b>133</b> (112-151)	652
	07-08	<b>53.3</b> (50.2-56.5)	<b>51.9</b> (47.1-55.3)	<b>77.9</b> (70.6-82.1)	<b>113</b> (103-129)	<b>151</b> (132-185)	515
	09-10	<b>51.8</b> (48.9-54.9)	<b>51.4</b> (48.3-54.8)	<b>74.0</b> (68.7-78.8)	<b>109</b> (92.7-125)	<b>148</b> (125-173)	613
Non-Hispanic blacks	99-00	<b>37.2</b> (33.4-41.6)	<b>37.1</b> (33.0-41.2)	<b>55.9</b> (49.6-63.3)	<b>88.2</b> (69.1-112)	<b>119</b> (88.3-141)	546
	01-02	<b>36.5</b> (34.1-39.0)	<b>37.5</b> (35.1-38.9)	<b>57.1</b> (49.7-62.4)	<b>78.3</b> (71.5-92.0)	<b>109</b> (81.1-127)	667
	03-04	<b>33.1</b> (30.5-35.9)	<b>31.7</b> (30.1-34.7)	<b>47.2</b> (43.7-52.1)	<b>72.9</b> (64.6-78.4)	<b>90.5</b> (78.4-118)	723
	05-06	<b>34.9</b> (33.1-36.8)	<b>35.4</b> (32.7-38.1)	<b>53.5</b> (49.7-55.8)	<b>81.1</b> (75.4-89.4)	<b>102</b> (89.4-119)	692
	07-08	<b>38.0</b> (34.8-41.4)	<b>38.7</b> (34.2-43.0)	<b>57.0</b> (52.7-60.2)	<b>82.0</b> (73.2-92.4)	<b>105</b> (92.0-118)	589
	09-10	<b>36.3</b> (32.9-40.1)	<b>37.2</b> (35.1-39.5)	<b>54.7</b> (50.3-60.4)	<b>85.2</b> (68.6-110)	<b>121</b> (97.1-155)	544
Non-Hispanic whites	99-00	<b>44.5</b> (40.2-49.2)	<b>42.1</b> (38.8-47.3)	<b>65.3</b> (58.9-71.3)	<b>116</b> (101-126)	<b>172</b> (131-195)	760
	01-02	<b>42.5</b> (39.3-46.0)	<b>41.9</b> (39.3-45.6)	<b>61.2</b> (57.1-67.2)	<b>104</b> (88.7-120)	<b>138</b> (120-163)	1132
	03-04	<b>39.1</b> (37.2-41.1)	<b>39.3</b> (37.7-40.8)	<b>58.1</b> (54.6-61.4)	<b>87.4</b> (78.9-96.7)	<b>118</b> (106-134)	1074
	05-06	<b>44.5</b> (42.4-46.6)	<b>43.9</b> (41.7-45.7)	<b>65.0</b> (59.9-68.5)	<b>97.3</b> (90.7-105)	<b>132</b> (119-152)	1041
	07-08	<b>46.7</b> (45.0-48.6)	<b>46.1</b> (43.6-48.4)	<b>72.4</b> (65.8-75.1)	<b>103</b> (95.7-113)	<b>135</b> (120-152)	1095
	09-10	<b>45.3</b> (42.4-48.5)	<b>44.2</b> (41.5-48.4)	<b>66.6</b> (63.1-69.3)	<b>101</b> (88.4-124)	<b>141</b> (121-159)	1225

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Molybdenum\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Molybdenum_BiomonitoringSummary.html)

## Urinary Molybdenum (creatinine corrected) (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>42.0</b> (40.4-43.6)	<b>41.0</b> (38.6-44.4)	<b>62.9</b> (61.2-65.5)	<b>95.1</b> (90.9-101)	<b>130</b> (118-148)	2502
	13-14	<b>39.1</b> (37.3-41.1)	<b>39.4</b> (37.5-41.0)	<b>59.3</b> (57.1-62.2)	<b>86.9</b> (83.7-92.5)	<b>117</b> (108-125)	2663
<b>Age group</b>							
6-11 years	11-12	<b>83.5</b> (76.1-91.6)	<b>81.7</b> (74.3-91.2)	<b>120</b> (110-129)	<b>178</b> (146-240)	<b>259</b> (185-300)	398
	13-14	<b>77.0</b> (73.5-80.8)	<b>73.5</b> (70.0-81.4)	<b>106</b> (98.4-117)	<b>153</b> (129-172)	<b>184</b> (164-225)	402
12-19 years	11-12	<b>44.4</b> (40.8-48.4)	<b>43.7</b> (39.1-48.0)	<b>62.0</b> (57.8-65.9)	<b>90.4</b> (76.5-94.8)	<b>109</b> (92.4-131)	390
	13-14	<b>43.6</b> (40.3-47.2)	<b>44.0</b> (39.1-47.3)	<b>63.2</b> (59.9-70.8)	<b>90.2</b> (74.7-107)	<b>113</b> (95.9-140)	451
20 years and older	11-12	<b>38.6</b> (37.1-40.2)	<b>38.5</b> (36.1-41.0)	<b>57.9</b> (53.9-61.2)	<b>85.0</b> (79.5-89.3)	<b>112</b> (102-123)	1714
	13-14	<b>35.9</b> (33.7-38.2)	<b>36.9</b> (35.1-38.4)	<b>53.4</b> (50.4-57.1)	<b>79.7</b> (73.4-83.7)	<b>97.8</b> (88.5-111)	1810
<b>Gender</b>							
Males	11-12	<b>39.8</b> (37.5-42.2)	<b>40.0</b> (36.0-43.6)	<b>59.5</b> (56.1-62.9)	<b>88.2</b> (84.7-96.7)	<b>118</b> (108-131)	1261
	13-14	<b>37.9</b> (35.4-40.6)	<b>38.0</b> (35.7-40.3)	<b>58.7</b> (54.5-62.5)	<b>87.7</b> (82.3-96.4)	<b>119</b> (104-128)	1317
Females	11-12	<b>44.2</b> (41.5-47.0)	<b>43.3</b> (39.2-45.5)	<b>67.1</b> (62.8-69.7)	<b>102</b> (92.4-111)	<b>149</b> (118-157)	1241
	13-14	<b>40.4</b> (38.3-42.6)	<b>40.5</b> (38.4-43.3)	<b>60.6</b> (57.1-64.6)	<b>86.8</b> (82.1-94.4)	<b>116</b> (104-125)	1346
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>49.6</b> (43.1-57.1)	<b>48.9</b> (43.0-56.0)	<b>72.8</b> (63.6-85.3)	<b>114</b> (85.7-149)	<b>164</b> (114-224)	317
	13-14	<b>46.7</b> (41.1-53.1)	<b>45.7</b> (39.0-52.4)	<b>66.9</b> (60.3-73.0)	<b>103</b> (83.6-123)	<b>136</b> (111-205)	453
Non-Hispanic blacks	11-12	<b>34.5</b> (32.1-37.1)	<b>34.0</b> (32.0-36.1)	<b>52.4</b> (48.0-58.3)	<b>80.7</b> (70.7-91.7)	<b>104</b> (87.4-120)	669
	13-14	<b>33.4</b> (32.1-34.7)	<b>33.7</b> (31.4-36.6)	<b>50.1</b> (46.7-52.9)	<b>74.1</b> (64.2-81.3)	<b>89.1</b> (80.9-110)	581
Non-Hispanic whites	11-12	<b>40.8</b> (38.4-43.4)	<b>40.0</b> (37.0-44.6)	<b>61.3</b> (57.2-64.6)	<b>91.6</b> (84.9-101)	<b>118</b> (109-148)	818
	13-14	<b>37.5</b> (35.0-40.2)	<b>38.2</b> (36.1-40.7)	<b>58.2</b> (53.4-62.8)	<b>84.9</b> (79.7-91.9)	<b>108</b> (97.2-119)	984
All Hispanics	11-12	<b>48.5</b> (44.5-52.8)	<b>48.7</b> (44.4-51.9)	<b>71.5</b> (65.5-76.8)	<b>105</b> (90.4-122)	<b>146</b> (112-181)	573
	13-14	<b>44.4</b> (40.7-48.6)	<b>44.1</b> (38.8-48.1)	<b>64.6</b> (60.3-69.7)	<b>98.0</b> (85.4-108)	<b>128</b> (112-160)	701
Asians	11-12	<b>59.1</b> (54.2-64.5)	<b>59.5</b> (51.6-65.2)	<b>91.5</b> (81.6-102)	<b>158</b> (137-174)	<b>202</b> (163-248)	353
	13-14	<b>56.4</b> (50.3-63.2)	<b>51.8</b> (46.6-56.8)	<b>85.1</b> (69.2-109)	<b>165</b> (122-184)	<b>197</b> (166-292)	292

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Molybdenum\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Molybdenum_BiomonitoringSummary.html)

## Urinary Platinum (1999 – 2010) ‡

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	< LOD	< LOD	< LOD	2465
	01-02	*	< LOD	< LOD	< LOD	< LOD	2690
	03-04	*	< LOD	< LOD	< LOD	< LOD	2558
	05-06	*	< LOD	< LOD	< LOD	.009 (<LOD-.012)	2576
	07-08	*	< LOD	< LOD	< LOD	< LOD	2627
	09-10	*	< LOD	< LOD	< LOD	.009 (<LOD-.015)	2847
Age group 6-11 years	99-00	*	< LOD	< LOD	< LOD	< LOD	340
	01-02	*	< LOD	< LOD	< LOD	< LOD	368
	03-04	*	< LOD	< LOD	< LOD	< LOD	290
	05-06	*	< LOD	< LOD	< LOD	.010 (<LOD-.011)	355
	07-08	*	< LOD	< LOD	< LOD	.009 (<LOD-.011)	394
	09-10	*	< LOD	< LOD	< LOD	.010 (<LOD-.014)	378
12-19 years	99-00	*	< LOD	< LOD	< LOD	< LOD	719
	01-02	*	< LOD	< LOD	< LOD	< LOD	762
	03-04	*	< LOD	< LOD	< LOD	< LOD	725
	05-06	*	< LOD	< LOD	< LOD	.012 (.009-.019)	701
	07-08	*	< LOD	< LOD	< LOD	.009 (<LOD-.017)	376
	09-10	*	< LOD	< LOD	< LOD	.010 (<LOD-.019)	451
20 years and older	99-00	*	< LOD	< LOD	< LOD	< LOD	1406
	01-02	*	< LOD	< LOD	< LOD	< LOD	1560
	03-04	*	< LOD	< LOD	< LOD	< LOD	1543
	05-06	*	< LOD	< LOD	< LOD	.009 (<LOD-.014)	1520
	07-08	*	< LOD	< LOD	< LOD	< LOD	1857
	09-10	*	< LOD	< LOD	< LOD	.009 (<LOD-.016)	2018
Gender Males	99-00	*	< LOD	< LOD	< LOD	< LOD	1227
	01-02	*	< LOD	< LOD	< LOD	< LOD	1335
	03-04	*	< LOD	< LOD	< LOD	< LOD	1281
	05-06	*	< LOD	< LOD	< LOD	.009 (<LOD-.012)	1271
	07-08	*	< LOD	< LOD	< LOD	< LOD	1327
	09-10	*	< LOD	< LOD	< LOD	.009 (<LOD-.015)	1397
Females	99-00	*	< LOD	< LOD	< LOD	< LOD	1238
	01-02	*	< LOD	< LOD	< LOD	< LOD	1355
	03-04	*	< LOD	< LOD	< LOD	< LOD	1277
	05-06	*	< LOD	< LOD	< LOD	.010 (<LOD-.014)	1305
	07-08	*	< LOD	< LOD	< LOD	.009 (<LOD-.009)	1300
	09-10	*	< LOD	< LOD	< LOD	.010 (<LOD-.015)	1450

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.04, 0.04, 0.07, 0.009, 0.009, and 0.009 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Not measured after Survey years 2009-2010

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Platinum\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Platinum_BiomonitoringSummary.html)

## Urinary Platinum (1999 – 2010) ‡

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b> Mexican Americans	99-00	*	< LOD	< LOD	< LOD	< LOD	884
	01-02	*	< LOD	< LOD	< LOD	< LOD	683
	03-04	*	< LOD	< LOD	< LOD	< LOD	618
	05-06	*	< LOD	< LOD	< LOD	< LOD	652
	07-08	*	< LOD	< LOD	< LOD	.010 (<LOD-.014) .014 (.009-.023)	515
	09-10	*	< LOD	< LOD	< LOD	< LOD	.010 (.009-.012) 613
Non-Hispanic blacks	99-00	*	< LOD	< LOD	< LOD	< LOD	568
	01-02	*	< LOD	< LOD	< LOD	< LOD	667
	03-04	*	< LOD	< LOD	< LOD	< LOD	723
	05-06	*	< LOD	< LOD	< LOD	< LOD	.011 (.009-.016) 692
	07-08	*	< LOD	< LOD	< LOD	< LOD	.009 (<LOD-.013) 589
	09-10	*	< LOD	< LOD	< LOD	.012 (<LOD-.032) .024 (.009-.103)	544
Non-Hispanic whites	99-00	*	< LOD	< LOD	< LOD	< LOD	822
	01-02	*	< LOD	< LOD	< LOD	< LOD	1132
	03-04	*	< LOD	< LOD	< LOD	< LOD	1074
	05-06	*	< LOD	< LOD	< LOD	.009 (<LOD-.012) .013 (.009-.026)	1041
	07-08	*	< LOD	< LOD	< LOD	< LOD	.009 (<LOD-.009) 1095
	09-10	*	< LOD	< LOD	< LOD	.009 (<LOD-.019) .018 (<LOD-.073)	1224

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.04, 0.04, 0.07, 0.009, 0.009, and 0.009 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Not measured after Survey years 2009-2010

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Platinum\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Platinum_BiomonitoringSummary.html)

## Urinary Platinum (creatinine corrected) (1999 – 2010) ‡

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	< LOD	< LOD	< LOD	2465
	01-02	*	< LOD	< LOD	< LOD	< LOD	2689
	03-04	*	< LOD	< LOD	< LOD	< LOD	2558
	05-06	*	< LOD	< LOD	< LOD	.021 (<LOD-.023)	2576
	07-08	*	< LOD	< LOD	< LOD	< LOD	2627
	09-10	*	< LOD	< LOD	< LOD	.023 (<LOD-.027)	2847
Age group 6-11 years	99-00	*	< LOD	< LOD	< LOD	< LOD	340
	01-02	*	< LOD	< LOD	< LOD	< LOD	368
	03-04	*	< LOD	< LOD	< LOD	< LOD	290
	05-06	*	< LOD	< LOD	< LOD	.020 (<LOD-.027)	355
	07-08	*	< LOD	< LOD	< LOD	.026 (<LOD-.032)	394
	09-10	*	< LOD	< LOD	< LOD	.026 (<LOD-.030)	378
12-19 years	99-00	*	< LOD	< LOD	< LOD	< LOD	719
	01-02	*	< LOD	< LOD	< LOD	< LOD	762
	03-04	*	< LOD	< LOD	< LOD	< LOD	725
	05-06	*	< LOD	< LOD	< LOD	.017 (.012-.026)	701
	07-08	*	< LOD	< LOD	< LOD	.017 (<LOD-.025)	376
	09-10	*	< LOD	< LOD	< LOD	.021 (<LOD-.029)	451
20 years and older	99-00	*	< LOD	< LOD	< LOD	< LOD	1406
	01-02	*	< LOD	< LOD	< LOD	< LOD	1559
	03-04	*	< LOD	< LOD	< LOD	< LOD	1543
	05-06	*	< LOD	< LOD	< LOD	.022 (<LOD-.025)	1520
	07-08	*	< LOD	< LOD	< LOD	< LOD	1857
	09-10	*	< LOD	< LOD	< LOD	.023 (<LOD-.030)	2018
Gender Males	99-00	*	< LOD	< LOD	< LOD	< LOD	1227
	01-02	*	< LOD	< LOD	< LOD	< LOD	1334
	03-04	*	< LOD	< LOD	< LOD	< LOD	1281
	05-06	*	< LOD	< LOD	< LOD	.014 (<LOD-.016)	1271
	07-08	*	< LOD	< LOD	< LOD	< LOD	1327
	09-10	*	< LOD	< LOD	< LOD	.019 (<LOD-.025)	1397
Females	99-00	*	< LOD	< LOD	< LOD	< LOD	1238
	01-02	*	< LOD	< LOD	< LOD	< LOD	1355
	03-04	*	< LOD	< LOD	< LOD	< LOD	1277
	05-06	*	< LOD	< LOD	< LOD	.026 (<LOD-.030)	1305
	07-08	*	< LOD	< LOD	< LOD	.033 (<LOD-.043)	1300
	09-10	*	< LOD	< LOD	< LOD	.027 (<LOD-.032)	1450

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Not measured after Survey years 2009-2010

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Platinum\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Platinum_BiomonitoringSummary.html)



## Urinary Platinum (creatinine corrected) (1999 – 2010) ‡

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b> Mexican Americans	99-00	*	< LOD	< LOD	< LOD	< LOD	884
	01-02	*	< LOD	< LOD	< LOD	< LOD	682
	03-04	*	< LOD	< LOD	< LOD	< LOD	618
	05-06	*	< LOD	< LOD	< LOD	.016 (<LOD-.019)	652
	07-08	*	< LOD	< LOD	< LOD	.025 (<LOD-.033)	515
	09-10	*	< LOD	< LOD	< LOD	.025 (.021-.029)	613
Non-Hispanic blacks	99-00	*	< LOD	< LOD	< LOD	< LOD	568
	01-02	*	< LOD	< LOD	< LOD	< LOD	667
	03-04	*	< LOD	< LOD	< LOD	< LOD	723
	05-06	*	< LOD	< LOD	< LOD	.018 (.014-.022)	692
	07-08	*	< LOD	< LOD	< LOD	.017 (<LOD-.021)	589
	09-10	*	< LOD	< LOD	< LOD	.017 (<LOD-.024)	544
Non-Hispanic whites	99-00	*	< LOD	< LOD	< LOD	< LOD	822
	01-02	*	< LOD	< LOD	< LOD	< LOD	1132
	03-04	*	< LOD	< LOD	< LOD	< LOD	1074
	05-06	*	< LOD	< LOD	< LOD	.023 (<LOD-.025)	1041
	07-08	*	< LOD	< LOD	< LOD	.030 (<LOD-.038)	1095
	09-10	*	< LOD	< LOD	< LOD	.025 (<LOD-.032)	1224

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Not measured after Survey years 2009-2010

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Platinum\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Platinum_BiomonitoringSummary.html)

## Blood Selenium (2011 - 2014)

Geometric mean and selected percentiles of blood concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
Total	11-12	<b>190</b> (187-193)	<b>190</b> (187-193)	<b>206</b> (203-210)	<b>223</b> (219-228)	<b>236</b> (231-241)	7920
	13-14	<b>193</b> (191-195)	<b>193</b> (190-195)	<b>208</b> (205-210)	<b>223</b> (220-228)	<b>235</b> (232-239)	5215
<b>Age group</b>							
1-5 years	11-12	<b>167</b> (164-171)	<b>167</b> (163-172)	<b>181</b> (175-187)	<b>196</b> (187-201)	<b>201</b> (197-207)	713
	13-14	<b>168</b> (166-171)	<b>169</b> (166-172)	<b>180</b> (177-183)	<b>192</b> (187-197)	<b>201</b> (196-205)	818
6-11 years	11-12	<b>176</b> (172-180)	<b>177</b> (172-181)	<b>189</b> (185-193)	<b>201</b> (197-206)	<b>208</b> (205-215)	1048
	13-14	<b>180</b> (177-183)	<b>180</b> (176-183)	<b>191</b> (187-195)	<b>204</b> (198-210)	<b>212</b> (205-218)	1075
12-19 years	11-12	<b>189</b> (184-193)	<b>189</b> (182-194)	<b>206</b> (198-211)	<b>220</b> (212-231)	<b>232</b> (221-245)	1129
	13-14	<b>191</b> (188-194)	<b>192</b> (188-194)	<b>204</b> (200-208)	<b>218</b> (212-222)	<b>224</b> (220-231)	627
20 years and older	11-12	<b>193</b> (190-196)	<b>193</b> (190-196)	<b>209</b> (205-213)	<b>227</b> (222-231)	<b>238</b> (233-243)	5030
	13-14	<b>196</b> (194-198)	<b>196</b> (193-198)	<b>210</b> (207-213)	<b>227</b> (222-232)	<b>238</b> (235-242)	2695
<b>Gender</b>							
Males	11-12	<b>192</b> (189-195)	<b>192</b> (188-195)	<b>208</b> (204-213)	<b>227</b> (221-232)	<b>238</b> (232-243)	3968
	13-14	<b>195</b> (192-197)	<b>195</b> (193-197)	<b>209</b> (206-213)	<b>225</b> (220-231)	<b>235</b> (230-242)	2587
Females	11-12	<b>188</b> (185-191)	<b>188</b> (186-191)	<b>204</b> (201-207)	<b>220</b> (218-224)	<b>233</b> (227-240)	3952
	13-14	<b>191</b> (189-193)	<b>190</b> (187-193)	<b>205</b> (202-208)	<b>222</b> (218-225)	<b>235</b> (231-238)	2628
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>189</b> (184-194)	<b>189</b> (183-195)	<b>205</b> (200-209)	<b>220</b> (217-223)	<b>229</b> (224-233)	1077
	13-14	<b>191</b> (188-195)	<b>192</b> (186-197)	<b>206</b> (201-210)	<b>221</b> (214-228)	<b>232</b> (223-234)	969
Non-Hispanic blacks	11-12	<b>184</b> (181-187)	<b>183</b> (180-187)	<b>199</b> (196-202)	<b>216</b> (211-220)	<b>226</b> (220-233)	2195
	13-14	<b>190</b> (187-193)	<b>190</b> (187-193)	<b>204</b> (201-209)	<b>222</b> (219-225)	<b>232</b> (225-238)	1119
Non-Hispanic whites	11-12	<b>192</b> (188-196)	<b>192</b> (188-196)	<b>208</b> (204-213)	<b>227</b> (220-232)	<b>238</b> (231-245)	2493
	13-14	<b>194</b> (191-196)	<b>194</b> (191-196)	<b>208</b> (204-211)	<b>224</b> (219-230)	<b>236</b> (232-240)	1848
All Hispanics	11-12	<b>187</b> (183-191)	<b>188</b> (183-192)	<b>203</b> (198-208)	<b>218</b> (214-222)	<b>228</b> (223-234)	1931
	13-14	<b>191</b> (189-194)	<b>192</b> (187-196)	<b>206</b> (203-209)	<b>222</b> (217-225)	<b>231</b> (227-234)	1481
Asians	11-12	<b>193</b> (189-197)	<b>192</b> (188-196)	<b>210</b> (204-215)	<b>227</b> (223-235)	<b>243</b> (233-253)	1005
	13-14	<b>196</b> (192-201)	<b>194</b> (189-200)	<b>212</b> (206-221)	<b>234</b> (224-245)	<b>251</b> (237-264)	510

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 30.0 and 24.5.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

## Serum Selenium (2011 - 2014)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Total</b>	11-12	<b>127</b> (125-130)	<b>127</b> (124-130)	<b>139</b> (136-142)	<b>151</b> (148-155)	<b>161</b> (156-164)	2329
	13-14	<b>128</b> (126-130)	<b>127</b> (126-130)	<b>139</b> (137-142)	<b>151</b> (149-153)	<b>159</b> (156-161)	2519
<b>Age group</b>							
6-11 years	11-12	<b>117</b> (115-119)	<b>118</b> (115-120)	<b>128</b> (124-130)	<b>133</b> (132-136)	<b>138</b> (135-140)	316
	13-14	<b>118</b> (115-120)	<b>117</b> (114-121)	<b>127</b> (123-131)	<b>135</b> (130-142)	<b>142</b> (136-144)	339
12-19 years	11-12	<b>125</b> (122-128)	<b>124</b> (121-127)	<b>136</b> (130-139)	<b>145</b> (139-153)	<b>154</b> (143-178)	366
	13-14	<b>124</b> (121-127)	<b>123</b> (120-126)	<b>134</b> (128-141)	<b>146</b> (139-151)	<b>151</b> (144-157)	418
20 years and older	11-12	<b>129</b> (126-132)	<b>129</b> (125-132)	<b>141</b> (138-144)	<b>153</b> (149-157)	<b>163</b> (158-166)	1647
	13-14	<b>129</b> (127-131)	<b>129</b> (127-131)	<b>141</b> (138-144)	<b>153</b> (151-154)	<b>161</b> (157-162)	1762
<b>Gender</b>							
Males	11-12	<b>129</b> (127-132)	<b>129</b> (126-132)	<b>142</b> (138-145)	<b>153</b> (147-162)	<b>163</b> (155-167)	1162
	13-14	<b>130</b> (128-132)	<b>130</b> (127-132)	<b>144</b> (141-146)	<b>153</b> (151-156)	<b>161</b> (157-162)	1235
Females	11-12	<b>125</b> (123-128)	<b>125</b> (122-129)	<b>137</b> (134-141)	<b>149</b> (145-154)	<b>158</b> (151-166)	1167
	13-14	<b>125</b> (124-127)	<b>126</b> (123-128)	<b>136</b> (134-139)	<b>147</b> (145-149)	<b>154</b> (152-159)	1284
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>126</b> (124-128)	<b>124</b> (122-127)	<b>137</b> (134-140)	<b>151</b> (142-157)	<b>157</b> (153-163)	285
	13-14	<b>129</b> (125-134)	<b>128</b> (124-135)	<b>140</b> (136-146)	<b>153</b> (147-159)	<b>159</b> (152-165)	431
Non-Hispanic blacks	11-12	<b>122</b> (120-124)	<b>122</b> (119-124)	<b>132</b> (130-134)	<b>143</b> (139-145)	<b>149</b> (145-157)	620
	13-14	<b>124</b> (122-127)	<b>124</b> (122-127)	<b>135</b> (131-138)	<b>147</b> (140-152)	<b>153</b> (150-160)	516
Non-Hispanic whites	11-12	<b>129</b> (126-133)	<b>129</b> (125-133)	<b>142</b> (138-145)	<b>154</b> (149-158)	<b>163</b> (158-167)	780
	13-14	<b>128</b> (125-130)	<b>128</b> (125-130)	<b>140</b> (136-143)	<b>151</b> (148-153)	<b>158</b> (154-161)	975
All Hispanics	11-12	<b>125</b> (123-126)	<b>123</b> (122-125)	<b>135</b> (131-140)	<b>149</b> (144-153)	<b>157</b> (151-163)	525
	13-14	<b>129</b> (126-132)	<b>129</b> (125-134)	<b>141</b> (138-145)	<b>153</b> (148-156)	<b>159</b> (155-163)	666
Asians	11-12	<b>126</b> (123-129)	<b>124</b> (120-128)	<b>137</b> (135-140)	<b>152</b> (143-158)	<b>158</b> (152-171)	323
	13-14	<b>130</b> (126-134)	<b>129</b> (124-133)	<b>142</b> (137-147)	<b>159</b> (151-170)	<b>172</b> (159-182)	267

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 4.5 and 4.5, respectively.

## Urinary Strontium (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
Total	11-12	<b>85.8</b> (80.8-91.1)	<b>90.5</b> (82.6-98.2)	<b>167</b> (156-176)	<b>249</b> (229-269)	<b>321</b> (288-352)	2503
	13-14	<b>81.2</b> (77.6-85.1)	<b>88.1</b> (83.3-92.7)	<b>151</b> (142-157)	<b>231</b> (216-244)	<b>299</b> (267-342)	2664
<b>Age group</b>							
6-11 years	11-12	<b>81.9</b> (69.7-96.2)	<b>91.7</b> (72.8-106)	<b>179</b> (135-226)	<b>285</b> (236-319)	<b>349</b> (265-466)	399
	13-14	<b>66.6</b> (58.6-75.6)	<b>77.8</b> (67.4-89.2)	<b>133</b> (119-150)	<b>195</b> (156-230)	<b>232</b> (198-255)	402
12-19 years	11-12	<b>96.8</b> (82.3-114)	<b>101</b> (86.4-128)	<b>185</b> (160-215)	<b>296</b> (226-348)	<b>350</b> (274-426)	390
	13-14	<b>98.1</b> (85.0-113)	<b>117</b> (96.6-138)	<b>184</b> (173-199)	<b>285</b> (245-311)	<b>369</b> (294-383)	451
20 years and older	11-12	<b>84.6</b> (79.5-90.1)	<b>87.8</b> (79.9-95.5)	<b>160</b> (154-171)	<b>239</b> (222-262)	<b>307</b> (271-346)	1714
	13-14	<b>80.7</b> (76.3-85.3)	<b>86.0</b> (81.3-90.6)	<b>145</b> (134-154)	<b>226</b> (209-244)	<b>298</b> (260-348)	1811
<b>Gender</b>							
Males	11-12	<b>95.8</b> (88.7-103)	<b>102</b> (95.6-114)	<b>172</b> (157-189)	<b>255</b> (215-291)	<b>307</b> (277-358)	1262
	13-14	<b>87.8</b> (82.5-93.4)	<b>94.8</b> (88.0-102)	<b>158</b> (147-176)	<b>235</b> (219-256)	<b>312</b> (273-344)	1318
Females	11-12	<b>77.2</b> (71.5-83.4)	<b>78.3</b> (72.4-85.2)	<b>156</b> (140-173)	<b>243</b> (221-270)	<b>331</b> (276-355)	1241
	13-14	<b>75.4</b> (71.0-80.1)	<b>79.2</b> (75.8-84.5)	<b>141</b> (130-151)	<b>221</b> (190-251)	<b>286</b> (253-368)	1346
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>85.8</b> (76.0-96.8)	<b>89.4</b> (76.1-103)	<b>189</b> (165-200)	<b>258</b> (228-266)	<b>302</b> (260-345)	317
	13-14	<b>93.0</b> (80.8-107)	<b>97.0</b> (83.7-111)	<b>165</b> (144-201)	<b>248</b> (209-328)	<b>339</b> (254-443)	453
Non-Hispanic blacks	11-12	<b>74.9</b> (68.0-82.4)	<b>82.8</b> (75.8-91.3)	<b>143</b> (132-160)	<b>221</b> (194-239)	<b>269</b> (239-298)	669
	13-14	<b>73.8</b> (68.7-79.2)	<b>82.0</b> (77.1-92.4)	<b>132</b> (123-147)	<b>213</b> (178-235)	<b>255</b> (232-292)	581
Non-Hispanic whites	11-12	<b>87.2</b> (80.4-94.6)	<b>91.1</b> (81.0-100)	<b>169</b> (154-180)	<b>256</b> (214-296)	<b>343</b> (278-391)	819
	13-14	<b>79.8</b> (75.0-84.8)	<b>85.6</b> (79.9-92.3)	<b>149</b> (137-157)	<b>223</b> (206-251)	<b>298</b> (254-363)	985
All Hispanics	11-12	<b>85.6</b> (74.8-98.0)	<b>89.4</b> (77.8-108)	<b>170</b> (151-198)	<b>246</b> (221-262)	<b>289</b> (260-325)	573
	13-14	<b>90.3</b> (80.5-101)	<b>97.0</b> (87.0-106)	<b>164</b> (149-189)	<b>246</b> (223-278)	<b>326</b> (255-390)	701
Asians	11-12	<b>97.0</b> (85.7-110)	<b>98.4</b> (84.8-121)	<b>187</b> (161-206)	<b>280</b> (239-303)	<b>343</b> (288-384)	353
	13-14	<b>85.5</b> (72.5-101)	<b>93.0</b> (80.1-105)	<b>159</b> (132-189)	<b>290</b> (189-383)	<b>372</b> (241-534)	292

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 2.5 and 2.34.

## Urinary Strontium (creatinine corrected) (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
Total	11-12	<b>97.2</b> (90.1-105)	<b>99.7</b> (91.4-110)	<b>156</b> (143-174)	<b>240</b> (221-258)	<b>320</b> (287-341)	2501
	13-14	<b>93.9</b> (88.6-99.5)	<b>100</b> (93.2-105)	<b>150</b> (142-158)	<b>225</b> (194-254)	<b>287</b> (255-324)	2663
<b>Age group</b>							
6-11 years	11-12	<b>118</b> (104-133)	<b>124</b> (105-150)	<b>222</b> (185-245)	<b>288</b> (271-338)	<b>354</b> (299-507)	398
	13-14	<b>99.3</b> (84.0-117)	<b>113</b> (87.2-136)	<b>181</b> (151-224)	<b>254</b> (224-303)	<b>303</b> (255-316)	402
12-19 years	11-12	<b>92.6</b> (79.6-108)	<b>95.3</b> (73.9-119)	<b>150</b> (122-172)	<b>221</b> (175-248)	<b>279</b> (228-320)	390
	13-14	<b>88.8</b> (83.7-94.2)	<b>94.9</b> (88.0-104)	<b>141</b> (129-151)	<b>203</b> (181-227)	<b>232</b> (207-270)	451
20 years and older	11-12	<b>95.9</b> (89.0-103)	<b>98.6</b> (91.0-109)	<b>155</b> (140-171)	<b>233</b> (213-255)	<b>315</b> (278-346)	1713
	13-14	<b>94.1</b> (88.5-100)	<b>100</b> (92.4-105)	<b>148</b> (140-157)	<b>223</b> (193-256)	<b>294</b> (255-339)	1810
<b>Gender</b>							
Males	11-12	<b>89.5</b> (82.2-97.5)	<b>91.8</b> (86.2-101)	<b>142</b> (130-159)	<b>210</b> (190-237)	<b>275</b> (239-314)	1261
	13-14	<b>87.9</b> (83.7-92.2)	<b>93.4</b> (87.8-100)	<b>139</b> (130-150)	<b>199</b> (181-228)	<b>253</b> (207-294)	1317
Females	11-12	<b>105</b> (96.6-114)	<b>110</b> (98.5-117)	<b>178</b> (152-203)	<b>261</b> (237-313)	<b>346</b> (315-371)	1240
	13-14	<b>100</b> (92.5-108)	<b>105</b> (95.4-113)	<b>159</b> (150-171)	<b>244</b> (216-288)	<b>325</b> (278-390)	1346
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>96.5</b> (88.0-106)	<b>103</b> (90.3-113)	<b>152</b> (137-181)	<b>233</b> (200-274)	<b>283</b> (258-316)	317
	13-14	<b>106</b> (90.8-124)	<b>106</b> (93.0-125)	<b>173</b> (140-209)	<b>255</b> (198-303)	<b>295</b> (249-402)	453
Non-Hispanic blacks	11-12	<b>58.2</b> (53.8-63.0)	<b>64.7</b> (60.3-68.3)	<b>97.8</b> (89.3-108)	<b>143</b> (130-160)	<b>172</b> (149-216)	669
	13-14	<b>56.1</b> (51.9-60.7)	<b>60.4</b> (55.3-65.1)	<b>91.7</b> (82.6-104)	<b>135</b> (125-160)	<b>187</b> (150-220)	581
Non-Hispanic whites	11-12	<b>105</b> (94.3-118)	<b>109</b> (95.1-118)	<b>168</b> (148-200)	<b>255</b> (235-295)	<b>341</b> (313-367)	817
	13-14	<b>98.5</b> (93.0-104)	<b>104</b> (97.7-110)	<b>150</b> (142-159)	<b>223</b> (193-255)	<b>286</b> (251-314)	984
All Hispanics	11-12	<b>95.8</b> (87.5-105)	<b>102</b> (92.4-112)	<b>150</b> (136-172)	<b>213</b> (195-240)	<b>274</b> (222-315)	573
	13-14	<b>101</b> (86.9-117)	<b>103</b> (89.4-122)	<b>163</b> (136-198)	<b>248</b> (195-291)	<b>293</b> (237-402)	701
Asians	11-12	<b>130</b> (120-141)	<b>132</b> (117-142)	<b>197</b> (179-217)	<b>295</b> (246-336)	<b>405</b> (314-474)	353
	13-14	<b>134</b> (121-148)	<b>141</b> (120-156)	<b>216</b> (182-265)	<b>349</b> (274-395)	<b>431</b> (359-457)	292

## Urinary Thallium (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	.176 (.162-.192)	.200 (.180-.220)	.290 (.270-.330)	.400 (.370-.420)	.450 (.430-.480)	2413
	01-02	.165 (.154-.177)	.190 (.180-.200)	.280 (.260-.290)	.370 (.350-.390)	.440 (.410-.470)	2653
	03-04	.155 (.145-.165)	.170 (.160-.180)	.270 (.250-.290)	.370 (.340-.400)	.440 (.410-.490)	2558
	05-06	.158 (.151-.165)	.180 (.170-.190)	.270 (.260-.280)	.360 (.350-.390)	.430 (.410-.460)	2576
	07-08	.146 (.139-.153)	.160 (.150-.170)	.250 (.230-.260)	.330 (.320-.360)	.400 (.390-.420)	2627
	09-10	.144 (.137-.152)	.160 (.150-.170)	.240 (.230-.250)	.340 (.310-.360)	.410 (.380-.440)	2848
Age group 6-11 years	99-00	.201 (.167-.243)	.210 (.150-.280)	.310 (.250-.350)	.410 (.330-.450)	.450 (.350-.590)	336
	01-02	.172 (.147-.202)	.200 (.160-.220)	.290 (.230-.330)	.350 (.340-.370)	.390 (.360-.430)	362
	03-04	.191 (.170-.215)	.190 (.170-.230)	.300 (.250-.370)	.430 (.360-.500)	.510 (.430-.690)	290
	05-06	.174 (.158-.192)	.190 (.170-.210)	.280 (.250-.300)	.380 (.320-.430)	.430 (.400-.480)	355
	07-08	.166 (.150-.185)	.170 (.150-.200)	.250 (.230-.270)	.350 (.310-.410)	.420 (.360-.470)	394
	09-10	.161 (.147-.176)	.170 (.150-.200)	.280 (.230-.310)	.360 (.330-.410)	.440 (.400-.460)	378
12-19 years	99-00	.202 (.181-.225)	.220 (.200-.240)	.300 (.270-.340)	.410 (.390-.430)	.470 (.430-.510)	697
	01-02	.200 (.182-.220)	.220 (.190-.250)	.310 (.290-.320)	.370 (.350-.420)	.470 (.400-.500)	746
	03-04	.201 (.185-.218)	.220 (.210-.240)	.310 (.290-.320)	.410 (.360-.470)	.500 (.420-.560)	725
	05-06	.182 (.165-.200)	.210 (.190-.230)	.290 (.270-.310)	.370 (.350-.400)	.430 (.390-.480)	701
	07-08	.172 (.155-.190)	.180 (.160-.210)	.270 (.230-.300)	.330 (.310-.350)	.390 (.340-.420)	376
	09-10	.150 (.137-.163)	.160 (.150-.180)	.250 (.240-.270)	.340 (.290-.380)	.400 (.350-.430)	451
20 years and older	99-00	.170 (.157-.183)	.190 (.180-.210)	.290 (.260-.320)	.400 (.370-.420)	.450 (.420-.480)	1380
	01-02	.159 (.147-.173)	.190 (.170-.200)	.270 (.250-.290)	.380 (.350-.400)	.440 (.410-.490)	1545
	03-04	.145 (.134-.156)	.160 (.150-.170)	.250 (.240-.270)	.360 (.330-.390)	.420 (.390-.460)	1543
	05-06	.152 (.144-.161)	.170 (.160-.180)	.260 (.240-.270)	.360 (.340-.390)	.440 (.400-.470)	1520
	07-08	.140 (.133-.148)	.150 (.140-.160)	.240 (.230-.250)	.330 (.310-.360)	.400 (.380-.440)	1857
	09-10	.142 (.133-.150)	.160 (.150-.170)	.240 (.220-.250)	.330 (.310-.360)	.410 (.370-.440)	2019
Gender Males	99-00	.197 (.179-.217)	.220 (.200-.240)	.320 (.280-.350)	.400 (.370-.440)	.450 (.420-.520)	1200
	01-02	.184 (.173-.196)	.210 (.200-.230)	.290 (.280-.300)	.380 (.360-.400)	.430 (.400-.470)	1313
	03-04	.167 (.156-.178)	.190 (.180-.200)	.280 (.260-.300)	.370 (.340-.400)	.430 (.400-.480)	1281
	05-06	.171 (.163-.179)	.190 (.180-.200)	.270 (.260-.280)	.370 (.360-.390)	.430 (.410-.470)	1271
	07-08	.154 (.148-.161)	.170 (.160-.180)	.250 (.240-.270)	.340 (.320-.360)	.390 (.380-.440)	1327
	09-10	.152 (.140-.164)	.170 (.150-.180)	.250 (.240-.270)	.330 (.310-.360)	.410 (.360-.440)	1398
Females	99-00	.159 (.145-.175)	.180 (.150-.200)	.270 (.250-.300)	.390 (.350-.420)	.460 (.410-.490)	1213
	01-02	.149 (.137-.163)	.160 (.150-.180)	.260 (.230-.290)	.370 (.330-.400)	.440 (.400-.500)	1340
	03-04	.144 (.133-.156)	.160 (.140-.170)	.250 (.230-.280)	.370 (.330-.410)	.450 (.410-.510)	1277
	05-06	.146 (.138-.155)	.160 (.150-.180)	.260 (.240-.270)	.360 (.350-.380)	.440 (.400-.460)	1305
	07-08	.139 (.129-.148)	.150 (.130-.160)	.240 (.220-.260)	.330 (.300-.390)	.410 (.380-.430)	1300
	09-10	.137 (.129-.146)	.150 (.140-.160)	.230 (.210-.250)	.340 (.310-.360)	.410 (.380-.450)	1450

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.02, 0.02, 0.02, 0.015, 0.015, and 0.015 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Thallium\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Thallium_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Thallium\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Thallium_FactSheet.html)

## Urinary Thallium (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00	.172 (.150-.196)	.200 (.160-.230)	.270 (.250-.300)	.370 (.320-.420)	.450 (.370-.520)	861
	01-02	.160 (.148-.173)	.180 (.160-.200)	.260 (.240-.270)	.340 (.310-.360)	.400 (.350-.440)	675
	03-04	.171 (.160-.183)	.200 (.170-.220)	.280 (.260-.310)	.360 (.340-.420)	.450 (.390-.480)	618
	05-06	.158 (.149-.167)	.180 (.170-.190)	.250 (.240-.270)	.330 (.300-.360)	.400 (.360-.440)	652
	07-08	.151 (.140-.164)	.170 (.150-.180)	.250 (.220-.270)	.330 (.310-.360)	.380 (.350-.390)	515
	09-10	.147 (.139-.155)	.160 (.150-.180)	.240 (.210-.260)	.310 (.290-.320)	.390 (.320-.430)	613
Non-Hispanic blacks	99-00	.217 (.197-.239)	.230 (.220-.260)	.350 (.300-.390)	.450 (.400-.520)	.550 (.460-.630)	561
	01-02	.202 (.187-.218)	.220 (.200-.230)	.300 (.270-.340)	.410 (.380-.440)	.520 (.440-.590)	657
	03-04	.185 (.167-.206)	.190 (.170-.220)	.290 (.250-.330)	.410 (.330-.490)	.490 (.410-.640)	723
	05-06	.188 (.169-.210)	.210 (.180-.230)	.300 (.270-.320)	.390 (.360-.440)	.500 (.430-.530)	692
	07-08	.171 (.160-.182)	.180 (.170-.190)	.270 (.250-.290)	.350 (.330-.390)	.430 (.390-.460)	589
	09-10	.162 (.148-.177)	.180 (.160-.200)	.270 (.250-.280)	.350 (.330-.400)	.450 (.390-.510)	544
Non-Hispanic whites	99-00	.170 (.153-.188)	.200 (.170-.220)	.290 (.260-.330)	.400 (.360-.420)	.450 (.420-.480)	801
	01-02	.159 (.147-.172)	.180 (.170-.200)	.270 (.250-.290)	.360 (.330-.390)	.430 (.390-.460)	1114
	03-04	.146 (.135-.158)	.160 (.150-.170)	.260 (.240-.280)	.360 (.330-.380)	.410 (.380-.460)	1074
	05-06	.150 (.140-.160)	.170 (.160-.180)	.260 (.240-.270)	.350 (.320-.380)	.420 (.390-.450)	1041
	07-08	.138 (.130-.147)	.150 (.130-.160)	.240 (.220-.260)	.320 (.300-.360)	.390 (.350-.440)	1095
	09-10	.139 (.130-.149)	.150 (.140-.170)	.240 (.210-.250)	.330 (.300-.360)	.400 (.360-.430)	1225

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.02, 0.02, 0.02, 0.015, 0.015, and 0.015 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Thallium\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Thallium_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Thallium\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Thallium_FactSheet.html)



## Urinary Thallium (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	.149 (.138-.160)	.157 (.144-.169)	.255 (.232-.278)	.361 (.334-.377)	.434 (.379-.521)	2504
	13-14	.141 (.132-.150)	.154 (.139-.163)	.248 (.228-.266)	.349 (.338-.370)	.421 (.414-.438)	2664
<b>Age group</b>							
6-11 years	11-12	.157 (.143-.172)	.157 (.136-.195)	.272 (.232-.308)	.365 (.330-.474)	.509 (.372-.629)	399
	13-14	.149 (.131-.170)	.163 (.146-.173)	.259 (.221-.282)	.364 (.331-.400)	.438 (.367-.577)	402
12-19 years	11-12	.155 (.131-.184)	.169 (.141-.196)	.288 (.240-.301)	.376 (.320-.403)	.447 (.387-.545)	390
	13-14	.160 (.136-.188)	.170 (.154-.191)	.274 (.224-.334)	.400 (.324-.507)	.495 (.384-.562)	451
20 years and older	11-12	.147 (.136-.159)	.155 (.142-.167)	.247 (.223-.274)	.356 (.324-.377)	.431 (.375-.520)	1715
	13-14	.137 (.129-.146)	.150 (.136-.161)	.241 (.222-.262)	.340 (.326-.364)	.417 (.398-.426)	1811
<b>Gender</b>							
Males	11-12	.165 (.150-.181)	.173 (.151-.195)	.272 (.239-.301)	.369 (.343-.387)	.431 (.381-.524)	1262
	13-14	.147 (.136-.159)	.161 (.151-.171)	.258 (.231-.274)	.356 (.325-.381)	.422 (.400-.455)	1318
Females	11-12	.135 (.122-.148)	.141 (.131-.155)	.237 (.208-.260)	.348 (.304-.376)	.434 (.367-.522)	1242
	13-14	.135 (.125-.145)	.143 (.127-.160)	.241 (.214-.262)	.348 (.328-.373)	.421 (.398-.443)	1346
<b>Race/ethnicity</b>							
Mexican Americans	11-12	.142 (.135-.150)	.162 (.143-.174)	.231 (.210-.248)	.298 (.268-.321)	.344 (.306-.381)	317
	13-14	.139 (.127-.154)	.157 (.137-.175)	.247 (.206-.274)	.324 (.285-.387)	.414 (.324-.511)	453
Non-Hispanic blacks	11-12	.176 (.150-.206)	.184 (.158-.214)	.294 (.244-.364)	.431 (.370-.503)	.524 (.429-.657)	669
	13-14	.172 (.156-.189)	.190 (.170-.213)	.271 (.241-.301)	.356 (.325-.380)	.415 (.375-.433)	581
Non-Hispanic whites	11-12	.143 (.133-.155)	.149 (.135-.166)	.245 (.218-.277)	.353 (.322-.372)	.412 (.367-.522)	820
	13-14	.132 (.120-.145)	.139 (.121-.161)	.235 (.203-.265)	.340 (.318-.370)	.419 (.392-.440)	985
All Hispanics	11-12	.145 (.134-.157)	.158 (.148-.169)	.237 (.219-.257)	.305 (.289-.340)	.381 (.326-.438)	573
	13-14	.144 (.130-.160)	.160 (.138-.178)	.251 (.220-.272)	.340 (.291-.382)	.417 (.365-.473)	701
Asians	11-12	.177 (.160-.197)	.183 (.163-.214)	.292 (.255-.319)	.417 (.372-.489)	.541 (.431-.664)	353
	13-14	.154 (.140-.169)	.159 (.134-.184)	.268 (.239-.310)	.414 (.368-.438)	.502 (.421-.662)	292

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.02 and 0.018.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Thallium\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Thallium_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Thallium\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Thallium_FactSheet.html)

## Urinary Thallium (creatinine corrected) (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	.166 (.159-.173)	.168 (.162-.176)	.224 (.217-.233)	.297 (.273-.319)	.366 (.338-.387)	2413
	01-02	.156 (.151-.162)	.156 (.148-.164)	.215 (.208-.222)	.287 (.278-.300)	.349 (.337-.365)	2652
	03-04	.154 (.149-.158)	.153 (.146-.160)	.214 (.203-.222)	.286 (.274-.304)	.350 (.328-.369)	2558
	05-06	.155 (.149-.162)	.150 (.140-.160)	.210 (.200-.220)	.300 (.290-.320)	.370 (.350-.390)	2576
	07-08	.152 (.147-.158)	.150 (.140-.160)	.210 (.200-.220)	.290 (.280-.310)	.370 (.350-.380)	2627
	09-10	.153 (.145-.162)	.150 (.140-.160)	.220 (.200-.230)	.300 (.280-.320)	.370 (.350-.400)	2848
	Age group 6-11 years	99-00	.221 (.197-.248)	.222 (.196-.236)	.297 (.229-.356)	.375 (.318-.469)	.424 (.356-.600)
01-02		.211 (.198-.226)	.207 (.198-.221)	.286 (.260-.321)	.370 (.333-.402)	.412 (.389-.456)	362
03-04		.223 (.208-.238)	.216 (.198-.229)	.306 (.280-.346)	.412 (.346-.458)	.458 (.400-.532)	290
05-06		.215 (.200-.231)	.210 (.190-.250)	.310 (.270-.320)	.360 (.320-.410)	.430 (.360-.510)	355
07-08		.217 (.201-.234)	.220 (.210-.240)	.310 (.270-.340)	.410 (.370-.440)	.470 (.410-.540)	394
09-10		.219 (.199-.241)	.220 (.200-.260)	.300 (.280-.340)	.400 (.350-.440)	.500 (.390-.600)	378
12-19 years		99-00	.153 (.146-.160)	.154 (.146-.162)	.205 (.191-.219)	.258 (.231-.278)	.321 (.265-.364)
	01-02	.143 (.137-.150)	.145 (.135-.152)	.196 (.184-.207)	.272 (.250-.289)	.312 (.299-.333)	746
	03-04	.143 (.135-.152)	.146 (.131-.155)	.194 (.179-.208)	.254 (.234-.280)	.304 (.271-.327)	725
	05-06	.140 (.133-.147)	.140 (.130-.150)	.190 (.170-.200)	.240 (.220-.270)	.290 (.250-.310)	701
	07-08	.134 (.124-.145)	.140 (.120-.150)	.190 (.180-.220)	.260 (.220-.300)	.300 (.250-.370)	376
	09-10	.140 (.127-.155)	.140 (.120-.160)	.190 (.170-.220)	.260 (.220-.310)	.310 (.260-.370)	451
	20 years and older	99-00	.162 (.153-.171)	.167 (.155-.176)	.218 (.207-.230)	.286 (.271-.300)	.364 (.325-.389)
01-02		.153 (.147-.159)	.153 (.144-.161)	.210 (.200-.217)	.278 (.263-.293)	.343 (.313-.362)	1544
03-04		.148 (.144-.153)	.149 (.141-.156)	.206 (.192-.215)	.273 (.258-.289)	.333 (.306-.353)	1543
05-06		.152 (.145-.159)	.150 (.140-.160)	.210 (.200-.210)	.290 (.270-.310)	.370 (.350-.400)	1520
07-08		.149 (.143-.156)	.150 (.140-.160)	.210 (.200-.220)	.280 (.270-.300)	.350 (.330-.380)	1857
09-10		.150 (.142-.157)	.150 (.140-.160)	.210 (.200-.220)	.290 (.270-.320)	.370 (.330-.400)	2019
Gender Males		99-00	.154 (.147-.161)	.156 (.149-.164)	.202 (.192-.214)	.269 (.254-.297)	.338 (.300-.364)
	01-02	.146 (.140-.153)	.148 (.142-.157)	.192 (.184-.204)	.260 (.246-.278)	.307 (.291-.342)	1312
Females	03-04	.140 (.135-.146)	.142 (.134-.149)	.188 (.180-.198)	.264 (.235-.286)	.317 (.287-.350)	1281
	05-06	.140 (.134-.147)	.140 (.130-.140)	.190 (.180-.200)	.270 (.240-.300)	.320 (.300-.340)	1271
	07-08	.138 (.131-.145)	.130 (.130-.140)	.190 (.180-.210)	.270 (.250-.290)	.330 (.300-.360)	1327
	09-10	.138 (.129-.148)	.130 (.130-.150)	.190 (.170-.210)	.270 (.240-.300)	.330 (.290-.360)	1398
	99-00	.178 (.167-.189)	.182 (.169-.197)	.244 (.226-.259)	.317 (.281-.366)	.380 (.333-.462)	1213
	01-02	.167 (.158-.176)	.167 (.153-.180)	.233 (.217-.250)	.313 (.282-.348)	.378 (.348-.402)	1340
	03-04	.167 (.162-.173)	.166 (.157-.177)	.235 (.222-.243)	.313 (.286-.333)	.368 (.340-.412)	1277
05-06	.171 (.162-.181)	.170 (.160-.180)	.230 (.220-.250)	.330 (.300-.360)	.430 (.370-.490)	1305	
07-08	.167 (.163-.173)	.170 (.160-.180)	.230 (.230-.240)	.320 (.300-.340)	.390 (.360-.430)	1300	
09-10	.170 (.161-.178)	.170 (.160-.180)	.230 (.220-.250)	.340 (.310-.370)	.420 (.370-.470)	1450	

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Thallium\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Thallium_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Thallium\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Thallium_FactSheet.html)

## Urinary Thallium (creatinine corrected) (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00	.158 (.147-.170)	.160 (.148-.176)	.213 (.200-.237)	.282 (.266-.304)	.343 (.306-.389)	861
	01-02	.156 (.145-.169)	.155 (.145-.167)	.204 (.191-.221)	.286 (.250-.317)	.361 (.301-.424)	674
	03-04	.159 (.148-.170)	.157 (.143-.172)	.211 (.187-.241)	.293 (.273-.324)	.369 (.326-.422)	618
	05-06	.149 (.139-.158)	.150 (.140-.160)	.200 (.180-.210)	.270 (.240-.290)	.320 (.280-.370)	652
	07-08	.151 (.143-.160)	.160 (.130-.170)	.200 (.190-.220)	.270 (.250-.280)	.320 (.290-.370)	515
	09-10	.154 (.141-.167)	.150 (.140-.170)	.210 (.180-.230)	.280 (.250-.330)	.360 (.310-.430)	613
Non-Hispanic blacks	99-00	.142 (.133-.152)	.140 (.129-.151)	.200 (.184-.214)	.278 (.244-.307)	.383 (.286-.462)	561
	01-02	.138 (.128-.150)	.136 (.125-.146)	.194 (.170-.212)	.256 (.238-.278)	.328 (.271-.387)	657
	03-04	.133 (.122-.145)	.128 (.119-.143)	.185 (.171-.200)	.255 (.237-.269)	.323 (.267-.377)	723
	05-06	.137 (.128-.145)	.130 (.130-.140)	.190 (.180-.200)	.240 (.220-.290)	.320 (.270-.370)	692
	07-08	.125 (.118-.132)	.130 (.120-.130)	.170 (.160-.180)	.230 (.210-.260)	.280 (.250-.330)	589
	09-10	.128 (.120-.137)	.120 (.110-.130)	.180 (.160-.210)	.250 (.230-.280)	.310 (.270-.350)	544
Non-Hispanic whites	99-00	.169 (.160-.179)	.173 (.167-.181)	.227 (.215-.240)	.300 (.272-.329)	.364 (.333-.377)	801
	01-02	.161 (.155-.167)	.161 (.153-.171)	.222 (.214-.231)	.292 (.278-.304)	.348 (.330-.383)	1114
	03-04	.154 (.148-.160)	.153 (.143-.162)	.214 (.200-.223)	.283 (.271-.304)	.333 (.313-.363)	1074
	05-06	.156 (.148-.164)	.150 (.140-.160)	.210 (.200-.230)	.300 (.280-.320)	.360 (.330-.400)	1041
	07-08	.154 (.146-.164)	.160 (.140-.170)	.220 (.210-.230)	.300 (.280-.320)	.370 (.340-.390)	1095
	09-10	.155 (.145-.166)	.150 (.140-.170)	.220 (.200-.240)	.310 (.280-.330)	.380 (.340-.410)	1225

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Thallium\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Thallium_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Thallium\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Thallium_FactSheet.html)

## Urinary Thallium (creatinine corrected) (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	.168 (.157-.180)	.167 (.156-.178)	.235 (.216-.253)	.337 (.310-.365)	.425 (.369-.497)	2502
	13-14	.162 (.155-.171)	.161 (.151-.169)	.236 (.228-.245)	.338 (.321-.351)	.429 (.405-.444)	2663
<b>Age group</b>							
6-11 years	11-12	.223 (.209-.238)	.216 (.200-.241)	.301 (.275-.336)	.395 (.371-.440)	.486 (.422-.568)	398
	13-14	.222 (.199-.249)	.227 (.215-.255)	.318 (.279-.360)	.429 (.386-.458)	.502 (.457-.537)	402
12-19 years	11-12	.149 (.134-.165)	.147 (.130-.169)	.200 (.180-.218)	.276 (.235-.321)	.339 (.268-.500)	390
	13-14	.145 (.133-.158)	.141 (.131-.160)	.213 (.182-.231)	.276 (.237-.301)	.315 (.283-.361)	451
20 years and older	11-12	.166 (.155-.179)	.164 (.154-.175)	.233 (.212-.250)	.333 (.298-.367)	.436 (.365-.510)	1714
	13-14	.160 (.153-.168)	.157 (.148-.165)	.229 (.222-.241)	.333 (.313-.352)	.429 (.394-.457)	1810
<b>Gender</b>							
Males	11-12	.154 (.142-.167)	.155 (.144-.165)	.211 (.197-.233)	.292 (.258-.326)	.353 (.312-.385)	1261
	13-14	.147 (.137-.158)	.141 (.133-.150)	.206 (.194-.222)	.295 (.272-.315)	.368 (.341-.414)	1317
Females	11-12	.183 (.172-.195)	.180 (.168-.193)	.261 (.240-.286)	.382 (.349-.420)	.480 (.422-.510)	1241
	13-14	.179 (.172-.187)	.180 (.171-.190)	.264 (.248-.274)	.374 (.352-.402)	.439 (.416-.482)	1346
<b>Race/ethnicity</b>							
Mexican Americans	11-12	.160 (.150-.170)	.163 (.141-.175)	.222 (.198-.245)	.295 (.276-.326)	.359 (.302-.440)	317
	13-14	.159 (.151-.168)	.151 (.142-.162)	.218 (.194-.230)	.313 (.282-.350)	.409 (.350-.457)	453
Non-Hispanic blacks	11-12	.137 (.119-.157)	.137 (.113-.159)	.208 (.174-.244)	.284 (.248-.334)	.348 (.293-.406)	669
	13-14	.131 (.125-.137)	.126 (.117-.138)	.181 (.171-.189)	.254 (.232-.276)	.324 (.265-.421)	581
Non-Hispanic whites	11-12	.173 (.161-.186)	.171 (.161-.181)	.235 (.213-.261)	.337 (.309-.373)	.453 (.357-.521)	818
	13-14	.163 (.151-.176)	.163 (.149-.176)	.242 (.226-.255)	.338 (.309-.362)	.430 (.390-.482)	984
All Hispanics	11-12	.162 (.150-.176)	.158 (.142-.174)	.221 (.198-.250)	.304 (.278-.347)	.370 (.316-.440)	573
	13-14	.161 (.153-.170)	.154 (.145-.164)	.222 (.208-.238)	.318 (.294-.344)	.386 (.350-.432)	701
Asians	11-12	.237 (.219-.256)	.228 (.206-.250)	.337 (.297-.367)	.526 (.442-.586)	.663 (.557-.830)	353
	13-14	.242 (.221-.264)	.237 (.216-.268)	.352 (.304-.382)	.456 (.417-.529)	.570 (.460-.857)	292

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Thallium\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Thallium_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Thallium\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Thallium_FactSheet.html)

## Urinary Tin (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>.621</b> (.569-.678)	<b>.530</b> (.470-.590)	<b>1.16</b> (.990-1.35)	<b>2.94</b> (2.43-3.44)	<b>4.74</b> (4.07-5.90)	2504
	13-14	<b>.433</b> (.374-.500)	<b>.380</b> (.330-.440)	<b>.930</b> (.790-1.16)	<b>2.30</b> (2.02-2.67)	<b>4.14</b> (3.12-5.46)	2664
<b>Age group</b>							
6-11 years	11-12	<b>1.17</b> (.985-1.39)	<b>1.12</b> (.820-1.43)	<b>2.61</b> (2.24-2.95)	<b>5.07</b> (3.44-7.29)	<b>8.05</b> (5.07-12.7)	399
	13-14	<b>.867</b> (.702-1.07)	<b>.850</b> (.650-1.15)	<b>2.16</b> (1.67-2.92)	<b>5.16</b> (3.23-6.49)	<b>7.25</b> (5.03-9.48)	402
12-19 years	11-12	<b>.585</b> (.497-.688)	<b>.470</b> (.380-.610)	<b>1.21</b> (.880-1.60)	<b>2.68</b> (1.92-3.65)	<b>4.18</b> (3.19-4.93)	390
	13-14	<b>.404</b> (.320-.511)	<b>.370</b> (.290-.490)	<b>.940</b> (.690-1.21)	<b>2.02</b> (1.41-2.86)	<b>3.19</b> (2.28-4.14)	451
20 years and older	11-12	<b>.585</b> (.521-.656)	<b>.510</b> (.450-.580)	<b>1.02</b> (.870-1.24)	<b>2.58</b> (2.09-3.40)	<b>4.46</b> (3.46-5.97)	1715
	13-14	<b>.406</b> (.352-.469)	<b>.360</b> (.320-.410)	<b>.830</b> (.730-1.00)	<b>2.16</b> (1.73-2.38)	<b>3.40</b> (2.80-4.84)	1811
<b>Gender</b>							
Males	11-12	<b>.622</b> (.550-.704)	<b>.530</b> (.470-.590)	<b>1.11</b> (.930-1.28)	<b>3.02</b> (2.27-3.84)	<b>4.89</b> (3.65-6.72)	1262
	13-14	<b>.414</b> (.360-.476)	<b>.360</b> (.320-.420)	<b>.840</b> (.720-1.01)	<b>2.25</b> (1.70-2.81)	<b>4.47</b> (3.15-5.57)	1318
Females	11-12	<b>.620</b> (.558-.690)	<b>.550</b> (.460-.620)	<b>1.22</b> (.990-1.45)	<b>2.77</b> (2.29-3.36)	<b>4.59</b> (3.98-5.54)	1242
	13-14	<b>.451</b> (.376-.541)	<b>.410</b> (.350-.470)	<b>1.05</b> (.830-1.34)	<b>2.36</b> (1.97-2.92)	<b>3.90</b> (2.99-5.21)	1346
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>.644</b> (.527-.786)	<b>.580</b> (.430-.700)	<b>1.08</b> (.830-1.43)	<b>2.66</b> (1.88-4.41)	<b>5.54</b> (3.10-8.30)	317
	13-14	<b>.410</b> (.314-.536)	<b>.360</b> (.270-.490)	<b>.890</b> (.680-1.24)	<b>2.25</b> (1.39-3.26)	<b>4.40</b> (2.31-6.11)	453
Non-Hispanic blacks	11-12	<b>.950</b> (.825-1.09)	<b>.860</b> (.740-1.00)	<b>1.86</b> (1.63-2.16)	<b>4.22</b> (3.28-5.55)	<b>7.73</b> (4.93-12.4)	669
	13-14	<b>.729</b> (.570-.932)	<b>.720</b> (.520-.880)	<b>1.50</b> (1.18-1.93)	<b>3.60</b> (2.82-5.03)	<b>6.79</b> (4.85-9.94)	581
Non-Hispanic whites	11-12	<b>.579</b> (.513-.654)	<b>.490</b> (.430-.570)	<b>1.03</b> (.830-1.28)	<b>2.72</b> (2.08-3.62)	<b>4.53</b> (3.41-6.03)	820
	13-14	<b>.402</b> (.341-.473)	<b>.350</b> (.310-.410)	<b>.840</b> (.700-1.06)	<b>2.20</b> (1.84-2.39)	<b>3.39</b> (2.67-5.18)	985
All Hispanics	11-12	<b>.642</b> (.575-.717)	<b>.570</b> (.460-.640)	<b>1.23</b> (.990-1.41)	<b>2.77</b> (2.12-3.29)	<b>4.57</b> (3.56-6.54)	573
	13-14	<b>.432</b> (.355-.526)	<b>.410</b> (.330-.490)	<b>.910</b> (.750-1.17)	<b>2.25</b> (1.61-2.93)	<b>4.22</b> (2.67-5.80)	701
Asians	11-12	<b>.477</b> (.433-.526)	<b>.400</b> (.350-.460)	<b>.820</b> (.690-1.01)	<b>2.00</b> (1.34-2.39)	<b>2.58</b> (2.21-3.90)	353
	13-14	<b>.270</b> (.216-.337)	<b>.230</b> (.170-.310)	<b>.570</b> (.400-.750)	<b>1.31</b> (.810-1.83)	<b>2.02</b> (1.54-3.56)	292

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.22 and 0.09.

## Urinary Tin (creatinine corrected) (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
Total	11-12	<b>.705</b> (.653-.761)	<b>.624</b> (.567-.678)	<b>1.24</b> (1.11-1.34)	<b>2.54</b> (2.29-2.80)	<b>4.50</b> (3.76-5.33)	2502
	13-14	<b>.499</b> (.436-.570)	<b>.438</b> (.389-.510)	<b>.995</b> (.826-1.14)	<b>2.25</b> (1.99-2.64)	<b>3.72</b> (3.17-4.48)	2663
<b>Age group</b>							
6-11 years	11-12	<b>1.67</b> (1.46-1.90)	<b>1.60</b> (1.44-1.73)	<b>2.83</b> (2.61-3.31)	<b>5.61</b> (4.50-7.22)	<b>7.91</b> (6.11-12.1)	398
	13-14	<b>1.29</b> (1.07-1.57)	<b>1.36</b> (1.00-1.64)	<b>2.82</b> (2.22-3.25)	<b>5.93</b> (3.80-7.26)	<b>7.82</b> (6.17-13.4)	402
12-19 years	11-12	<b>.559</b> (.475-.659)	<b>.484</b> (.411-.543)	<b>1.03</b> (.725-1.39)	<b>1.97</b> (1.43-2.49)	<b>2.80</b> (2.00-3.74)	390
	13-14	<b>.366</b> (.304-.441)	<b>.347</b> (.254-.455)	<b>.735</b> (.600-.870)	<b>1.45</b> (1.16-1.77)	<b>2.21</b> (1.48-3.03)	451
20 years and older	11-12	<b>.665</b> (.599-.737)	<b>.593</b> (.537-.663)	<b>1.11</b> (.956-1.30)	<b>2.32</b> (1.94-2.67)	<b>4.04</b> (3.00-5.09)	1714
	13-14	<b>.473</b> (.414-.539)	<b>.417</b> (.372-.475)	<b>.882</b> (.737-1.05)	<b>1.96</b> (1.74-2.33)	<b>3.32</b> (2.83-3.91)	1810
<b>Gender</b>							
Males	11-12	<b>.584</b> (.524-.651)	<b>.515</b> (.436-.576)	<b>.966</b> (.875-1.12)	<b>2.29</b> (1.86-2.80)	<b>4.17</b> (2.80-5.55)	1261
	13-14	<b>.412</b> (.356-.477)	<b>.353</b> (.302-.406)	<b>.740</b> (.606-.949)	<b>1.96</b> (1.64-2.30)	<b>3.30</b> (2.73-4.65)	1317
Females	11-12	<b>.843</b> (.772-.920)	<b>.764</b> (.676-.857)	<b>1.42</b> (1.21-1.72)	<b>2.70</b> (2.51-3.19)	<b>4.81</b> (3.50-5.59)	1241
	13-14	<b>.599</b> (.515-.697)	<b>.557</b> (.491-.608)	<b>1.19</b> (1.00-1.37)	<b>2.58</b> (2.00-3.19)	<b>4.00</b> (3.20-5.50)	1346
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>.724</b> (.599-.874)	<b>.640</b> (.482-.785)	<b>1.23</b> (1.00-1.72)	<b>3.28</b> (2.27-4.17)	<b>5.29</b> (3.28-7.22)	317
	13-14	<b>.468</b> (.372-.588)	<b>.394</b> (.294-.554)	<b>.833</b> (.712-1.27)	<b>2.19</b> (1.73-3.01)	<b>3.29</b> (2.24-7.09)	453
Non-Hispanic blacks	11-12	<b>.739</b> (.648-.842)	<b>.684</b> (.553-.802)	<b>1.52</b> (1.27-1.79)	<b>3.19</b> (2.66-3.91)	<b>5.28</b> (3.47-7.90)	669
	13-14	<b>.555</b> (.459-.670)	<b>.495</b> (.401-.600)	<b>1.10</b> (.989-1.40)	<b>2.80</b> (2.04-3.62)	<b>4.99</b> (3.31-7.26)	581
Non-Hispanic whites	11-12	<b>.701</b> (.636-.772)	<b>.624</b> (.557-.683)	<b>1.22</b> (1.06-1.39)	<b>2.50</b> (2.06-2.79)	<b>4.22</b> (2.94-5.35)	818
	13-14	<b>.494</b> (.418-.584)	<b>.438</b> (.380-.527)	<b>.970</b> (.787-1.16)	<b>2.09</b> (1.76-2.73)	<b>3.63</b> (2.83-5.50)	984
All Hispanics	11-12	<b>.719</b> (.638-.810)	<b>.640</b> (.543-.739)	<b>1.23</b> (1.06-1.41)	<b>3.18</b> (2.32-3.74)	<b>4.51</b> (3.63-6.13)	573
	13-14	<b>.482</b> (.409-.568)	<b>.401</b> (.337-.485)	<b>.866</b> (.725-1.17)	<b>2.31</b> (1.91-3.10)	<b>4.04</b> (2.88-5.03)	701
Asians	11-12	<b>.638</b> (.560-.727)	<b>.543</b> (.503-.667)	<b>1.00</b> (.867-1.17)	<b>1.96</b> (1.49-2.36)	<b>3.03</b> (2.23-3.58)	353
	13-14	<b>.423</b> (.354-.506)	<b>.369</b> (.305-.411)	<b>.745</b> (.529-1.12)	<b>1.98</b> (1.08-2.54)	<b>2.73</b> (1.82-6.78)	292



## Urinary Tungsten (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size	
Total	99-00	<b>.093</b> (.087-.100)	<b>.090</b> (.080-.090)	<b>.180</b> (.160-.190)	<b>.320</b> (.280-.370)	<b>.500</b> (.430-.550)	2338	
	01-02	<b>.082</b> (.073-.092)	<b>.070</b> (.060-.090)	<b>.160</b> (.140-.180)	<b>.300</b> (.260-.350)	<b>.460</b> (.370-.560)	2652	
	03-04	<b>.071</b> (.064-.078)	<b>.070</b> (.060-.080)	<b>.130</b> (.120-.140)	<b>.270</b> (.230-.300)	<b>.400</b> (.330-.480)	2558	
	05-06	<b>.085</b> (.079-.092)	<b>.090</b> (.080-.090)	<b>.170</b> (.150-.180)	<b>.310</b> (.280-.340)	<b>.470</b> (.400-.520)	2576	
	07-08	<b>.099</b> (.093-.105)	<b>.100</b> (.090-.110)	<b>.190</b> (.180-.200)	<b>.360</b> (.320-.380)	<b>.500</b> (.440-.570)	2627	
	09-10	<b>.081</b> (.075-.087)	<b>.080</b> (.070-.090)	<b>.160</b> (.150-.170)	<b>.310</b> (.270-.330)	<b>.460</b> (.370-.540)	2847	
	Age group	6-11 years	99-00	<b>.158</b> (.123-.204)	<b>.160</b> (.120-.220)	<b>.270</b> (.220-.350)	<b>.510</b> (.380-.560)	<b>.620</b> (.510-.950)
01-02			<b>.137</b> (.110-.170)	<b>.140</b> (.110-.170)	<b>.260</b> (.200-.350)	<b>.460</b> (.360-.690)	<b>.770</b> (.510-1.53)	363
03-04			<b>.130</b> (.111-.151)	<b>.140</b> (.120-.150)	<b>.240</b> (.190-.290)	<b>.410</b> (.290-.500)	<b>.500</b> (.370-.630)	290
05-06			<b>.142</b> (.121-.166)	<b>.140</b> (.120-.170)	<b>.230</b> (.210-.290)	<b>.430</b> (.330-.610)	<b>.640</b> (.440-.850)	355
07-08			<b>.160</b> (.138-.186)	<b>.150</b> (.130-.170)	<b>.310</b> (.240-.390)	<b>.510</b> (.450-.580)	<b>.810</b> (.560-1.15)	394
09-10		<b>.151</b> (.126-.180)	<b>.150</b> (.110-.200)	<b>.310</b> (.230-.400)	<b>.560</b> (.400-.770)	<b>.770</b> (.560-1.04)	378	
12-19 years		99-00	<b>.113</b> (.097-.132)	<b>.110</b> (.090-.130)	<b>.210</b> (.180-.250)	<b>.360</b> (.310-.440)	<b>.530</b> (.380-.800)	679
		01-02	<b>.113</b> (.095-.135)	<b>.110</b> (.090-.130)	<b>.210</b> (.180-.260)	<b>.400</b> (.310-.520)	<b>.570</b> (.430-.790)	744
		03-04	<b>.105</b> (.090-.122)	<b>.100</b> (.090-.120)	<b>.190</b> (.160-.230)	<b>.350</b> (.290-.460)	<b>.530</b> (.350-1.00)	725
		05-06	<b>.131</b> (.108-.158)	<b>.130</b> (.100-.160)	<b>.250</b> (.200-.310)	<b>.430</b> (.360-.530)	<b>.620</b> (.410-1.04)	701
		07-08	<b>.150</b> (.136-.167)	<b>.160</b> (.140-.180)	<b>.250</b> (.220-.290)	<b>.470</b> (.350-.660)	<b>.660</b> (.430-1.05)	376
09-10		<b>.101</b> (.089-.115)	<b>.100</b> (.080-.120)	<b>.210</b> (.190-.240)	<b>.360</b> (.300-.460)	<b>.540</b> (.440-.650)	451	
20 years and older		99-00	<b>.084</b> (.078-.091)	<b>.080</b> (.070-.090)	<b>.160</b> (.130-.180)	<b>.280</b> (.260-.320)	<b>.450</b> (.360-.520)	1339
		01-02	<b>.073</b> (.065-.082)	<b>.060</b> (.050-.070)	<b>.140</b> (.110-.160)	<b>.260</b> (.210-.310)	<b>.380</b> (.310-.490)	1545
	03-04	<b>.062</b> (.056-.068)	<b>.060</b> (.050-.070)	<b>.110</b> (.100-.120)	<b>.210</b> (.180-.250)	<b>.360</b> (.270-.430)	1543	
	05-06	<b>.075</b> (.070-.081)	<b>.080</b> (.070-.080)	<b>.140</b> (.130-.160)	<b>.250</b> (.220-.310)	<b>.410</b> (.340-.470)	1520	
	07-08	<b>.088</b> (.081-.095)	<b>.090</b> (.080-.100)	<b>.170</b> (.150-.190)	<b>.310</b> (.280-.340)	<b>.450</b> (.390-.500)	1857	
	09-10	<b>.073</b> (.068-.079)	<b>.080</b> (.070-.080)	<b>.150</b> (.130-.160)	<b>.260</b> (.230-.300)	<b>.370</b> (.330-.460)	2018	
Gender	Males	99-00	<b>.107</b> (.096-.120)	<b>.100</b> (.090-.120)	<b>.210</b> (.190-.230)	<b>.390</b> (.310-.470)	<b>.530</b> (.470-.650)	1160
		01-02	<b>.088</b> (.074-.105)	<b>.080</b> (.060-.100)	<b>.170</b> (.140-.220)	<b>.330</b> (.260-.390)	<b>.490</b> (.380-.580)	1307
		03-04	<b>.081</b> (.071-.093)	<b>.080</b> (.070-.090)	<b>.140</b> (.130-.170)	<b>.300</b> (.250-.340)	<b>.430</b> (.340-.560)	1281
		05-06	<b>.095</b> (.090-.101)	<b>.090</b> (.080-.100)	<b>.180</b> (.160-.190)	<b>.340</b> (.310-.380)	<b>.480</b> (.420-.610)	1271
		07-08	<b>.109</b> (.102-.116)	<b>.110</b> (.100-.130)	<b>.210</b> (.190-.240)	<b>.380</b> (.350-.450)	<b>.550</b> (.450-.660)	1327
		09-10	<b>.090</b> (.082-.098)	<b>.090</b> (.080-.100)	<b>.170</b> (.150-.190)	<b>.320</b> (.290-.350)	<b>.500</b> (.410-.550)	1398
		Females	99-00	<b>.082</b> (.077-.087)	<b>.070</b> (.060-.080)	<b>.150</b> (.130-.160)	<b>.270</b> (.240-.300)	<b>.400</b> (.320-.470)
	01-02		<b>.076</b> (.069-.084)	<b>.060</b> (.060-.080)	<b>.150</b> (.120-.170)	<b>.280</b> (.230-.330)	<b>.430</b> (.340-.560)	1345
	03-04		<b>.062</b> (.056-.069)	<b>.060</b> (.050-.070)	<b>.110</b> (.100-.120)	<b>.220</b> (.190-.250)	<b>.370</b> (.270-.460)	1277
	05-06		<b>.077</b> (.069-.085)	<b>.080</b> (.070-.090)	<b>.160</b> (.150-.170)	<b>.280</b> (.250-.320)	<b>.440</b> (.350-.510)	1305
	07-08		<b>.090</b> (.083-.098)	<b>.090</b> (.080-.100)	<b>.170</b> (.160-.180)	<b>.300</b> (.270-.350)	<b>.460</b> (.420-.550)	1300
	09-10		<b>.074</b> (.067-.081)	<b>.070</b> (.070-.080)	<b>.150</b> (.130-.170)	<b>.280</b> (.240-.330)	<b>.400</b> (.320-.600)	1449

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.04, 0.04, 0.04, 0.021, 0.021, and 0.021 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Tungsten\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Tungsten_BiomonitoringSummary.html)



## Urinary Tungsten (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00	<b>.113</b> (.095-.133)	<b>.110</b> (.090-.130)	<b>.200</b> (.160-.250)	<b>.400</b> (.300-.520)	<b>.550</b> (.420-.830)	790
	01-02	<b>.101</b> (.093-.109)	<b>.100</b> (.090-.110)	<b>.190</b> (.170-.210)	<b>.370</b> (.310-.430)	<b>.570</b> (.450-.670)	680
	03-04	<b>.086</b> (.073-.100)	<b>.080</b> (.070-.100)	<b>.170</b> (.120-.220)	<b>.360</b> (.230-.620)	<b>.640</b> (.410-.800)	618
	05-06	<b>.102</b> (.088-.118)	<b>.100</b> (.080-.110)	<b>.200</b> (.170-.220)	<b>.450</b> (.310-.650)	<b>.730</b> (.510-1.04)	652
	07-08	<b>.106</b> (.084-.135)	<b>.110</b> (.080-.150)	<b>.210</b> (.170-.270)	<b>.400</b> (.250-.670)	<b>.580</b> (.400-1.12)	515
	09-10	<b>.099</b> (.089-.109)	<b>.090</b> (.090-.100)	<b>.200</b> (.170-.220)	<b>.380</b> (.340-.470)	<b>.540</b> (.480-.580)	613
Non-Hispanic blacks	99-00	<b>.113</b> (.101-.126)	<b>.100</b> (.090-.130)	<b>.210</b> (.180-.250)	<b>.370</b> (.290-.460)	<b>.560</b> (.420-.810)	562
	01-02	<b>.096</b> (.080-.116)	<b>.090</b> (.070-.120)	<b>.160</b> (.130-.250)	<b>.310</b> (.270-.400)	<b>.460</b> (.400-.590)	649
	03-04	<b>.092</b> (.082-.104)	<b>.090</b> (.080-.110)	<b>.160</b> (.150-.180)	<b>.300</b> (.250-.330)	<b>.470</b> (.340-.550)	723
	05-06	<b>.101</b> (.088-.116)	<b>.110</b> (.090-.120)	<b>.190</b> (.160-.220)	<b>.320</b> (.280-.370)	<b>.450</b> (.340-.650)	692
	07-08	<b>.120</b> (.099-.146)	<b>.120</b> (.090-.160)	<b>.240</b> (.200-.290)	<b>.390</b> (.340-.440)	<b>.540</b> (.460-.690)	589
	09-10	<b>.093</b> (.086-.100)	<b>.100</b> (.090-.110)	<b>.180</b> (.160-.200)	<b>.290</b> (.270-.340)	<b>.400</b> (.320-.590)	543
Non-Hispanic whites	99-00	<b>.092</b> (.084-.100)	<b>.080</b> (.070-.100)	<b>.180</b> (.160-.200)	<b>.320</b> (.270-.380)	<b>.470</b> (.380-.550)	802
	01-02	<b>.076</b> (.066-.088)	<b>.060</b> (.050-.080)	<b>.150</b> (.120-.180)	<b>.290</b> (.230-.360)	<b>.430</b> (.330-.620)	1117
	03-04	<b>.065</b> (.058-.073)	<b>.060</b> (.060-.070)	<b>.120</b> (.100-.130)	<b>.230</b> (.190-.290)	<b>.380</b> (.320-.410)	1074
	05-06	<b>.082</b> (.075-.089)	<b>.080</b> (.080-.090)	<b>.160</b> (.140-.180)	<b>.300</b> (.250-.340)	<b>.430</b> (.380-.480)	1041
	07-08	<b>.093</b> (.087-.101)	<b>.100</b> (.090-.110)	<b>.180</b> (.160-.190)	<b>.330</b> (.290-.370)	<b>.470</b> (.410-.570)	1095
	09-10	<b>.077</b> (.070-.083)	<b>.080</b> (.070-.090)	<b>.150</b> (.140-.170)	<b>.280</b> (.250-.310)	<b>.400</b> (.330-.540)	1225

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.04, 0.04, 0.04, 0.04, 0.021, 0.021, and 0.021 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Tungsten\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Tungsten_BiomonitoringSummary.html)

## Urinary Tungsten (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>.074</b> (.067-.082)	<b>.069</b> (.062-.076)	<b>.143</b> (.127-.170)	<b>.284</b> (.235-.361)	<b>.434</b> (.354-.522)	2491
	13-14	<b>.059</b> (.052-.065)	<b>.058</b> (.050-.068)	<b>.129</b> (.113-.146)	<b>.241</b> (.220-.264)	<b>.380</b> (.337-.436)	2664
<b>Age group</b>							
6-11 years	11-12	<b>.136</b> (.120-.155)	<b>.138</b> (.123-.162)	<b>.272</b> (.229-.301)	<b>.448</b> (.391-.504)	<b>.583</b> (.498-.691)	398
	13-14	<b>.111</b> (.097-.127)	<b>.114</b> (.098-.130)	<b>.224</b> (.184-.245)	<b>.367</b> (.322-.449)	<b>.606</b> (.436-.758)	402
12-19 years	11-12	<b>.107</b> (.088-.130)	<b>.112</b> (.083-.141)	<b>.212</b> (.175-.269)	<b>.371</b> (.308-.458)	<b>.506</b> (.399-.647)	388
	13-14	<b>.093</b> (.081-.106)	<b>.094</b> (.082-.107)	<b>.182</b> (.161-.207)	<b>.364</b> (.316-.406)	<b>.559</b> (.406-.774)	451
20 years and older	11-12	<b>.066</b> (.058-.074)	<b>.060</b> (.055-.067)	<b>.121</b> (.104-.144)	<b>.237</b> (.194-.315)	<b>.374</b> (.274-.493)	1705
	13-14	<b>.051</b> (.045-.058)	<b>.050</b> (.042-.059)	<b>.111</b> (.092-.129)	<b>.213</b> (.178-.238)	<b>.320</b> (.264-.380)	1811
<b>Gender</b>							
Males	11-12	<b>.084</b> (.074-.095)	<b>.080</b> (.068-.094)	<b>.164</b> (.136-.200)	<b>.343</b> (.260-.408)	<b>.471</b> (.388-.537)	1254
	13-14	<b>.065</b> (.057-.074)	<b>.066</b> (.054-.076)	<b>.141</b> (.121-.159)	<b>.256</b> (.230-.295)	<b>.380</b> (.321-.468)	1318
Females	11-12	<b>.066</b> (.060-.073)	<b>.060</b> (.054-.067)	<b>.131</b> (.115-.145)	<b>.247</b> (.212-.294)	<b>.361</b> (.284-.463)	1237
	13-14	<b>.053</b> (.048-.059)	<b>.053</b> (.043-.063)	<b>.119</b> (.104-.129)	<b>.226</b> (.197-.244)	<b>.359</b> (.313-.441)	1346
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>.097</b> (.082-.114)	<b>.097</b> (.071-.115)	<b>.198</b> (.150-.282)	<b>.434</b> (.356-.534)	<b>.691</b> (.473-.827)	314
	13-14	<b>.069</b> (.057-.083)	<b>.072</b> (.054-.090)	<b>.150</b> (.114-.207)	<b>.280</b> (.216-.395)	<b>.515</b> (.350-.648)	453
Non-Hispanic blacks	11-12	<b>.102</b> (.087-.119)	<b>.096</b> (.082-.120)	<b>.184</b> (.145-.245)	<b>.387</b> (.282-.496)	<b>.537</b> (.391-.808)	669
	13-14	<b>.085</b> (.073-.099)	<b>.085</b> (.071-.096)	<b>.166</b> (.151-.194)	<b>.350</b> (.310-.422)	<b>.493</b> (.424-.676)	581
Non-Hispanic whites	11-12	<b>.068</b> (.060-.076)	<b>.063</b> (.056-.070)	<b>.130</b> (.113-.153)	<b>.260</b> (.212-.327)	<b>.370</b> (.307-.463)	810
	13-14	<b>.053</b> (.046-.062)	<b>.054</b> (.043-.065)	<b>.117</b> (.096-.139)	<b>.215</b> (.172-.255)	<b>.328</b> (.243-.468)	985
All Hispanics	11-12	<b>.082</b> (.072-.092)	<b>.072</b> (.061-.094)	<b>.162</b> (.136-.197)	<b>.371</b> (.294-.433)	<b>.534</b> (.422-.692)	570
	13-14	<b>.064</b> (.056-.073)	<b>.065</b> (.054-.076)	<b>.145</b> (.119-.169)	<b>.264</b> (.217-.350)	<b>.411</b> (.346-.585)	701
Asians	11-12	<b>.067</b> (.058-.077)	<b>.066</b> (.052-.078)	<b>.135</b> (.115-.168)	<b>.252</b> (.206-.319)	<b>.401</b> (.260-.635)	353
	13-14	<b>.052</b> (.040-.069)	<b>.047</b> (.030-.067)	<b>.119</b> (.074-.188)	<b>.290</b> (.168-.593)	<b>.537</b> (.290-.700)	292

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.026 and 0.018.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Tungsten\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Tungsten_BiomonitoringSummary.html)

## Urinary Tungsten (creatinine corrected) (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	<b>.087</b> (.080-.095)	<b>.080</b> (.075-.086)	<b>.146</b> (.136-.158)	<b>.270</b> (.206-.333)	<b>.383</b> (.302-.459)	2338
	01-02	<b>.078</b> (.069-.087)	<b>.074</b> (.064-.084)	<b>.138</b> (.122-.154)	<b>.255</b> (.216-.300)	<b>.359</b> (.315-.436)	2651
	03-04	<b>.070</b> (.063-.078)	<b>.065</b> (.059-.074)	<b>.117</b> (.107-.133)	<b>.215</b> (.179-.253)	<b>.333</b> (.255-.439)	2558
	05-06	<b>.084</b> (.080-.089)	<b>.080</b> (.080-.080)	<b>.140</b> (.130-.150)	<b>.250</b> (.210-.290)	<b>.350</b> (.290-.440)	2576
	07-08	<b>.103</b> (.096-.111)	<b>.100</b> (.090-.110)	<b>.170</b> (.160-.190)	<b>.320</b> (.290-.360)	<b>.470</b> (.410-.540)	2627
	09-10	<b>.086</b> (.080-.093)	<b>.080</b> (.070-.090)	<b>.150</b> (.130-.160)	<b>.270</b> (.230-.310)	<b>.400</b> (.340-.470)	2847
	Age group 6-11 years	99-00	<b>.174</b> (.150-.201)	<b>.169</b> (.136-.198)	<b>.293</b> (.216-.333)	<b>.439</b> (.331-.667)	<b>.667</b> (.452-.880)
01-02		<b>.168</b> (.144-.197)	<b>.158</b> (.139-.190)	<b>.275</b> (.231-.326)	<b>.412</b> (.333-.554)	<b>.634</b> (.436-1.28)	363
03-04		<b>.151</b> (.131-.174)	<b>.144</b> (.119-.167)	<b>.250</b> (.205-.283)	<b>.333</b> (.278-.484)	<b>.484</b> (.333-.739)	290
05-06		<b>.175</b> (.152-.202)	<b>.160</b> (.140-.180)	<b>.270</b> (.220-.320)	<b>.560</b> (.330-.790)	<b>.790</b> (.470-1.18)	355
07-08		<b>.209</b> (.185-.235)	<b>.200</b> (.180-.240)	<b>.340</b> (.290-.370)	<b>.540</b> (.450-.660)	<b>.780</b> (.620-.910)	394
09-10		<b>.205</b> (.177-.239)	<b>.200</b> (.160-.230)	<b>.330</b> (.290-.440)	<b>.620</b> (.450-.850)	<b>.930</b> (.690-1.08)	378
12-19 years		99-00	<b>.084</b> (.078-.091)	<b>.079</b> (.074-.084)	<b>.138</b> (.124-.158)	<b>.231</b> (.180-.287)	<b>.339</b> (.237-.465)
	01-02	<b>.081</b> (.071-.092)	<b>.081</b> (.072-.091)	<b>.148</b> (.122-.167)	<b>.250</b> (.208-.301)	<b>.359</b> (.272-.431)	744
	03-04	<b>.075</b> (.065-.086)	<b>.071</b> (.061-.082)	<b>.122</b> (.098-.148)	<b>.197</b> (.167-.308)	<b>.379</b> (.197-.582)	725
	05-06	<b>.101</b> (.086-.117)	<b>.100</b> (.080-.110)	<b>.170</b> (.140-.200)	<b>.300</b> (.200-.370)	<b>.370</b> (.300-.770)	701
	07-08	<b>.118</b> (.104-.132)	<b>.120</b> (.110-.130)	<b>.180</b> (.160-.210)	<b>.340</b> (.230-.550)	<b>.530</b> (.310-.810)	376
	09-10	<b>.094</b> (.085-.106)	<b>.090</b> (.080-.110)	<b>.150</b> (.120-.180)	<b>.270</b> (.210-.290)	<b>.370</b> (.280-.500)	451
	20 years and older	99-00	<b>.080</b> (.072-.089)	<b>.075</b> (.067-.082)	<b>.130</b> (.116-.146)	<b>.218</b> (.179-.301)	<b>.347</b> (.245-.426)
01-02		<b>.070</b> (.063-.079)	<b>.067</b> (.058-.075)	<b>.119</b> (.099-.139)	<b>.216</b> (.176-.267)	<b>.333</b> (.253-.431)	1544
03-04		<b>.063</b> (.057-.071)	<b>.059</b> (.053-.065)	<b>.105</b> (.094-.117)	<b>.181</b> (.155-.215)	<b>.279</b> (.217-.370)	1543
05-06		<b>.075</b> (.071-.079)	<b>.070</b> (.070-.080)	<b>.120</b> (.110-.130)	<b>.210</b> (.200-.220)	<b>.290</b> (.240-.360)	1520
07-08		<b>.093</b> (.087-.101)	<b>.090</b> (.080-.100)	<b>.160</b> (.140-.170)	<b>.280</b> (.250-.310)	<b>.420</b> (.350-.490)	1857
09-10		<b>.078</b> (.072-.084)	<b>.070</b> (.070-.080)	<b>.130</b> (.120-.140)	<b>.220</b> (.190-.260)	<b>.340</b> (.270-.400)	2018
Gender Males		99-00	<b>.083</b> (.074-.094)	<b>.073</b> (.063-.086)	<b>.146</b> (.126-.165)	<b>.279</b> (.198-.386)	<b>.439</b> (.329-.605)
	01-02	<b>.071</b> (.060-.083)	<b>.065</b> (.056-.077)	<b>.125</b> (.098-.153)	<b>.255</b> (.203-.306)	<b>.364</b> (.300-.431)	1306
	03-04	<b>.068</b> (.059-.079)	<b>.062</b> (.054-.071)	<b>.111</b> (.098-.133)	<b>.216</b> (.170-.284)	<b>.341</b> (.240-.500)	1281
	05-06	<b>.078</b> (.073-.083)	<b>.070</b> (.070-.080)	<b>.130</b> (.120-.150)	<b>.240</b> (.200-.300)	<b>.360</b> (.300-.440)	1271
	07-08	<b>.097</b> (.090-.106)	<b>.090</b> (.090-.110)	<b>.170</b> (.150-.180)	<b>.310</b> (.280-.360)	<b>.440</b> (.410-.480)	1327
	09-10	<b>.082</b> (.074-.089)	<b>.070</b> (.070-.080)	<b>.140</b> (.120-.150)	<b>.250</b> (.220-.310)	<b>.440</b> (.320-.500)	1398
	Females	99-00	<b>.091</b> (.085-.098)	<b>.084</b> (.080-.091)	<b>.145</b> (.136-.158)	<b>.265</b> (.200-.301)	<b>.339</b> (.300-.381)
01-02		<b>.085</b> (.077-.094)	<b>.083</b> (.075-.091)	<b>.143</b> (.130-.161)	<b>.258</b> (.216-.317)	<b>.353</b> (.317-.538)	1345
03-04		<b>.072</b> (.065-.079)	<b>.069</b> (.063-.078)	<b>.121</b> (.108-.138)	<b>.211</b> (.176-.237)	<b>.333</b> (.261-.439)	1277
05-06		<b>.090</b> (.085-.096)	<b>.080</b> (.080-.090)	<b>.150</b> (.140-.160)	<b>.250</b> (.210-.290)	<b>.350</b> (.260-.530)	1305
07-08		<b>.109</b> (.100-.118)	<b>.100</b> (.090-.120)	<b>.180</b> (.160-.210)	<b>.330</b> (.290-.360)	<b>.520</b> (.400-.590)	1300
09-10		<b>.091</b> (.083-.100)	<b>.090</b> (.080-.090)	<b>.150</b> (.130-.170)	<b>.270</b> (.210-.340)	<b>.380</b> (.330-.450)	1449

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Tungsten\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Tungsten_BiomonitoringSummary.html)

## Urinary Tungsten (creatinine corrected) (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00	<b>.106</b> (.093-.120)	<b>.100</b> (.086-.116)	<b>.184</b> (.152-.214)	<b>.329</b> (.267-.392)	<b>.497</b> (.354-.727)	790
	01-02	<b>.098</b> (.090-.108)	<b>.089</b> (.081-.100)	<b>.164</b> (.143-.187)	<b>.294</b> (.258-.375)	<b>.555</b> (.410-.797)	679
	03-04	<b>.079</b> (.065-.096)	<b>.073</b> (.054-.093)	<b>.136</b> (.103-.197)	<b>.300</b> (.233-.426)	<b>.482</b> (.344-.823)	618
	05-06	<b>.096</b> (.083-.111)	<b>.090</b> (.080-.090)	<b>.160</b> (.150-.180)	<b>.330</b> (.250-.420)	<b>.670</b> (.360-.890)	652
	07-08	<b>.106</b> (.083-.137)	<b>.110</b> (.080-.140)	<b>.200</b> (.160-.270)	<b>.400</b> (.260-.710)	<b>.610</b> (.310-1.12)	515
	09-10	<b>.103</b> (.096-.111)	<b>.100</b> (.090-.110)	<b>.180</b> (.160-.200)	<b>.330</b> (.290-.390)	<b>.480</b> (.390-.540)	613
Non-Hispanic blacks	99-00	<b>.073</b> (.064-.083)	<b>.071</b> (.061-.081)	<b>.124</b> (.109-.154)	<b>.201</b> (.188-.222)	<b>.360</b> (.217-.465)	562
	01-02	<b>.066</b> (.056-.077)	<b>.060</b> (.049-.079)	<b>.109</b> (.090-.125)	<b>.199</b> (.153-.285)	<b>.340</b> (.250-.414)	649
	03-04	<b>.066</b> (.059-.074)	<b>.067</b> (.055-.075)	<b>.105</b> (.095-.120)	<b>.186</b> (.150-.224)	<b>.317</b> (.214-.358)	723
	05-06	<b>.073</b> (.065-.082)	<b>.070</b> (.060-.080)	<b>.120</b> (.110-.140)	<b>.210</b> (.190-.260)	<b>.320</b> (.260-.390)	692
	07-08	<b>.088</b> (.076-.102)	<b>.090</b> (.070-.100)	<b>.150</b> (.140-.160)	<b>.240</b> (.220-.300)	<b>.380</b> (.270-.630)	589
	09-10	<b>.074</b> (.067-.080)	<b>.070</b> (.060-.080)	<b>.120</b> (.110-.140)	<b>.210</b> (.180-.250)	<b>.310</b> (.220-.410)	543
Non-Hispanic whites	99-00	<b>.091</b> (.083-.100)	<b>.082</b> (.077-.088)	<b>.150</b> (.136-.169)	<b>.279</b> (.200-.354)	<b>.385</b> (.302-.462)	802
	01-02	<b>.078</b> (.068-.088)	<b>.073</b> (.061-.085)	<b>.139</b> (.121-.157)	<b>.253</b> (.209-.308)	<b>.353</b> (.286-.453)	1117
	03-04	<b>.069</b> (.060-.078)	<b>.063</b> (.057-.071)	<b>.116</b> (.104-.133)	<b>.199</b> (.167-.237)	<b>.299</b> (.222-.439)	1074
	05-06	<b>.085</b> (.080-.090)	<b>.080</b> (.080-.090)	<b>.140</b> (.130-.160)	<b>.240</b> (.210-.280)	<b>.340</b> (.280-.420)	1041
	07-08	<b>.104</b> (.096-.114)	<b>.100</b> (.090-.110)	<b>.180</b> (.160-.200)	<b>.310</b> (.280-.360)	<b>.460</b> (.390-.530)	1095
	09-10	<b>.086</b> (.078-.094)	<b>.080</b> (.070-.090)	<b>.140</b> (.130-.160)	<b>.250</b> (.200-.310)	<b>.370</b> (.330-.400)	1225

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Tungsten\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Tungsten_BiomonitoringSummary.html)

## Urinary Tungsten (creatinine corrected) (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>.084</b> (.076-.093)	<b>.077</b> (.072-.085)	<b>.140</b> (.123-.161)	<b>.260</b> (.209-.323)	<b>.402</b> (.294-.536)	2489
	13-14	<b>.068</b> (.061-.075)	<b>.065</b> (.058-.072)	<b>.124</b> (.111-.136)	<b>.224</b> (.195-.251)	<b>.332</b> (.303-.377)	2663
<b>Age group</b>							
6-11 years	11-12	<b>.194</b> (.174-.217)	<b>.183</b> (.159-.214)	<b>.312</b> (.256-.407)	<b>.500</b> (.421-.652)	<b>.687</b> (.515-.863)	397
	13-14	<b>.166</b> (.152-.181)	<b>.166</b> (.149-.176)	<b>.249</b> (.229-.295)	<b>.400</b> (.327-.518)	<b>.673</b> (.457-.764)	402
12-19 years	11-12	<b>.103</b> (.091-.116)	<b>.099</b> (.086-.111)	<b>.164</b> (.144-.181)	<b>.288</b> (.203-.324)	<b>.381</b> (.286-.656)	388
	13-14	<b>.084</b> (.073-.097)	<b>.089</b> (.071-.101)	<b>.144</b> (.127-.162)	<b>.246</b> (.195-.293)	<b>.327</b> (.293-.492)	451
20 years and older	11-12	<b>.074</b> (.067-.083)	<b>.069</b> (.064-.075)	<b>.121</b> (.104-.138)	<b>.215</b> (.170-.263)	<b>.334</b> (.233-.458)	1704
	13-14	<b>.060</b> (.054-.066)	<b>.057</b> (.051-.062)	<b>.105</b> (.092-.117)	<b>.186</b> (.163-.212)	<b>.286</b> (.227-.357)	1810
<b>Gender</b>							
Males	11-12	<b>.079</b> (.068-.090)	<b>.075</b> (.064-.085)	<b>.131</b> (.112-.150)	<b>.261</b> (.180-.327)	<b>.400</b> (.276-.539)	1253
	13-14	<b>.065</b> (.057-.073)	<b>.065</b> (.054-.075)	<b>.121</b> (.103-.135)	<b>.199</b> (.179-.248)	<b>.316</b> (.278-.377)	1317
Females	11-12	<b>.090</b> (.083-.097)	<b>.079</b> (.075-.088)	<b>.150</b> (.134-.165)	<b>.257</b> (.223-.324)	<b>.404</b> (.314-.544)	1236
	13-14	<b>.071</b> (.065-.077)	<b>.065</b> (.059-.072)	<b>.127</b> (.116-.137)	<b>.240</b> (.220-.261)	<b>.342</b> (.311-.383)	1346
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>.110</b> (.090-.134)	<b>.102</b> (.071-.142)	<b>.192</b> (.150-.270)	<b>.381</b> (.263-.633)	<b>.633</b> (.396-.729)	314
	13-14	<b>.079</b> (.067-.093)	<b>.073</b> (.059-.093)	<b>.146</b> (.115-.172)	<b>.287</b> (.211-.369)	<b>.471</b> (.338-.602)	453
Non-Hispanic blacks	11-12	<b>.079</b> (.068-.092)	<b>.072</b> (.060-.083)	<b>.129</b> (.102-.151)	<b>.246</b> (.168-.411)	<b>.440</b> (.253-.669)	669
	13-14	<b>.064</b> (.056-.074)	<b>.059</b> (.050-.071)	<b>.118</b> (.105-.127)	<b>.233</b> (.193-.275)	<b>.342</b> (.296-.430)	581
Non-Hispanic whites	11-12	<b>.082</b> (.072-.094)	<b>.076</b> (.068-.088)	<b>.135</b> (.113-.164)	<b>.247</b> (.183-.324)	<b>.353</b> (.250-.515)	808
	13-14	<b>.066</b> (.058-.075)	<b>.064</b> (.056-.072)	<b>.118</b> (.100-.141)	<b>.200</b> (.167-.257)	<b>.307</b> (.227-.395)	984
All Hispanics	11-12	<b>.092</b> (.078-.108)	<b>.079</b> (.068-.100)	<b>.164</b> (.134-.184)	<b>.312</b> (.263-.404)	<b>.473</b> (.367-.664)	570
	13-14	<b>.072</b> (.064-.080)	<b>.068</b> (.058-.079)	<b>.133</b> (.115-.148)	<b>.240</b> (.200-.320)	<b>.391</b> (.319-.549)	701
Asians	11-12	<b>.089</b> (.075-.107)	<b>.082</b> (.073-.103)	<b>.152</b> (.129-.181)	<b>.296</b> (.207-.413)	<b>.449</b> (.299-.824)	353
	13-14	<b>.082</b> (.064-.104)	<b>.079</b> (.059-.101)	<b>.157</b> (.119-.227)	<b>.330</b> (.227-.480)	<b>.503</b> (.316-.818)	292

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Tungsten\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Tungsten_BiomonitoringSummary.html)

## Urinary Uranium (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	.008 (.007-.009)	.007 (.006-.008)	.013 (.010-.017)	.027 (.021-.038)	.046 (.037-.056)	2464
	01-02	.009 (.007-.010)	.008 (.007-.009)	.014 (.012-.018)	.030 (.023-.039)	.046 (.034-.062)	2690
	03-04	.008 (.007-.008)	.007 (.006-.007)	.011 (.010-.013)	.021 (.017-.026)	.031 (.026-.037)	2557
	05-06	.006 (.005-.006)	.005 (.005-.006)	.010 (.009-.012)	.019 (.016-.022)	.033 (.023-.041)	2576
	07-08	.007 (.006-.008)	.007 (.005-.008)	.013 (.011-.015)	.024 (.018-.033)	.039 (.026-.057)	2627
	09-10	.007 (.006-.008)	.007 (.006-.008)	.013 (.011-.015)	.022 (.019-.030)	.036 (.029-.044)	2848
Age group 6-11 years	99-00	.009 (.007-.011)	.007 (.006-.009)	.013 (.009-.022)	.032 (.019-.048)	.048 (.033-.066)	340
	01-02	.008 (.007-.010)	.008 (.006-.010)	.014 (.010-.020)	.026 (.020-.036)	.040 (.025-.049)	368
	03-04	.008 (.007-.009)	.007 (.006-.009)	.012 (.009-.016)	.020 (.016-.026)	.028 (.020-.039)	289
	05-06	.006 (.005-.007)	.005 (.004-.007)	.010 (.008-.011)	.015 (.012-.031)	.031 (.013-.051)	355
	07-08	.007 (.006-.008)	.006 (.005-.008)	.012 (.009-.016)	.021 (.016-.027)	.030 (.022-.039)	394
	09-10	.006 (.005-.008)	.006 (.005-.008)	.012 (.009-.014)	.018 (.013-.034)	.033 (.016-.052)	378
12-19 years	99-00	.009 (.008-.011)	.009 (.008-.010)	.015 (.012-.018)	.026 (.020-.043)	.044 (.028-.072)	719
	01-02	.010 (.008-.012)	.010 (.008-.012)	.017 (.013-.023)	.030 (.022-.042)	.042 (.027-.088)	762
	03-04	.010 (.009-.011)	.009 (.008-.010)	.015 (.012-.018)	.028 (.023-.036)	.038 (.036-.053)	725
	05-06	.007 (.006-.008)	.007 (.006-.008)	.013 (.011-.015)	.023 (.018-.032)	.034 (.027-.045)	701
	07-08	.009 (.007-.011)	.008 (.007-.011)	.016 (.014-.020)	.029 (.022-.056)	.056 (.027-.156)	376
	09-10	.008 (.007-.010)	.008 (.006-.010)	.014 (.011-.018)	.023 (.020-.038)	.040 (.024-.059)	451
20 years and older	99-00	.008 (.006-.009)	.007 (.005-.008)	.013 (.010-.017)	.027 (.021-.040)	.046 (.036-.056)	1405
	01-02	.009 (.007-.010)	.008 (.007-.009)	.014 (.012-.017)	.031 (.022-.040)	.046 (.034-.065)	1560
	03-04	*	.006 (.005-.007)	.011 (.009-.012)	.019 (.016-.026)	.029 (.024-.038)	1543
	05-06	.006 (.005-.006)	.005 (.005-.006)	.010 (.008-.012)	.019 (.015-.022)	.032 (.022-.041)	1520
	07-08	.007 (.005-.008)	.006 (.005-.008)	.013 (.010-.015)	.024 (.017-.035)	.039 (.026-.052)	1857
	09-10	.007 (.006-.008)	.007 (.006-.008)	.013 (.011-.015)	.023 (.019-.030)	.036 (.029-.044)	2019
Gender Males	99-00	.009 (.008-.011)	.008 (.007-.010)	.015 (.012-.021)	.036 (.024-.046)	.053 (.040-.067)	1227
	01-02	.009 (.008-.011)	.009 (.007-.010)	.015 (.013-.021)	.033 (.024-.045)	.047 (.035-.065)	1335
	03-04	.008 (.007-.009)	.007 (.006-.008)	.013 (.011-.016)	.023 (.019-.027)	.031 (.027-.035)	1280
	05-06	.006 (.006-.007)	.006 (.005-.006)	.011 (.009-.012)	.019 (.015-.022)	.030 (.021-.043)	1271
	07-08	.007 (.006-.009)	.007 (.006-.009)	.014 (.013-.016)	.026 (.021-.037)	.046 (.030-.056)	1327
	09-10	.007 (.006-.009)	.007 (.006-.009)	.014 (.012-.017)	.024 (.020-.034)	.040 (.032-.046)	1398
Females	99-00	.007 (.006-.008)	.006 (.005-.007)	.012 (.009-.015)	.023 (.016-.033)	.036 (.026-.050)	1237
	01-02	.008 (.007-.010)	.008 (.006-.009)	.014 (.011-.017)	.027 (.019-.037)	.041 (.029-.063)	1355
	03-04	*	.006 (.005-.007)	.010 (.009-.011)	.018 (.013-.027)	.031 (.022-.039)	1277
	05-06	.005 (.005-.006)	.005 (.004-.006)	.010 (.008-.011)	.019 (.016-.023)	.034 (.025-.040)	1305
	07-08	.006 (.005-.008)	.006 (.005-.007)	.011 (.009-.015)	.024 (.016-.033)	.035 (.022-.067)	1300
	09-10	.007 (.006-.008)	.007 (.006-.008)	.012 (.011-.014)	.022 (.017-.029)	.033 (.023-.045)	1450

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.004, 0.004, 0.005, 0.002, 0.002, and 0.002 respectively.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Uranium\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Uranium_BiomonitoringSummary.html)



## Urinary Uranium (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00	.017 (.012-.023)	.016 (.011-.021)	.033 (.020-.054)	.060 (.040-.127)	.114 (.054-.279)	883
	01-02	.013 (.010-.016)	.012 (.009-.016)	.022 (.017-.030)	.040 (.031-.054)	.055 (.046-.069)	683
	03-04	.014 (.011-.017)	.013 (.009-.018)	.024 (.017-.034)	.041 (.028-.073)	.064 (.039-.158)	618
	05-06	.008 (.007-.009)	.009 (.007-.010)	.014 (.013-.017)	.025 (.021-.033)	.042 (.028-.051)	652
	07-08	.009 (.008-.011)	.009 (.008-.010)	.017 (.014-.022)	.032 (.026-.039)	.047 (.032-.073)	515
	09-10	.009 (.008-.011)	.009 (.008-.011)	.018 (.015-.021)	.034 (.027-.040)	.046 (.039-.055)	613
Non-Hispanic blacks	99-00	.009 (.007-.011)	.008 (.006-.010)	.014 (.010-.020)	.028 (.018-.049)	.052 (.030-.067)	568
	01-02	.008 (.007-.009)	.008 (.007-.009)	.012 (.011-.015)	.021 (.017-.027)	.030 (.023-.037)	667
	03-04	.008 (.008-.009)	.007 (.007-.008)	.012 (.011-.013)	.021 (.017-.027)	.031 (.023-.045)	722
	05-06	.006 (.005-.007)	.006 (.005-.007)	.010 (.009-.011)	.016 (.014-.020)	.023 (.018-.031)	692
	07-08	.007 (.006-.009)	.007 (.006-.008)	.013 (.010-.016)	.024 (.016-.038)	.038 (.025-.055)	589
	09-10	.008 (.007-.010)	.008 (.007-.010)	.014 (.012-.016)	.027 (.017-.044)	.044 (.027-.074)	544
Non-Hispanic whites	99-00	.007 (.006-.009)	.007 (.006-.007)	.012 (.009-.016)	.023 (.017-.037)	.043 (.027-.051)	822
	01-02	.008 (.007-.009)	.007 (.006-.009)	.013 (.011-.016)	.026 (.019-.035)	.037 (.029-.050)	1132
	03-04	*	.006 (.005-.007)	.010 (.009-.012)	.018 (.015-.023)	.027 (.020-.036)	1074
	05-06	.005 (.005-.006)	.005 (.004-.006)	.010 (.008-.012)	.018 (.014-.022)	.033 (.021-.043)	1041
	07-08	.006 (.005-.008)	.006 (.005-.008)	.013 (.009-.016)	.023 (.015-.039)	.038 (.022-.086)	1095
	09-10	.006 (.005-.007)	.006 (.005-.007)	.012 (.011-.014)	.021 (.017-.027)	.032 (.023-.041)	1225

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.004, 0.004, 0.005, 0.002, 0.002, and 0.002 respectively.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Uranium\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Uranium_BiomonitoringSummary.html)



## Urinary Uranium (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	.006 (.005-.007)	.006 (.005-.007)	.011 (.008-.014)	.019 (.015-.025)	.031 (.023-.043)	2504
	13-14	.005 (.004-.006)	.005 (.004-.005)	.010 (.008-.013)	.023 (.015-.038)	.039 (.023-.066)	2664
<b>Age group</b>							
6-11 years	11-12	.006 (.005-.007)	.006 (.005-.008)	.011 (.009-.013)	.019 (.013-.024)	.025 (.020-.037)	399
	13-14	.005 (.004-.007)	.005 (.004-.006)	.010 (.007-.017)	.023 (.015-.034)	.034 (.019-.061)	402
12-19 years	11-12	.007 (.006-.009)	.007 (.005-.008)	.012 (.009-.017)	.021 (.014-.032)	.033 (.021-.052)	390
	13-14	.006 (.005-.007)	.005 (.004-.006)	.010 (.007-.016)	.023 (.013-.047)	.046 (.020-.096)	451
20 years and older	11-12	.006 (.005-.007)	.005 (.004-.007)	.011 (.008-.013)	.019 (.015-.025)	.031 (.023-.043)	1715
	13-14	.005 (.004-.006)	.005 (.004-.005)	.010 (.008-.012)	.023 (.015-.035)	.038 (.023-.066)	1811
<b>Gender</b>							
Males	11-12	.007 (.005-.008)	.006 (.005-.007)	.011 (.009-.014)	.020 (.014-.032)	.034 (.022-.045)	1262
	13-14	.005 (.004-.006)	.005 (.004-.005)	.010 (.008-.014)	.024 (.014-.041)	.040 (.023-.077)	1318
Females	11-12	.006 (.005-.007)	.005 (.004-.006)	.010 (.008-.013)	.019 (.015-.025)	.029 (.024-.042)	1242
	13-14	.005 (.004-.006)	.005 (.004-.005)	.010 (.008-.012)	.022 (.015-.033)	.036 (.022-.065)	1346
<b>Race/ethnicity</b>							
Mexican Americans	11-12	.007 (.006-.009)	.007 (.006-.009)	.013 (.010-.016)	.023 (.015-.033)	.031 (.017-.054)	317
	13-14	.008 (.006-.009)	.008 (.006-.011)	.015 (.012-.020)	.028 (.022-.040)	.043 (.028-.058)	453
Non-Hispanic blacks	11-12	.006 (.005-.008)	.006 (.005-.008)	.011 (.008-.014)	.019 (.014-.028)	.029 (.022-.042)	669
	13-14	.005 (.005-.006)	.005 (.005-.006)	.009 (.008-.011)	.017 (.013-.023)	.025 (.016-.046)	581
Non-Hispanic whites	11-12	.006 (.005-.007)	.006 (.004-.007)	.011 (.008-.014)	.021 (.015-.029)	.034 (.023-.045)	820
	13-14	.005 (.004-.006)	.004 (.003-.005)	.009 (.006-.016)	.023 (.011-.046)	.040 (.019-.098)	985
All Hispanics	11-12	.006 (.005-.007)	.005 (.005-.007)	.011 (.008-.014)	.018 (.013-.030)	.030 (.018-.047)	573
	13-14	.007 (.006-.008)	.007 (.005-.008)	.013 (.011-.018)	.026 (.019-.034)	.040 (.026-.057)	701
Asians	11-12	.005 (.005-.006)	.005 (.004-.005)	.009 (.007-.013)	.016 (.014-.020)	.021 (.016-.040)	353
	13-14	.005 (.004-.008)	.005 (.003-.007)	.011 (.006-.025)	.031 (.011-.068)	.051 (.025-.101)	292

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.003 and 0.002.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Uranium\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Uranium_BiomonitoringSummary.html)

## Urinary Uranium (creatinine corrected) (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	.007 (.006-.009)	.007 (.006-.009)	.013 (.010-.016)	.024 (.019-.030)	.034 (.027-.053)	2464
	01-02	.008 (.007-.010)	.007 (.006-.009)	.014 (.011-.018)	.026 (.020-.034)	.040 (.028-.058)	2689
	03-04	.008 (.007-.008)	.007 (.006-.008)	.012 (.010-.014)	.021 (.017-.025)	.029 (.023-.039)	2557
	05-06	.006 (.005-.006)	.005 (.005-.006)	.009 (.008-.010)	.017 (.014-.020)	.026 (.020-.039)	2576
	07-08	.007 (.006-.009)	.006 (.005-.008)	.012 (.009-.016)	.024 (.016-.038)	.038 (.025-.065)	2627
	09-10	.007 (.006-.008)	.007 (.006-.008)	.012 (.010-.013)	.020 (.017-.024)	.029 (.024-.035)	2848
	Age group 6-11 years	99-00	.009 (.007-.012)	.008 (.006-.011)	.015 (.010-.024)	.030 (.016-.044)	.037 (.030-.077)
01-02		.010 (.008-.011)	.010 (.008-.012)	.015 (.013-.019)	.027 (.018-.032)	.033 (.027-.048)	368
03-04		.009 (.008-.010)	.008 (.007-.010)	.013 (.011-.017)	.024 (.016-.039)	.033 (.022-.050)	289
05-06		.007 (.006-.008)	.006 (.005-.008)	.010 (.008-.014)	.018 (.013-.035)	.034 (.018-.048)	355
07-08		.009 (.007-.011)	.008 (.007-.010)	.014 (.010-.022)	.026 (.016-.053)	.042 (.023-.065)	394
09-10		.009 (.007-.010)	.008 (.007-.010)	.014 (.011-.016)	.020 (.015-.030)	.029 (.022-.033)	378
12-19 years		99-00	.007 (.006-.008)	.006 (.005-.008)	.010 (.009-.014)	.020 (.014-.030)	.030 (.019-.074)
	01-02	.007 (.006-.008)	.007 (.006-.008)	.012 (.009-.016)	.020 (.015-.026)	.026 (.020-.042)	762
	03-04	.007 (.006-.008)	.006 (.005-.007)	.010 (.008-.013)	.019 (.015-.027)	.034 (.022-.041)	725
	05-06	.006 (.005-.007)	.005 (.005-.006)	.009 (.007-.012)	.017 (.013-.022)	.023 (.019-.026)	701
	07-08	.007 (.006-.009)	.006 (.005-.008)	.012 (.009-.016)	.025 (.013-.050)	.033 (.022-.077)	376
	09-10	.007 (.006-.009)	.007 (.006-.008)	.011 (.010-.013)	.017 (.014-.021)	.025 (.017-.038)	451
	20 years and older	99-00	.007 (.006-.009)	.007 (.006-.009)	.013 (.010-.016)	.024 (.019-.029)	.034 (.025-.051)
01-02		.008 (.007-.010)	.007 (.006-.009)	.014 (.011-.019)	.027 (.020-.039)	.043 (.030-.063)	1559
03-04		*	.007 (.006-.008)	.012 (.010-.014)	.020 (.017-.024)	.028 (.022-.038)	1543
05-06		.006 (.005-.006)	.005 (.005-.006)	.009 (.008-.010)	.016 (.014-.019)	.026 (.020-.039)	1520
07-08		.007 (.006-.008)	.006 (.005-.008)	.012 (.009-.016)	.024 (.016-.036)	.037 (.025-.065)	1857
09-10		.007 (.006-.008)	.007 (.006-.008)	.012 (.010-.013)	.020 (.017-.025)	.029 (.024-.036)	2019
Gender Males		99-00	.007 (.006-.009)	.006 (.005-.008)	.011 (.009-.015)	.021 (.017-.028)	.035 (.024-.056)
	01-02	.007 (.006-.008)	.007 (.006-.008)	.012 (.010-.015)	.022 (.018-.028)	.033 (.025-.047)	1334
	03-04	.007 (.006-.008)	.006 (.006-.007)	.010 (.009-.012)	.019 (.015-.024)	.026 (.019-.039)	1280
	05-06	.005 (.005-.005)	.005 (.004-.005)	.008 (.007-.009)	.014 (.013-.016)	.021 (.016-.031)	1271
	07-08	.007 (.005-.008)	.006 (.005-.007)	.012 (.009-.015)	.022 (.016-.031)	.032 (.024-.056)	1327
	09-10	.007 (.006-.008)	.006 (.006-.007)	.011 (.010-.012)	.019 (.015-.023)	.028 (.022-.033)	1398
	Females	99-00	.008 (.007-.010)	.007 (.006-.010)	.013 (.010-.017)	.025 (.019-.033)	.034 (.027-.054)
01-02		.009 (.008-.011)	.009 (.007-.011)	.016 (.012-.021)	.029 (.021-.042)	.045 (.031-.067)	1355
03-04		*	.008 (.007-.009)	.013 (.011-.016)	.022 (.018-.028)	.031 (.025-.041)	1277
05-06		.006 (.006-.007)	.006 (.005-.006)	.010 (.009-.011)	.019 (.015-.024)	.035 (.022-.041)	1305
07-08		.008 (.006-.009)	.007 (.006-.008)	.013 (.010-.018)	.026 (.016-.043)	.042 (.024-.083)	1300
09-10		.008 (.007-.009)	.008 (.006-.009)	.013 (.011-.015)	.021 (.017-.027)	.031 (.024-.041)	1450

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Uranium\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Uranium_BiomonitoringSummary.html)

## Urinary Uranium (creatinine corrected) (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00	.015 (.011-.022)	.015 (.011-.020)	.029 (.016-.058)	.059 (.027-.146)	.100 (.042-.270)	883
	01-02	.012 (.010-.016)	.012 (.009-.016)	.021 (.015-.028)	.033 (.024-.053)	.050 (.034-.080)	682
	03-04	.013 (.010-.016)	.013 (.009-.017)	.022 (.016-.029)	.035 (.026-.051)	.051 (.034-.061)	618
	05-06	.008 (.007-.009)	.007 (.006-.008)	.013 (.010-.015)	.022 (.016-.031)	.035 (.025-.060)	652
	07-08	.009 (.008-.012)	.009 (.007-.011)	.017 (.014-.021)	.031 (.021-.048)	.042 (.027-.097)	515
	09-10	.010 (.009-.011)	.010 (.008-.011)	.016 (.013-.018)	.026 (.022-.030)	.036 (.030-.044)	613
Non-Hispanic blacks	99-00	.006 (.004-.007)	.005 (.004-.006)	.008 (.006-.013)	.017 (.011-.029)	.028 (.018-.048)	568
	01-02	.005 (.005-.006)	.005 (.005-.006)	.008 (.007-.010)	.013 (.011-.014)	.017 (.014-.029)	667
	03-04	.006 (.005-.006)	.005 (.005-.006)	.009 (.008-.009)	.013 (.012-.015)	.018 (.014-.024)	722
	05-06	.004 (.004-.005)	.004 (.003-.005)	.006 (.006-.007)	.011 (.009-.015)	.017 (.012-.021)	692
	07-08	.005 (.005-.006)	.005 (.004-.006)	.009 (.007-.011)	.014 (.011-.017)	.018 (.014-.041)	589
	09-10	.006 (.005-.008)	.006 (.005-.007)	.010 (.008-.012)	.018 (.013-.021)	.023 (.018-.044)	544
Non-Hispanic whites	99-00	.007 (.006-.009)	.007 (.006-.009)	.012 (.010-.015)	.021 (.017-.027)	.030 (.024-.050)	822
	01-02	.008 (.007-.009)	.007 (.006-.009)	.013 (.011-.016)	.025 (.018-.032)	.034 (.025-.051)	1132
	03-04	*	.007 (.006-.008)	.011 (.010-.013)	.019 (.015-.024)	.027 (.020-.040)	1074
	05-06	.006 (.005-.006)	.005 (.005-.006)	.009 (.008-.010)	.016 (.013-.020)	.024 (.019-.039)	1041
	07-08	.007 (.006-.009)	.006 (.005-.008)	.012 (.009-.019)	.025 (.015-.043)	.039 (.024-.081)	1095
	09-10	.007 (.006-.008)	.007 (.006-.008)	.012 (.010-.013)	.018 (.015-.024)	.028 (.021-.035)	1225

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Uranium\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Uranium_BiomonitoringSummary.html)

## Urinary Uranium (creatinine corrected) (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	.007 (.006-.008)	.007 (.006-.008)	.011 (.009-.014)	.021 (.015-.026)	.029 (.023-.037)	2502
	13-14	.006 (.005-.007)	.005 (.004-.006)	.010 (.008-.013)	.020 (.013-.038)	.039 (.021-.064)	2663
<b>Age group</b>							
6-11 years	11-12	.009 (.007-.011)	.008 (.007-.010)	.013 (.011-.017)	.023 (.014-.031)	.031 (.018-.080)	398
	13-14	.008 (.006-.010)	.006 (.005-.009)	.012 (.009-.019)	.028 (.018-.045)	.045 (.022-.081)	402
12-19 years	11-12	.007 (.005-.009)	.006 (.005-.009)	.010 (.008-.013)	.016 (.013-.026)	.026 (.015-.059)	390
	13-14	.005 (.004-.007)	.004 (.004-.005)	.009 (.005-.015)	.021 (.011-.045)	.038 (.018-.051)	451
20 years and older	11-12	.007 (.006-.008)	.006 (.005-.008)	.011 (.009-.014)	.021 (.015-.027)	.029 (.022-.041)	1714
	13-14	.006 (.005-.007)	.005 (.004-.006)	.010 (.008-.013)	.020 (.014-.036)	.039 (.020-.065)	1810
<b>Gender</b>							
Males	11-12	.006 (.005-.007)	.006 (.005-.007)	.009 (.007-.013)	.017 (.012-.026)	.027 (.017-.052)	1261
	13-14	.005 (.004-.006)	.005 (.004-.005)	.009 (.006-.012)	.019 (.011-.039)	.034 (.018-.061)	1317
Females	11-12	.008 (.007-.009)	.007 (.006-.009)	.013 (.010-.016)	.022 (.020-.026)	.030 (.026-.036)	1241
	13-14	.007 (.006-.008)	.006 (.005-.007)	.011 (.009-.013)	.024 (.016-.042)	.046 (.025-.067)	1346
<b>Race/ethnicity</b>							
Mexican Americans	11-12	.008 (.006-.011)	.008 (.006-.011)	.013 (.010-.018)	.021 (.014-.030)	.027 (.019-.046)	317
	13-14	.009 (.007-.011)	.008 (.007-.010)	.014 (.011-.020)	.025 (.020-.042)	.042 (.025-.061)	453
Non-Hispanic blacks	11-12	.005 (.004-.006)	.005 (.004-.006)	.008 (.006-.009)	.013 (.009-.019)	.019 (.014-.030)	669
	13-14	.004 (.004-.005)	.004 (.004-.004)	.006 (.005-.007)	.011 (.008-.016)	.017 (.011-.026)	581
Non-Hispanic whites	11-12	.007 (.006-.009)	.007 (.006-.008)	.012 (.010-.016)	.022 (.018-.028)	.031 (.023-.057)	818
	13-14	.006 (.004-.008)	.005 (.004-.007)	.010 (.007-.015)	.021 (.011-.055)	.039 (.019-.082)	984
All Hispanics	11-12	.007 (.005-.008)	.007 (.005-.009)	.011 (.009-.014)	.018 (.013-.026)	.025 (.019-.034)	573
	13-14	.008 (.006-.009)	.007 (.006-.009)	.013 (.010-.018)	.023 (.019-.035)	.042 (.022-.061)	701
Asians	11-12	.007 (.006-.008)	.007 (.006-.008)	.012 (.010-.013)	.019 (.015-.032)	.033 (.018-.048)	353
	13-14	.008 (.006-.012)	.007 (.005-.011)	.014 (.009-.032)	.043 (.015-.085)	.061 (.031-.142)	292

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Uranium\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Uranium_BiomonitoringSummary.html)

## Serum Zinc (2011 - 2014)

Geometric mean and selected percentiles of serum concentrations (in µg/dL) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Total</b>	11-12	<b>81.9</b> (80.9-82.9)	<b>81.8</b> (80.8-82.9)	<b>91.5</b> (89.8-93.1)	<b>101</b> (99.1-104)	<b>109</b> (105-112)	2329
	13-14	<b>80.4</b> (78.2-82.6)	<b>80.7</b> (78.4-82.9)	<b>90.5</b> (88.0-93.1)	<b>101</b> (97.7-104)	<b>109</b> (104-113)	2519
<b>Age group</b>							
6-11 years	11-12	<b>81.3</b> (79.4-83.2)	<b>82.0</b> (79.2-83.7)	<b>90.3</b> (86.3-93.4)	<b>101</b> (93.7-106)	<b>106</b> (101-114)	316
	13-14	<b>79.3</b> (77.4-81.3)	<b>79.4</b> (77.7-81.0)	<b>88.5</b> (84.5-91.5)	<b>97.4</b> (91.4-103)	<b>103</b> (96.2-114)	339
12-19 years	11-12	<b>83.0</b> (81.5-84.5)	<b>81.9</b> (79.4-85.0)	<b>94.4</b> (89.6-96.0)	<b>103</b> (99.1-105)	<b>106</b> (103-115)	366
	13-14	<b>82.8</b> (80.1-85.6)	<b>84.1</b> (79.8-87.6)	<b>94.8</b> (89.4-98.3)	<b>103</b> (100-108)	<b>110</b> (102-118)	418
20 years and older	11-12	<b>81.8</b> (80.7-83.0)	<b>81.7</b> (80.6-82.9)	<b>91.3</b> (89.3-93.4)	<b>101</b> (98.6-104)	<b>109</b> (105-114)	1647
	13-14	<b>80.1</b> (77.9-82.5)	<b>80.5</b> (78.2-82.5)	<b>90.2</b> (87.3-92.9)	<b>101</b> (97.0-105)	<b>109</b> (103-114)	1762
<b>Gender</b>							
Males	11-12	<b>84.2</b> (82.7-85.8)	<b>83.9</b> (82.4-85.4)	<b>94.0</b> (91.9-96.4)	<b>104</b> (101-109)	<b>112</b> (108-117)	1162
	13-14	<b>82.6</b> (80.2-85.0)	<b>83.1</b> (80.6-85.6)	<b>93.3</b> (90.4-96.3)	<b>105</b> (100-109)	<b>113</b> (107-119)	1235
Females	11-12	<b>79.8</b> (78.7-81.0)	<b>79.7</b> (78.2-81.1)	<b>88.5</b> (87.3-90.2)	<b>99.6</b> (95.5-103)	<b>105</b> (103-108)	1167
	13-14	<b>78.3</b> (76.1-80.6)	<b>78.7</b> (76.0-81.3)	<b>87.5</b> (84.9-90.1)	<b>97.5</b> (93.0-102)	<b>103</b> (101-108)	1284
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>81.4</b> (77.2-85.7)	<b>81.8</b> (76.4-86.4)	<b>89.6</b> (86.5-96.4)	<b>101</b> (94.3-110)	<b>110</b> (100-119)	285
	13-14	<b>81.0</b> (77.6-84.5)	<b>80.8</b> (77.1-85.8)	<b>92.1</b> (88.1-98.6)	<b>102</b> (100-110)	<b>113</b> (103-119)	431
Non-Hispanic blacks	11-12	<b>79.7</b> (77.9-81.5)	<b>79.4</b> (77.8-81.3)	<b>90.9</b> (87.0-93.3)	<b>101</b> (95.7-106)	<b>108</b> (103-111)	620
	13-14	<b>79.1</b> (75.8-82.5)	<b>78.4</b> (74.6-83.0)	<b>88.4</b> (85.8-91.8)	<b>102</b> (95.1-105)	<b>109</b> (103-114)	516
Non-Hispanic whites	11-12	<b>82.8</b> (81.3-84.2)	<b>82.9</b> (81.1-84.5)	<b>92.2</b> (89.8-94.5)	<b>102</b> (98.0-105)	<b>109</b> (103-117)	780
	13-14	<b>80.5</b> (77.9-83.2)	<b>81.2</b> (78.7-83.3)	<b>90.4</b> (87.5-93.3)	<b>101</b> (96.8-103)	<b>109</b> (102-113)	975
All Hispanics	11-12	<b>80.4</b> (78.1-82.7)	<b>80.1</b> (77.5-83.1)	<b>88.8</b> (86.4-92.4)	<b>100</b> (96.2-106)	<b>109</b> (101-116)	525
	13-14	<b>81.7</b> (78.3-85.2)	<b>81.8</b> (78.4-85.6)	<b>92.2</b> (87.3-99.5)	<b>103</b> (99.9-109)	<b>113</b> (104-123)	666
Asians	11-12	<b>81.2</b> (79.0-83.6)	<b>81.0</b> (78.6-83.7)	<b>91.3</b> (88.7-95.1)	<b>101</b> (97.9-107)	<b>110</b> (103-114)	323
	13-14	<b>78.4</b> (75.8-81.1)	<b>78.0</b> (74.8-83.2)	<b>89.7</b> (85.8-93.0)	<b>100</b> (96.0-106)	<b>109</b> (103-112)	266

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 2.9 and 2.9, respectively.

## Urinary Nitrate (2001 - 2010)

Geometric mean and selected percentiles of urine concentrations (in mg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	<b>48.2</b> (46.2-50.3)	<b>49.0</b> (46.0-52.0)	<b>78.0</b> (73.0-83.0)	<b>100</b> (100-130)	<b>140</b> (130-150)	1617
	05-06	<b>42.7</b> (39.6-46.1)	<b>47.8</b> (44.4-51.2)	<b>74.6</b> (69.8-79.4)	<b>108</b> (101-114)	<b>133</b> (125-144)	7697
	07-08	<b>46.3</b> (44.6-48.1)	<b>50.3</b> (48.4-52.0)	<b>76.0</b> (72.7-79.1)	<b>110</b> (104-116)	<b>138</b> (132-146)	7629
	09-10	<b>40.7</b> (38.9-42.7)	<b>43.3</b> (41.1-45.8)	<b>68.7</b> (65.5-72.5)	<b>98.5</b> (93.4-102)	<b>126</b> (114-137)	2844
<b>Age group</b>							
6-11 years	01-02	<b>62.2</b> (53.8-71.8)	<b>68.0</b> (58.0-79.0)	<b>94.0</b> (84.0-100)	<b>130</b> (100-160)	<b>150</b> (120-380)	374
	05-06	<b>51.2</b> (47.4-55.4)	<b>54.7</b> (51.9-58.2)	<b>79.2</b> (72.8-87.2)	<b>113</b> (101-128)	<b>141</b> (120-158)	1054
	07-08	<b>55.2</b> (51.7-58.9)	<b>60.2</b> (56.1-64.3)	<b>84.5</b> (80.1-92.5)	<b>117</b> (107-135)	<b>149</b> (132-189)	1143
	09-10	<b>46.8</b> (43.2-50.6)	<b>50.3</b> (45.5-58.2)	<b>73.2</b> (70.2-79.1)	<b>98.7</b> (86.7-112)	<b>119</b> (98.0-186)	377
12-19 years	01-02	<b>57.4</b> (53.5-61.6)	<b>66.0</b> (60.0-69.0)	<b>91.0</b> (86.0-95.0)	<b>120</b> (100-130)	<b>150</b> (130-160)	827
	05-06	<b>52.5</b> (48.5-56.8)	<b>57.5</b> (52.3-62.6)	<b>84.2</b> (79.9-88.4)	<b>119</b> (111-124)	<b>144</b> (129-153)	2106
	07-08	<b>55.5</b> (51.5-59.7)	<b>56.8</b> (51.9-61.5)	<b>84.1</b> (76.2-94.5)	<b>119</b> (107-133)	<b>144</b> (133-162)	1135
	09-10	<b>44.6</b> (41.0-48.4)	<b>48.0</b> (43.3-54.9)	<b>75.2</b> (70.0-79.4)	<b>106</b> (91.6-119)	<b>133</b> (106-163)	452
20 years and older	01-02	<b>45.4</b> (43.3-47.5)	<b>49.0</b> (46.0-52.0)	<b>78.0</b> (73.0-83.0)	<b>100</b> (100-130)	<b>140</b> (130-150)	1617
	05-06	<b>40.5</b> (37.4-43.9)	<b>45.0</b> (41.3-48.3)	<b>71.7</b> (67.1-77.4)	<b>105</b> (98.0-113)	<b>129</b> (122-142)	4537
	07-08	<b>44.2</b> (42.5-45.9)	<b>48.1</b> (46.0-49.7)	<b>73.2</b> (70.1-76.5)	<b>107</b> (101-113)	<b>135</b> (128-146)	5351
	09-10	<b>39.6</b> (37.4-41.9)	<b>42.3</b> (39.4-44.8)	<b>66.4</b> (62.3-71.9)	<b>97.2</b> (91.9-102)	<b>124</b> (113-144)	2015
<b>Gender</b>							
Males	01-02	<b>57.5</b> (54.6-60.6)	<b>63.0</b> (59.0-67.0)	<b>89.0</b> (83.0-94.0)	<b>130</b> (100-140)	<b>150</b> (140-170)	1335
	05-06	<b>48.4</b> (44.6-52.6)	<b>52.7</b> (48.3-57.8)	<b>79.4</b> (72.8-86.5)	<b>110</b> (103-121)	<b>136</b> (123-152)	3765
	07-08	<b>51.9</b> (49.9-54.1)	<b>56.1</b> (53.8-58.0)	<b>79.5</b> (75.7-83.5)	<b>112</b> (105-119)	<b>137</b> (131-149)	3839
	09-10	<b>44.9</b> (41.8-48.2)	<b>46.0</b> (43.1-49.7)	<b>73.3</b> (67.9-77.1)	<b>105</b> (95.6-112)	<b>133</b> (117-159)	1401
Females	01-02	<b>40.7</b> (38.4-43.2)	<b>43.0</b> (41.0-48.0)	<b>72.0</b> (68.0-76.0)	<b>100</b> (98.0-120)	<b>130</b> (120-150)	1483
	05-06	<b>37.9</b> (35.1-40.8)	<b>42.0</b> (38.2-46.0)	<b>69.2</b> (65.5-73.4)	<b>104</b> (96.6-110)	<b>130</b> (124-140)	3932
	07-08	<b>41.4</b> (39.3-43.7)	<b>43.9</b> (41.5-46.3)	<b>71.3</b> (67.5-74.8)	<b>108</b> (99.8-115)	<b>138</b> (132-149)	3790
	09-10	<b>37.1</b> (34.9-39.5)	<b>40.3</b> (36.4-43.9)	<b>65.9</b> (62.0-69.8)	<b>92.2</b> (88.4-98.5)	<b>117</b> (101-130)	1443
<b>Race/ethnicity</b>							
Mexican Americans	01-02	<b>53.2</b> (48.7-58.2)	<b>59.0</b> (52.0-66.0)	<b>84.0</b> (79.0-91.0)	<b>120</b> (100-150)	<b>160</b> (130-180)	707
	05-06	<b>47.8</b> (44.7-51.2)	<b>52.4</b> (49.9-56.2)	<b>77.9</b> (75.1-83.1)	<b>113</b> (104-120)	<b>148</b> (133-156)	1972
	07-08	<b>48.7</b> (45.0-52.6)	<b>51.9</b> (47.4-56.7)	<b>75.6</b> (69.7-81.3)	<b>111</b> (100-122)	<b>148</b> (127-164)	1505
	09-10	<b>41.3</b> (39.3-43.5)	<b>43.5</b> (41.2-46.4)	<b>66.4</b> (61.0-73.9)	<b>92.6</b> (86.5-99.7)	<b>111</b> (94.4-132)	611
Non-Hispanic blacks	01-02	<b>53.8</b> (47.8-60.5)	<b>58.0</b> (51.0-64.0)	<b>84.0</b> (77.0-93.0)	<b>120</b> (100-130)	<b>140</b> (130-170)	680
	05-06	<b>45.9</b> (42.1-50.0)	<b>50.4</b> (46.6-54.9)	<b>75.0</b> (68.8-80.8)	<b>101</b> (95.3-110)	<b>127</b> (114-148)	2078
	07-08	<b>47.5</b> (45.0-50.3)	<b>50.3</b> (48.6-52.5)	<b>74.7</b> (71.9-77.3)	<b>105</b> (97.1-116)	<b>134</b> (125-150)	1707
	09-10	<b>39.0</b> (36.5-41.7)	<b>44.1</b> (41.6-46.3)	<b>65.4</b> (61.5-69.6)	<b>94.2</b> (86.6-101)	<b>121</b> (101-141)	544
Non-Hispanic whites	01-02	<b>46.3</b> (44.1-48.6)	<b>51.0</b> (47.0-53.0)	<b>81.0</b> (78.0-85.0)	<b>120</b> (100-130)	<b>140</b> (130-150)	1228
	05-06	<b>41.2</b> (37.6-45.2)	<b>46.2</b> (41.3-50.6)	<b>73.3</b> (67.3-80.1)	<b>107</b> (98.2-115)	<b>129</b> (122-142)	3056
	07-08	<b>45.0</b> (42.7-47.5)	<b>49.2</b> (46.1-52.6)	<b>75.5</b> (70.5-80.0)	<b>108</b> (101-116)	<b>134</b> (128-140)	3190
	09-10	<b>39.8</b> (37.2-42.6)	<b>42.1</b> (39.1-45.2)	<b>68.4</b> (63.0-73.5)	<b>95.6</b> (89.8-100)	<b>119</b> (106-131)	1215

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 05-06, 07-08, and 09-10 are 0.7, 0.7, 0.7, and 0.7 respectively.



## Urinary Nitrate (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in mg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>41.8</b> (39.7-44.1)	<b>44.5</b> (42.3-47.2)	<b>71.5</b> (68.1-76.4)	<b>108</b> (99.3-116)	<b>133</b> (119-156)	2467
	13-14	<b>40.8</b> (38.8-42.9)	<b>42.2</b> (39.6-45.7)	<b>72.2</b> (67.8-78.7)	<b>107</b> (101-112)	<b>136</b> (123-151)	2644
<b>Age group</b>							
6-11 years	11-12	<b>47.4</b> (43.3-52.0)	<b>54.1</b> (49.2-61.3)	<b>78.6</b> (74.3-84.0)	<b>99.8</b> (93.2-113)	<b>121</b> (104-141)	394
	13-14	<b>44.7</b> (41.0-48.8)	<b>47.3</b> (42.3-51.7)	<b>79.2</b> (68.9-86.0)	<b>119</b> (95.8-138)	<b>151</b> (124-189)	398
12-19 years	11-12	<b>43.3</b> (37.4-50.1)	<b>50.4</b> (39.8-58.3)	<b>71.5</b> (66.5-78.0)	<b>107</b> (91.9-121)	<b>135</b> (108-183)	384
	13-14	<b>46.5</b> (40.8-53.0)	<b>51.1</b> (42.5-59.3)	<b>83.4</b> (72.9-89.6)	<b>112</b> (92.5-120)	<b>122</b> (115-134)	449
20 years and older	11-12	<b>41.0</b> (38.7-43.5)	<b>43.4</b> (40.8-46.2)	<b>70.1</b> (66.1-75.7)	<b>110</b> (98.7-117)	<b>135</b> (117-164)	1689
	13-14	<b>39.6</b> (37.6-41.8)	<b>40.7</b> (38.2-44.1)	<b>70.2</b> (64.2-76.1)	<b>107</b> (101-111)	<b>136</b> (120-153)	1797
<b>Gender</b>							
Males	11-12	<b>46.9</b> (43.3-50.8)	<b>48.4</b> (43.6-53.0)	<b>76.2</b> (69.9-81.7)	<b>114</b> (101-124)	<b>150</b> (116-175)	1251
	13-14	<b>43.6</b> (40.1-47.4)	<b>45.3</b> (41.0-50.6)	<b>73.1</b> (64.3-83.5)	<b>108</b> (99.8-113)	<b>141</b> (118-157)	1313
Females	11-12	<b>37.4</b> (34.4-40.7)	<b>41.2</b> (36.4-46.0)	<b>67.9</b> (60.6-73.7)	<b>101</b> (89.8-114)	<b>120</b> (113-145)	1216
	13-14	<b>38.2</b> (36.1-40.5)	<b>39.2</b> (37.5-41.7)	<b>71.4</b> (67.8-74.8)	<b>107</b> (99.8-112)	<b>134</b> (120-141)	1331
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>41.1</b> (36.9-45.8)	<b>45.9</b> (40.4-51.3)	<b>65.9</b> (61.8-70.9)	<b>89.8</b> (78.4-108)	<b>112</b> (89.8-159)	313
	13-14	<b>42.0</b> (36.0-49.0)	<b>45.3</b> (35.4-56.6)	<b>72.0</b> (61.7-83.4)	<b>111</b> (93.0-134)	<b>136</b> (111-163)	451
Non-Hispanic blacks	11-12	<b>44.9</b> (41.5-48.6)	<b>47.6</b> (41.6-52.3)	<b>73.8</b> (67.8-79.8)	<b>107</b> (97.1-117)	<b>139</b> (116-150)	663
	13-14	<b>46.4</b> (42.4-50.9)	<b>50.0</b> (44.9-54.4)	<b>73.6</b> (66.4-80.6)	<b>105</b> (92.1-119)	<b>135</b> (107-172)	574
Non-Hispanic whites	11-12	<b>41.0</b> (38.0-44.1)	<b>43.6</b> (39.6-47.9)	<b>71.9</b> (66.7-78.0)	<b>110</b> (96.1-117)	<b>132</b> (115-169)	810
	13-14	<b>39.3</b> (36.6-42.3)	<b>40.2</b> (37.6-43.9)	<b>71.9</b> (64.5-80.9)	<b>107</b> (95.9-111)	<b>128</b> (114-145)	976
All Hispanics	11-12	<b>41.0</b> (36.7-45.7)	<b>44.4</b> (40.2-48.9)	<b>67.2</b> (60.9-73.9)	<b>95.3</b> (82.9-113)	<b>120</b> (97.0-159)	566
	13-14	<b>41.1</b> (36.8-45.8)	<b>44.4</b> (39.0-50.5)	<b>70.0</b> (62.7-76.7)	<b>107</b> (94.2-116)	<b>138</b> (120-153)	699
Asians	11-12	<b>50.2</b> (43.7-57.6)	<b>50.8</b> (45.8-57.5)	<b>84.0</b> (72.1-91.9)	<b>146</b> (121-171)	<b>238</b> (142-380)	341
	13-14	<b>44.4</b> (38.9-50.7)	<b>45.2</b> (36.6-53.0)	<b>91.6</b> (76.2-99.5)	<b>150</b> (114-183)	<b>189</b> (139-282)	291

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.7 and 0.7, respectively.



## Urinary Nitrate (creatinine corrected) (2001 - 2010)

Geometric mean and selected percentiles of urine concentrations (in mg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	49.8 (47.7-51.9)	46.9 (44.2-49.6)	63.8 (61.2-67.7)	90.9 (84.3-98.8)	120 (111-128)	1616
	05-06	42.6 (40.2-45.1)	42.4 (40.1-44.7)	59.7 (55.8-64.1)	85.5 (81.3-91.3)	113 (106-118)	7697
	07-08	47.7 (45.9-49.7)	46.0 (44.0-48.3)	66.5 (62.4-70.5)	98.0 (92.3-102)	127 (119-135)	7628
	09-10	43.7 (42.1-45.3)	42.3 (41.0-43.7)	60.2 (57.6-63.0)	88.5 (83.3-96.1)	115 (104-127)	2843
<b>Age group</b>							
6-11 years	01-02	72.0 (66.1-78.4)	66.0 (62.6-70.4)	87.0 (80.2-97.7)	129 (96.5-144)	144 (130-235)	374
	05-06	60.8 (57.4-64.5)	57.3 (53.6-60.6)	76.5 (70.9-82.1)	109 (95.0-123)	134 (121-164)	1054
	07-08	70.2 (65.7-74.9)	65.9 (62.4-69.5)	89.0 (83.2-96.5)	128 (112-152)	173 (140-216)	1143
	09-10	64.2 (58.8-70.0)	60.2 (56.3-63.3)	80.7 (68.9-96.1)	107 (96.1-124)	127 (105-202)	376
12-19 years	01-02	44.8 (43.4-46.2)	43.8 (42.6-45.0)	56.2 (52.2-59.7)	73.2 (65.2-85.1)	93.4 (79.0-104)	826
	05-06	39.8 (37.8-41.9)	38.1 (36.3-40.3)	51.8 (47.7-56.0)	70.6 (63.1-78.8)	88.9 (79.4-103)	2106
	07-08	43.4 (41.3-45.5)	40.5 (38.6-43.5)	56.0 (52.7-59.2)	76.6 (69.0-86.2)	98.0 (85.4-121)	1134
	09-10	41.7 (39.3-44.4)	39.7 (38.3-41.7)	54.0 (48.4-57.4)	73.4 (61.0-86.1)	88.5 (71.0-117)	452
20 years and older	01-02	48.3 (45.9-50.9)	46.9 (44.2-49.6)	63.8 (61.2-67.7)	90.9 (84.3-98.8)	120 (111-128)	1616
	05-06	41.4 (38.9-43.9)	41.0 (38.8-43.7)	58.6 (54.8-63.1)	85.3 (80.2-91.0)	111 (105-116)	4537
	07-08	46.5 (44.6-48.4)	44.7 (42.5-47.0)	65.0 (60.7-69.2)	96.1 (90.0-102)	125 (117-132)	5351
	09-10	42.2 (40.3-44.2)	41.0 (39.6-42.5)	58.6 (55.4-62.2)	87.7 (81.0-98.5)	116 (103-133)	2015
<b>Gender</b>							
Males	01-02	47.6 (44.7-50.7)	46.1 (43.4-48.7)	61.3 (58.0-64.5)	86.7 (77.1-97.3)	114 (97.3-125)	1335
	05-06	40.1 (37.5-42.9)	39.5 (36.7-42.8)	55.3 (51.6-59.5)	77.2 (70.7-83.0)	95.9 (89.6-102)	3765
	07-08	44.6 (42.8-46.6)	42.8 (40.7-45.1)	60.6 (58.1-64.4)	85.6 (81.1-91.3)	111 (101-121)	3839
	09-10	41.0 (38.9-43.1)	39.1 (37.6-40.6)	54.6 (52.2-58.1)	83.3 (74.6-90.0)	103 (96.1-122)	1400
Females	01-02	51.9 (49.9-54.1)	51.2 (48.4-53.0)	69.1 (66.7-71.2)	100 (91.7-111)	129 (118-140)	1481
	05-06	45.1 (42.8-47.6)	45.0 (42.4-47.4)	64.4 (60.0-69.6)	96.8 (87.8-105)	128 (117-134)	3932
	07-08	51.0 (48.9-53.2)	50.0 (47.5-52.7)	72.3 (67.8-76.8)	107 (101-116)	146 (129-163)	3789
	09-10	46.5 (44.4-48.7)	46.5 (44.8-48.4)	64.2 (60.5-69.4)	96.6 (83.3-106)	121 (106-152)	1443
<b>Race/ethnicity</b>							
Mexican Americans	01-02	50.9 (45.7-56.8)	48.1 (44.9-51.4)	67.4 (60.3-77.6)	97.3 (85.7-117)	135 (100-161)	707
	05-06	44.6 (42.6-46.7)	44.0 (42.2-45.3)	60.4 (58.1-62.9)	89.9 (82.0-95.4)	120 (111-128)	1972
	07-08	48.7 (45.1-52.7)	47.0 (43.5-50.5)	64.8 (59.7-69.9)	93.5 (88.9-101)	128 (108-156)	1505
	09-10	43.4 (40.5-46.5)	42.2 (39.7-45.9)	58.2 (54.7-61.3)	86.2 (77.1-92.5)	104 (90.8-122)	611
Non-Hispanic blacks	01-02	38.7 (36.3-41.3)	38.0 (34.6-41.3)	53.5 (50.3-57.4)	70.3 (64.9-79.3)	91.7 (78.9-100)	679
	05-06	32.9 (30.9-35.0)	31.9 (29.8-34.1)	45.4 (41.5-49.6)	64.0 (60.1-68.0)	81.2 (75.3-89.6)	2078
	07-08	35.9 (34.2-37.7)	34.8 (33.3-36.6)	49.0 (44.8-53.6)	69.1 (63.5-77.4)	87.8 (78.1-97.4)	1706
	09-10	31.4 (28.9-34.0)	32.2 (29.7-34.5)	43.3 (40.8-47.3)	59.9 (54.8-69.7)	77.1 (62.2-98.3)	543
Non-Hispanic whites	01-02	51.4 (49.4-53.4)	49.1 (46.9-51.5)	66.9 (64.2-69.4)	95.2 (87.7-100)	124 (115-132)	1227
	05-06	43.7 (40.8-46.8)	43.9 (40.8-46.8)	61.4 (56.5-66.2)	85.5 (80.6-91.9)	110 (102-116)	3056
	07-08	49.0 (46.7-51.4)	47.4 (44.9-50.5)	68.2 (63.3-73.1)	98.3 (91.2-105)	126 (118-135)	3190
	09-10	44.7 (42.7-46.9)	43.8 (41.5-46.1)	62.0 (58.6-64.7)	87.7 (83.3-96.1)	106 (103-117)	1215

## Urinary Nitrate (creatinine corrected) (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in mg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
Total	11-12	<b>47.8</b> (45.3-50.4)	<b>46.0</b> (43.7-49.2)	<b>67.4</b> (62.6-71.5)	<b>103</b> (88.7-117)	<b>137</b> (117-153)	2465
	13-14	<b>47.2</b> (45.2-49.4)	<b>46.3</b> (43.2-49.4)	<b>66.2</b> (62.9-70.2)	<b>97.3</b> (91.0-104)	<b>123</b> (116-133)	2643
<b>Age group</b>							
6-11 years	11-12	<b>68.0</b> (63.3-73.1)	<b>66.4</b> (60.9-68.7)	<b>87.3</b> (81.2-95.6)	<b>122</b> (110-132)	<b>144</b> (124-156)	393
	13-14	<b>67.1</b> (62.3-72.2)	<b>63.2</b> (59.4-67.1)	<b>83.6</b> (72.4-95.2)	<b>118</b> (99.1-145)	<b>159</b> (110-230)	398
12-19 years	11-12	<b>42.2</b> (39.6-44.9)	<b>41.5</b> (38.7-43.8)	<b>54.0</b> (51.2-57.7)	<b>69.1</b> (63.6-77.1)	<b>86.9</b> (69.1-104)	384
	13-14	<b>42.2</b> (39.7-44.8)	<b>41.9</b> (37.2-44.7)	<b>52.8</b> (47.9-58.1)	<b>69.2</b> (61.0-82.0)	<b>85.6</b> (72.6-107)	449
20 years and older	11-12	<b>46.8</b> (44.0-49.8)	<b>44.9</b> (41.7-47.9)	<b>66.8</b> (60.5-73.0)	<b>105</b> (87.4-122)	<b>142</b> (116-165)	1688
	13-14	<b>46.3</b> (44.2-48.5)	<b>45.2</b> (42.5-48.2)	<b>66.0</b> (62.8-70.2)	<b>97.4</b> (90.5-105)	<b>123</b> (113-136)	1796
<b>Gender</b>							
Males	11-12	<b>44.1</b> (41.8-46.6)	<b>43.8</b> (40.8-45.9)	<b>59.8</b> (57.0-62.4)	<b>87.1</b> (76.9-98.4)	<b>109</b> (98.4-120)	1250
	13-14	<b>43.7</b> (41.4-46.2)	<b>42.5</b> (38.9-45.6)	<b>59.8</b> (55.7-65.5)	<b>84.0</b> (78.6-94.3)	<b>110</b> (99.1-128)	1312
Females	11-12	<b>51.6</b> (47.9-55.5)	<b>50.0</b> (45.8-54.0)	<b>76.5</b> (68.9-85.1)	<b>120</b> (98.1-143)	<b>151</b> (132-170)	1215
	13-14	<b>50.9</b> (48.2-53.7)	<b>50.5</b> (47.1-53.5)	<b>71.6</b> (67.8-75.7)	<b>107</b> (95.6-113)	<b>135</b> (118-156)	1331
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>46.4</b> (41.0-52.6)	<b>43.6</b> (38.9-49.7)	<b>62.4</b> (52.7-78.0)	<b>86.4</b> (72.1-124)	<b>110</b> (84.0-203)	313
	13-14	<b>48.1</b> (43.4-53.2)	<b>48.3</b> (46.0-50.9)	<b>67.3</b> (62.1-72.0)	<b>99.3</b> (83.0-116)	<b>128</b> (100-169)	451
Non-Hispanic blacks	11-12	<b>35.0</b> (33.2-36.9)	<b>34.3</b> (32.1-36.3)	<b>47.5</b> (44.0-51.3)	<b>69.2</b> (62.2-78.1)	<b>89.3</b> (77.1-102)	663
	13-14	<b>35.5</b> (33.4-37.8)	<b>33.8</b> (32.0-35.9)	<b>46.2</b> (43.5-49.7)	<b>67.3</b> (60.4-75.0)	<b>87.3</b> (76.6-95.6)	574
Non-Hispanic whites	11-12	<b>50.1</b> (47.2-53.2)	<b>49.0</b> (45.7-52.3)	<b>68.9</b> (63.8-79.4)	<b>107</b> (91.1-129)	<b>144</b> (121-154)	808
	13-14	<b>48.6</b> (46.3-50.9)	<b>47.9</b> (44.8-51.4)	<b>67.8</b> (62.9-72.5)	<b>97.4</b> (89.5-105)	<b>122</b> (109-136)	975
All Hispanics	11-12	<b>45.8</b> (42.4-49.5)	<b>44.1</b> (41.7-46.2)	<b>61.5</b> (55.4-69.3)	<b>85.2</b> (78.5-95.6)	<b>115</b> (86.4-159)	566
	13-14	<b>45.9</b> (43.1-48.9)	<b>46.1</b> (43.1-48.3)	<b>65.5</b> (61.0-68.6)	<b>95.4</b> (85.0-105)	<b>126</b> (105-137)	699
Asians	11-12	<b>67.2</b> (61.9-72.9)	<b>62.9</b> (56.3-68.8)	<b>106</b> (93.3-118)	<b>178</b> (153-216)	<b>247</b> (203-318)	341
	13-14	<b>69.6</b> (62.2-78.0)	<b>62.7</b> (52.5-76.8)	<b>101</b> (85.2-132)	<b>168</b> (140-194)	<b>200</b> (173-261)	291

## Urinary Perchlorate (2001 - 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	<b>3.72</b> (3.46-4.01)	<b>3.70</b> (3.40-3.90)	<b>6.20</b> (5.60-6.90)	<b>10.0</b> (8.90-12.0)	<b>14.0</b> (12.0-18.0)	1618
	03-04	<b>3.39</b> (3.08-3.73)	<b>3.50</b> (3.00-4.00)	<b>5.80</b> (5.20-6.70)	<b>10.0</b> (8.80-12.0)	<b>14.0</b> (13.0-16.0)	2522
	05-06	<b>3.47</b> (3.20-3.76)	<b>3.62</b> (3.35-3.98)	<b>6.10</b> (5.67-6.52)	<b>9.76</b> (9.19-10.5)	<b>13.4</b> (12.4-14.6)	7697
	07-08	<b>3.88</b> (3.60-4.18)	<b>3.96</b> (3.59-4.30)	<b>7.10</b> (6.50-7.74)	<b>12.0</b> (11.2-13.0)	<b>17.3</b> (16.1-18.8)	7629
	09-10	<b>3.38</b> (3.19-3.58)	<b>3.44</b> (3.17-3.61)	<b>5.95</b> (5.66-6.35)	<b>10.1</b> (9.20-10.6)	<b>13.8</b> (12.2-15.4)	2844
Age group 6-11 years	01-02	<b>5.19</b> (4.44-6.05)	<b>5.50</b> (4.60-6.70)	<b>8.50</b> (7.20-10.0)	<b>13.0</b> (9.80-20.0)	<b>20.0</b> (13.0-24.0)	374
	03-04	<b>4.54</b> (3.85-5.36)	<b>4.80</b> (4.20-5.50)	<b>8.30</b> (6.00-10.0)	<b>14.0</b> (9.20-17.0)	<b>17.0</b> (12.0-30.0)	314
	05-06	<b>4.64</b> (4.15-5.18)	<b>4.81</b> (4.26-5.38)	<b>7.67</b> (6.71-8.60)	<b>11.6</b> (10.0-12.7)	<b>14.1</b> (12.4-16.3)	1054
	07-08	<b>4.88</b> (4.31-5.53)	<b>4.86</b> (4.22-5.93)	<b>9.11</b> (7.84-10.3)	<b>14.4</b> (12.1-16.9)	<b>18.9</b> (16.1-23.2)	1143
	09-10	<b>4.47</b> (3.88-5.15)	<b>5.03</b> (3.84-5.98)	<b>7.98</b> (6.86-9.68)	<b>12.2</b> (10.1-15.7)	<b>16.2</b> (11.2-24.5)	377
12-19 years	01-02	<b>4.00</b> (3.62-4.42)	<b>4.60</b> (4.00-5.00)	<b>7.10</b> (6.60-7.70)	<b>10.0</b> (9.70-12.0)	<b>14.0</b> (12.0-18.0)	828
	03-04	<b>3.81</b> (3.35-4.33)	<b>4.00</b> (3.40-4.60)	<b>6.70</b> (5.80-7.40)	<b>10.0</b> (8.20-13.0)	<b>14.0</b> (10.0-19.0)	721
	05-06	<b>4.14</b> (3.77-4.53)	<b>4.25</b> (3.94-4.65)	<b>7.00</b> (6.41-7.69)	<b>10.9</b> (9.71-12.4)	<b>15.6</b> (12.4-17.9)	2106
	07-08	<b>4.50</b> (4.06-4.97)	<b>4.73</b> (4.39-5.05)	<b>7.93</b> (6.89-8.89)	<b>13.0</b> (11.1-15.4)	<b>17.7</b> (15.8-20.2)	1135
	09-10	<b>3.36</b> (2.89-3.91)	<b>3.33</b> (2.86-3.98)	<b>6.21</b> (5.22-7.82)	<b>10.7</b> (8.58-13.2)	<b>15.1</b> (12.0-19.4)	452
20 years and older	01-02	<b>3.53</b> (3.24-3.84)	<b>3.70</b> (3.40-3.90)	<b>6.20</b> (5.60-6.90)	<b>10.0</b> (8.90-12.0)	<b>14.0</b> (12.0-18.0)	1618
	03-04	<b>3.21</b> (2.89-3.56)	<b>3.40</b> (2.80-3.80)	<b>5.50</b> (4.90-6.40)	<b>9.50</b> (8.30-10.0)	<b>13.0</b> (12.0-15.0)	1487
	05-06	<b>3.27</b> (3.01-3.55)	<b>3.42</b> (3.14-3.72)	<b>5.75</b> (5.33-6.21)	<b>9.38</b> (8.73-9.86)	<b>13.1</b> (12.2-14.5)	4537
	07-08	<b>3.70</b> (3.43-3.99)	<b>3.69</b> (3.42-4.09)	<b>6.75</b> (6.09-7.38)	<b>11.6</b> (10.8-12.7)	<b>16.8</b> (15.4-18.7)	5351
	09-10	<b>3.29</b> (3.08-3.51)	<b>3.28</b> (3.00-3.59)	<b>5.68</b> (5.47-6.05)	<b>9.55</b> (8.72-10.3)	<b>13.3</b> (11.2-15.2)	2015
Gender Males	01-02	<b>4.41</b> (4.13-4.70)	<b>4.60</b> (4.40-4.80)	<b>7.40</b> (6.70-8.30)	<b>12.0</b> (10.0-13.0)	<b>15.0</b> (12.0-20.0)	1335
	03-04	<b>3.95</b> (3.56-4.37)	<b>4.10</b> (3.60-4.60)	<b>6.70</b> (5.90-7.90)	<b>12.0</b> (9.70-13.0)	<b>15.0</b> (14.0-18.0)	1229
	05-06	<b>3.93</b> (3.64-4.25)	<b>4.07</b> (3.77-4.38)	<b>6.50</b> (6.11-6.92)	<b>10.4</b> (9.65-11.6)	<b>14.7</b> (13.2-16.3)	3765
	07-08	<b>4.40</b> (4.13-4.70)	<b>4.42</b> (4.12-4.78)	<b>7.90</b> (7.16-8.46)	<b>13.3</b> (12.0-14.4)	<b>18.6</b> (17.0-19.7)	3839
	09-10	<b>3.66</b> (3.40-3.95)	<b>3.74</b> (3.36-4.00)	<b>6.21</b> (5.70-6.65)	<b>10.2</b> (9.10-11.2)	<b>14.6</b> (11.9-18.2)	1401
Females	01-02	<b>3.17</b> (2.89-3.48)	<b>3.30</b> (2.80-3.60)	<b>5.70</b> (5.20-6.30)	<b>9.70</b> (8.60-12.0)	<b>14.0</b> (12.0-18.0)	1485
	03-04	<b>2.93</b> (2.62-3.28)	<b>3.00</b> (2.60-3.40)	<b>5.10</b> (4.60-5.80)	<b>8.60</b> (7.20-10.0)	<b>12.0</b> (9.20-16.0)	1293
	05-06	<b>3.08</b> (2.80-3.38)	<b>3.24</b> (2.96-3.51)	<b>5.55</b> (5.14-6.07)	<b>9.20</b> (8.22-10.3)	<b>12.4</b> (11.3-14.2)	3932
	07-08	<b>3.42</b> (3.11-3.76)	<b>3.44</b> (3.10-3.79)	<b>6.41</b> (5.95-7.01)	<b>10.8</b> (10.0-12.0)	<b>16.0</b> (14.1-17.9)	3790
	09-10	<b>3.13</b> (2.93-3.34)	<b>3.11</b> (2.83-3.37)	<b>5.83</b> (5.36-6.28)	<b>9.73</b> (8.44-10.6)	<b>13.2</b> (11.0-15.4)	1443

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, &fyr4., 07-08, and 09-10 are 0.05, 0.05, &lod4., 0.05, and 0.05 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Perchlorate\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Perchlorate_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Perchlorate\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Perchlorate_FactSheet.html)

## Urinary Perchlorate (2001 - 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	01-02	<b>4.23</b> (3.65-4.90)	<b>4.60</b> (3.90-5.20)	<b>7.40</b> (6.10-8.80)	<b>13.0</b> (9.90-14.0)	<b>15.0</b> (13.0-19.0)	708
	03-04	<b>3.96</b> (3.63-4.32)	<b>4.20</b> (3.70-4.60)	<b>6.50</b> (5.60-7.90)	<b>12.0</b> (9.50-13.0)	<b>16.0</b> (13.0-18.0)	617
	05-06	<b>4.02</b> (3.77-4.28)	<b>4.16</b> (3.84-4.46)	<b>6.93</b> (6.62-7.26)	<b>11.3</b> (10.4-12.0)	<b>15.7</b> (14.6-16.8)	1972
	07-08	<b>4.20</b> (3.95-4.46)	<b>4.38</b> (4.08-4.65)	<b>7.32</b> (6.73-7.95)	<b>12.1</b> (10.9-14.0)	<b>16.7</b> (15.0-17.7)	1505
	09-10	<b>3.98</b> (3.51-4.51)	<b>3.99</b> (3.45-4.54)	<b>7.27</b> (6.06-8.20)	<b>11.3</b> (9.97-13.4)	<b>17.2</b> (12.0-24.5)	611
Non-Hispanic blacks	01-02	<b>3.69</b> (3.22-4.23)	<b>3.90</b> (3.30-4.30)	<b>6.20</b> (5.30-7.30)	<b>9.70</b> (8.20-13.0)	<b>16.0</b> (12.0-21.0)	681
	03-04	<b>3.38</b> (3.05-3.74)	<b>3.40</b> (3.00-3.70)	<b>5.70</b> (4.80-6.60)	<b>9.00</b> (7.90-12.0)	<b>14.0</b> (9.80-18.0)	652
	05-06	<b>3.48</b> (3.19-3.80)	<b>3.54</b> (3.24-3.94)	<b>5.95</b> (5.33-6.65)	<b>9.99</b> (9.02-11.0)	<b>14.4</b> (12.8-15.7)	2078
	07-08	<b>3.82</b> (3.37-4.33)	<b>3.82</b> (3.37-4.48)	<b>6.96</b> (6.18-7.97)	<b>12.0</b> (10.6-13.8)	<b>17.2</b> (14.3-20.6)	1707
	09-10	<b>2.98</b> (2.74-3.26)	<b>2.94</b> (2.64-3.27)	<b>5.31</b> (4.88-5.99)	<b>9.06</b> (7.90-10.2)	<b>12.7</b> (9.23-17.3)	544
Non-Hispanic whites	01-02	<b>3.70</b> (3.35-4.08)	<b>3.90</b> (3.60-4.30)	<b>6.60</b> (6.00-7.40)	<b>10.0</b> (9.20-12.0)	<b>15.0</b> (12.0-19.0)	1228
	03-04	<b>3.43</b> (3.04-3.86)	<b>3.50</b> (2.90-4.20)	<b>5.90</b> (5.10-7.10)	<b>9.90</b> (8.50-12.0)	<b>14.0</b> (12.0-16.0)	1092
	05-06	<b>3.42</b> (3.08-3.80)	<b>3.59</b> (3.23-4.04)	<b>6.05</b> (5.52-6.55)	<b>9.62</b> (8.90-10.5)	<b>13.2</b> (11.9-14.8)	3056
	07-08	<b>3.84</b> (3.52-4.18)	<b>3.93</b> (3.48-4.36)	<b>7.07</b> (6.37-7.77)	<b>11.7</b> (10.8-12.7)	<b>16.8</b> (15.3-18.4)	3190
	09-10	<b>3.40</b> (3.21-3.61)	<b>3.48</b> (3.17-3.68)	<b>5.94</b> (5.60-6.40)	<b>9.69</b> (8.78-10.3)	<b>13.6</b> (11.2-15.5)	1215

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, & 07-08, and 09-10 are 0.05, 0.05, & 0.05, and 0.05 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Perchlorate\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Perchlorate_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Perchlorate\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Perchlorate_FactSheet.html)

## Urinary Perchlorate (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>2.96</b> (2.79-3.14)	<b>3.01</b> (2.82-3.24)	<b>5.46</b> (5.11-5.71)	<b>9.11</b> (8.46-9.78)	<b>12.8</b> (11.4-14.2)	2467
	13-14	<b>2.63</b> (2.44-2.83)	<b>2.62</b> (2.40-2.83)	<b>4.76</b> (4.51-5.08)	<b>7.92</b> (7.26-8.57)	<b>10.6</b> (9.43-11.9)	2644
<b>Age group</b>							
6-11 years	11-12	<b>3.89</b> (3.45-4.39)	<b>4.31</b> (3.67-4.86)	<b>6.41</b> (5.88-7.17)	<b>10.6</b> (8.97-12.8)	<b>14.9</b> (12.7-18.5)	394
	13-14	<b>3.37</b> (2.96-3.84)	<b>3.56</b> (2.95-4.14)	<b>5.61</b> (4.95-7.08)	<b>9.38</b> (7.52-10.6)	<b>12.1</b> (9.70-21.2)	398
12-19 years	11-12	<b>2.77</b> (2.33-3.30)	<b>2.82</b> (2.39-3.60)	<b>5.15</b> (4.28-5.71)	<b>7.54</b> (6.40-8.68)	<b>10.8</b> (7.54-13.3)	384
	13-14	<b>2.86</b> (2.42-3.37)	<b>2.91</b> (2.47-3.45)	<b>5.11</b> (3.96-6.69)	<b>9.43</b> (7.11-10.9)	<b>13.9</b> (9.83-24.0)	449
20 years and older	11-12	<b>2.90</b> (2.71-3.10)	<b>2.95</b> (2.75-3.14)	<b>5.30</b> (4.94-5.73)	<b>9.16</b> (8.46-10.3)	<b>12.8</b> (11.2-14.6)	1689
	13-14	<b>2.53</b> (2.34-2.73)	<b>2.44</b> (2.25-2.76)	<b>4.57</b> (4.22-4.93)	<b>7.67</b> (6.94-8.29)	<b>10.2</b> (8.93-11.7)	1797
<b>Gender</b>							
Males	11-12	<b>3.32</b> (3.05-3.61)	<b>3.43</b> (3.22-3.67)	<b>5.79</b> (5.45-6.58)	<b>10.3</b> (8.70-10.8)	<b>13.3</b> (11.7-14.6)	1251
	13-14	<b>2.73</b> (2.47-3.03)	<b>2.85</b> (2.58-3.13)	<b>4.84</b> (4.53-5.33)	<b>8.18</b> (6.97-9.43)	<b>11.0</b> (9.87-13.4)	1313
Females	11-12	<b>2.65</b> (2.44-2.87)	<b>2.64</b> (2.40-2.96)	<b>4.86</b> (4.20-5.52)	<b>8.21</b> (7.78-8.86)	<b>11.7</b> (10.6-13.2)	1216
	13-14	<b>2.53</b> (2.36-2.70)	<b>2.40</b> (2.21-2.62)	<b>4.67</b> (4.14-5.21)	<b>7.81</b> (7.00-8.45)	<b>9.83</b> (8.73-11.7)	1331
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>3.46</b> (2.97-4.02)	<b>3.47</b> (2.83-3.90)	<b>6.06</b> (4.99-7.38)	<b>10.5</b> (7.19-16.4)	<b>15.3</b> (10.1-24.2)	313
	13-14	<b>3.02</b> (2.67-3.42)	<b>3.08</b> (2.70-3.42)	<b>4.95</b> (4.55-5.75)	<b>8.69</b> (6.98-11.5)	<b>12.6</b> (8.71-18.8)	451
Non-Hispanic blacks	11-12	<b>2.92</b> (2.69-3.16)	<b>2.91</b> (2.64-3.27)	<b>5.48</b> (4.72-5.96)	<b>9.02</b> (8.11-10.8)	<b>12.2</b> (11.3-14.7)	663
	13-14	<b>2.75</b> (2.47-3.06)	<b>2.81</b> (2.49-3.06)	<b>4.76</b> (4.17-5.42)	<b>7.78</b> (6.82-8.59)	<b>11.9</b> (7.92-15.1)	574
Non-Hispanic whites	11-12	<b>2.93</b> (2.75-3.13)	<b>3.07</b> (2.81-3.31)	<b>5.44</b> (5.04-5.73)	<b>8.70</b> (8.05-10.4)	<b>12.7</b> (10.8-14.2)	810
	13-14	<b>2.57</b> (2.39-2.77)	<b>2.52</b> (2.29-2.81)	<b>4.73</b> (4.37-5.11)	<b>7.70</b> (7.02-8.29)	<b>9.54</b> (8.80-10.8)	976
All Hispanics	11-12	<b>3.15</b> (2.81-3.52)	<b>2.99</b> (2.52-3.50)	<b>5.49</b> (4.67-6.27)	<b>9.51</b> (7.38-11.6)	<b>13.2</b> (10.4-18.4)	566
	13-14	<b>2.84</b> (2.51-3.21)	<b>2.82</b> (2.56-3.16)	<b>4.84</b> (4.39-5.72)	<b>8.67</b> (7.00-11.0)	<b>12.6</b> (9.82-18.8)	699
Asians	11-12	<b>2.81</b> (2.44-3.24)	<b>2.82</b> (2.36-3.22)	<b>5.48</b> (4.82-6.39)	<b>9.48</b> (7.86-12.3)	<b>15.1</b> (10.3-23.6)	341
	13-14	<b>2.42</b> (1.97-2.97)	<b>2.36</b> (1.76-3.27)	<b>5.02</b> (3.91-6.25)	<b>9.29</b> (7.70-10.4)	<b>12.1</b> (10.2-14.0)	291

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.05 and 0.05, respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Perchlorate\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Perchlorate_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Perchlorate\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Perchlorate_FactSheet.html)

## Urinary Perchlorate (creatinine corrected) (2001 - 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	<b>3.74</b> (3.51-3.99)	<b>3.44</b> (3.18-3.79)	<b>5.70</b> (5.27-6.18)	<b>9.47</b> (7.88-10.8)	<b>12.9</b> (10.7-14.9)	1617
	03-04	<b>3.31</b> (3.04-3.59)	<b>3.18</b> (2.90-3.45)	<b>5.19</b> (4.80-5.55)	<b>8.86</b> (7.69-10.0)	<b>12.4</b> (11.2-14.5)	2519
	05-06	<b>3.46</b> (3.27-3.66)	<b>3.37</b> (3.17-3.59)	<b>5.42</b> (5.08-5.86)	<b>8.56</b> (8.19-9.17)	<b>11.6</b> (10.4-13.4)	7697
	07-08	<b>4.00</b> (3.69-4.33)	<b>3.89</b> (3.59-4.26)	<b>6.59</b> (6.10-7.13)	<b>10.9</b> (10.1-11.8)	<b>15.7</b> (14.6-16.8)	7628
	09-10	<b>3.62</b> (3.48-3.77)	<b>3.51</b> (3.37-3.72)	<b>5.84</b> (5.57-6.10)	<b>9.42</b> (8.73-10.3)	<b>13.1</b> (11.4-14.1)	2843
Age group 6-11 years	01-02	<b>6.01</b> (5.49-6.57)	<b>6.10</b> (5.37-6.67)	<b>8.68</b> (7.72-10.6)	<b>13.6</b> (11.6-17.3)	<b>18.6</b> (13.7-23.7)	374
	03-04	<b>5.52</b> (4.86-6.28)	<b>5.34</b> (4.92-5.78)	<b>7.64</b> (6.67-10.5)	<b>13.5</b> (9.66-21.3)	<b>21.3</b> (12.0-46.9)	314
	05-06	<b>5.51</b> (5.06-6.00)	<b>5.66</b> (5.08-6.22)	<b>8.39</b> (7.61-9.25)	<b>12.3</b> (10.3-13.6)	<b>15.4</b> (14.3-17.0)	1054
	07-08	<b>6.21</b> (5.52-6.99)	<b>6.34</b> (5.56-7.10)	<b>9.78</b> (8.63-11.3)	<b>14.7</b> (13.3-16.0)	<b>20.6</b> (16.4-25.0)	1143
	09-10	<b>6.14</b> (5.51-6.84)	<b>6.10</b> (5.40-6.94)	<b>10.3</b> (7.79-13.3)	<b>16.2</b> (14.1-17.6)	<b>20.2</b> (15.8-25.5)	376
12-19 years	01-02	<b>3.10</b> (2.77-3.46)	<b>3.04</b> (2.67-3.53)	<b>4.75</b> (4.20-5.48)	<b>7.50</b> (6.82-8.26)	<b>10.4</b> (7.90-14.1)	827
	03-04	<b>2.85</b> (2.59-3.14)	<b>2.83</b> (2.62-3.17)	<b>4.39</b> (3.88-4.67)	<b>6.63</b> (5.56-7.82)	<b>8.62</b> (7.24-11.4)	719
	05-06	<b>3.14</b> (2.89-3.41)	<b>3.17</b> (2.87-3.40)	<b>4.86</b> (4.32-5.41)	<b>7.30</b> (6.40-8.43)	<b>9.54</b> (8.46-11.0)	2106
	07-08	<b>3.52</b> (3.27-3.78)	<b>3.43</b> (3.07-3.80)	<b>5.62</b> (5.13-6.11)	<b>8.84</b> (7.70-9.73)	<b>12.6</b> (10.4-15.8)	1134
	09-10	<b>3.15</b> (2.87-3.45)	<b>3.05</b> (2.75-3.50)	<b>4.79</b> (4.14-5.74)	<b>8.20</b> (6.29-8.96)	<b>9.70</b> (8.73-11.0)	452
20 years and older	01-02	<b>3.64</b> (3.37-3.93)	<b>3.44</b> (3.18-3.79)	<b>5.70</b> (5.27-6.18)	<b>9.47</b> (7.88-10.8)	<b>12.9</b> (10.7-14.9)	1617
	03-04	<b>3.18</b> (2.90-3.49)	<b>3.02</b> (2.74-3.33)	<b>4.94</b> (4.53-5.35)	<b>8.64</b> (7.18-10.0)	<b>11.7</b> (10.3-15.2)	1486
	05-06	<b>3.34</b> (3.15-3.53)	<b>3.24</b> (3.08-3.45)	<b>5.12</b> (4.82-5.45)	<b>8.24</b> (7.67-8.64)	<b>11.4</b> (10.0-13.0)	4537
	07-08	<b>3.88</b> (3.57-4.22)	<b>3.77</b> (3.49-4.14)	<b>6.35</b> (5.85-6.91)	<b>10.5</b> (9.64-11.5)	<b>15.4</b> (13.6-16.9)	5351
	09-10	<b>3.50</b> (3.33-3.68)	<b>3.44</b> (3.23-3.61)	<b>5.59</b> (5.20-5.94)	<b>8.91</b> (7.93-9.70)	<b>12.2</b> (10.5-13.7)	2015
Gender Males	01-02	<b>3.57</b> (3.36-3.79)	<b>3.42</b> (3.17-3.67)	<b>5.62</b> (5.22-6.12)	<b>9.24</b> (7.87-10.3)	<b>12.2</b> (10.9-13.3)	1335
	03-04	<b>3.23</b> (2.96-3.52)	<b>3.09</b> (2.83-3.33)	<b>5.00</b> (4.60-5.55)	<b>8.00</b> (6.86-10.2)	<b>12.5</b> (10.2-15.3)	1228
	05-06	<b>3.25</b> (3.08-3.44)	<b>3.16</b> (2.99-3.36)	<b>4.98</b> (4.71-5.37)	<b>8.07</b> (7.60-8.58)	<b>11.0</b> (10.0-12.9)	3765
	07-08	<b>3.78</b> (3.47-4.12)	<b>3.64</b> (3.28-4.03)	<b>6.29</b> (5.72-6.85)	<b>10.3</b> (9.28-11.3)	<b>14.4</b> (13.1-15.5)	3839
	09-10	<b>3.34</b> (3.19-3.51)	<b>3.25</b> (2.98-3.48)	<b>5.21</b> (4.95-5.77)	<b>9.08</b> (7.91-9.90)	<b>13.1</b> (10.4-15.0)	1400
Females	01-02	<b>3.92</b> (3.57-4.30)	<b>3.79</b> (3.36-4.31)	<b>6.33</b> (5.65-7.00)	<b>10.6</b> (8.64-12.6)	<b>14.0</b> (11.8-17.0)	1483
	03-04	<b>3.38</b> (3.02-3.78)	<b>3.28</b> (2.90-3.61)	<b>5.24</b> (4.73-6.00)	<b>9.40</b> (7.24-11.4)	<b>12.4</b> (10.7-15.2)	1291
	05-06	<b>3.67</b> (3.43-3.93)	<b>3.58</b> (3.31-3.91)	<b>5.86</b> (5.39-6.19)	<b>9.21</b> (8.35-9.77)	<b>12.1</b> (10.5-14.5)	3932
	07-08	<b>4.22</b> (3.90-4.56)	<b>4.16</b> (3.81-4.55)	<b>6.89</b> (6.40-7.54)	<b>11.5</b> (10.4-12.6)	<b>16.6</b> (14.5-18.6)	3789
	09-10	<b>3.92</b> (3.71-4.13)	<b>3.89</b> (3.68-4.07)	<b>6.16</b> (5.83-6.74)	<b>9.58</b> (8.68-10.7)	<b>13.2</b> (10.8-16.1)	1443

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Perchlorate\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Perchlorate_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Perchlorate\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Perchlorate_FactSheet.html)



## Urinary Perchlorate (creatinine corrected) (2001 - 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Race/ethnicity</b>							
Mexican Americans	01-02	<b>3.96</b> (3.39-4.63)	<b>3.71</b> (3.15-4.69)	<b>6.18</b> (5.06-8.13)	<b>10.9</b> (8.78-14.0)	<b>15.3</b> (12.2-18.6)	708
	03-04	<b>3.59</b> (3.32-3.88)	<b>3.45</b> (3.10-3.68)	<b>5.69</b> (4.82-6.45)	<b>9.77</b> (8.00-11.2)	<b>13.5</b> (11.2-20.0)	616
	05-06	<b>3.75</b> (3.56-3.95)	<b>3.60</b> (3.42-3.81)	<b>5.97</b> (5.53-6.48)	<b>9.83</b> (9.19-10.4)	<b>12.7</b> (11.3-14.5)	1972
	07-08	<b>4.20</b> (3.96-4.46)	<b>4.17</b> (3.81-4.58)	<b>6.95</b> (6.33-7.73)	<b>11.8</b> (10.4-12.3)	<b>15.7</b> (14.4-17.6)	1505
	09-10	<b>4.18</b> (3.73-4.69)	<b>4.09</b> (3.68-4.53)	<b>6.94</b> (5.71-7.74)	<b>10.3</b> (8.91-13.3)	<b>16.2</b> (11.9-19.8)	611
Non-Hispanic blacks	01-02	<b>2.66</b> (2.35-3.01)	<b>2.66</b> (2.22-2.97)	<b>4.24</b> (3.69-5.20)	<b>7.18</b> (6.17-8.80)	<b>11.0</b> (8.73-12.7)	680
	03-04	<b>2.33</b> (2.11-2.57)	<b>2.24</b> (2.02-2.47)	<b>3.60</b> (3.22-4.13)	<b>6.54</b> (4.91-8.47)	<b>9.02</b> (6.84-11.8)	651
	05-06	<b>2.50</b> (2.32-2.69)	<b>2.40</b> (2.24-2.61)	<b>3.97</b> (3.69-4.26)	<b>6.71</b> (6.30-7.13)	<b>9.41</b> (8.53-10.4)	2078
	07-08	<b>2.89</b> (2.60-3.21)	<b>2.76</b> (2.47-3.17)	<b>4.92</b> (4.36-5.54)	<b>8.63</b> (7.43-9.78)	<b>11.8</b> (10.6-13.6)	1706
	09-10	<b>2.40</b> (2.19-2.63)	<b>2.35</b> (2.11-2.55)	<b>3.81</b> (3.60-4.18)	<b>6.31</b> (5.58-6.94)	<b>8.31</b> (6.69-10.6)	543
Non-Hispanic whites	01-02	<b>3.95</b> (3.64-4.29)	<b>3.73</b> (3.39-4.22)	<b>6.19</b> (5.73-6.64)	<b>10.0</b> (8.67-11.2)	<b>13.3</b> (11.8-16.0)	1227
	03-04	<b>3.53</b> (3.16-3.94)	<b>3.35</b> (3.01-3.68)	<b>5.29</b> (4.81-5.96)	<b>9.23</b> (7.61-11.0)	<b>12.8</b> (11.0-16.5)	1091
	05-06	<b>3.63</b> (3.36-3.91)	<b>3.51</b> (3.20-3.85)	<b>5.60</b> (5.10-6.10)	<b>8.58</b> (7.98-9.42)	<b>11.8</b> (10.0-14.3)	3056
	07-08	<b>4.17</b> (3.83-4.54)	<b>4.06</b> (3.71-4.52)	<b>6.63</b> (6.18-7.23)	<b>10.8</b> (9.86-11.8)	<b>15.5</b> (14.0-16.8)	3190
	09-10	<b>3.82</b> (3.66-3.99)	<b>3.67</b> (3.50-3.83)	<b>5.98</b> (5.69-6.26)	<b>9.40</b> (8.73-10.2)	<b>12.9</b> (10.8-14.1)	1215

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Perchlorate\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Perchlorate_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Perchlorate\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Perchlorate_FactSheet.html)



## Urinary Perchlorate (creatinine corrected) (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>3.38</b> (3.17-3.60)	<b>3.28</b> (2.99-3.60)	<b>5.55</b> (5.21-5.92)	<b>9.20</b> (8.31-10.1)	<b>14.7</b> (11.1-17.4)	2465
	13-14	<b>3.04</b> (2.80-3.30)	<b>2.98</b> (2.76-3.24)	<b>4.89</b> (4.56-5.37)	<b>7.96</b> (7.25-8.67)	<b>10.7</b> (9.68-12.4)	2643
<b>Age group</b>							
6-11 years	11-12	<b>5.56</b> (5.05-6.12)	<b>5.25</b> (4.75-5.95)	<b>8.57</b> (7.57-9.95)	<b>14.3</b> (10.4-17.4)	<b>18.0</b> (13.8-27.3)	393
	13-14	<b>5.06</b> (4.43-5.76)	<b>4.83</b> (3.90-5.66)	<b>7.71</b> (6.31-9.13)	<b>11.0</b> (9.14-15.4)	<b>15.4</b> (11.5-28.3)	398
12-19 years	11-12	<b>2.70</b> (2.50-2.91)	<b>2.87</b> (2.46-3.22)	<b>3.92</b> (3.80-4.14)	<b>5.73</b> (4.55-7.76)	<b>8.14</b> (5.97-8.43)	384
	13-14	<b>2.59</b> (2.32-2.89)	<b>2.41</b> (2.05-2.74)	<b>4.06</b> (3.34-4.56)	<b>6.33</b> (4.96-8.11)	<b>8.66</b> (7.05-12.0)	449
20 years and older	11-12	<b>3.31</b> (3.07-3.56)	<b>3.16</b> (2.85-3.54)	<b>5.53</b> (5.16-5.88)	<b>9.16</b> (8.03-10.2)	<b>14.8</b> (10.1-18.8)	1688
	13-14	<b>2.95</b> (2.72-3.20)	<b>2.92</b> (2.72-3.19)	<b>4.71</b> (4.45-5.21)	<b>7.59</b> (6.77-8.35)	<b>10.4</b> (9.02-11.7)	1796
<b>Gender</b>							
Males	11-12	<b>3.12</b> (2.84-3.42)	<b>2.99</b> (2.64-3.34)	<b>4.84</b> (4.41-5.41)	<b>8.38</b> (7.08-9.92)	<b>14.7</b> (9.56-20.0)	1250
	13-14	<b>2.74</b> (2.51-2.99)	<b>2.65</b> (2.32-2.91)	<b>4.48</b> (4.00-4.81)	<b>7.09</b> (6.32-8.25)	<b>10.6</b> (8.16-13.1)	1312
Females	11-12	<b>3.64</b> (3.41-3.89)	<b>3.61</b> (3.18-3.96)	<b>6.10</b> (5.66-6.45)	<b>9.86</b> (8.80-10.9)	<b>14.7</b> (11.6-17.7)	1215
	13-14	<b>3.36</b> (3.08-3.67)	<b>3.36</b> (3.06-3.60)	<b>5.54</b> (4.86-5.92)	<b>8.59</b> (7.75-9.45)	<b>11.4</b> (10.0-13.1)	1331
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>3.90</b> (3.21-4.75)	<b>3.67</b> (3.17-4.42)	<b>6.31</b> (5.16-7.92)	<b>10.9</b> (8.38-14.4)	<b>17.8</b> (11.7-28.1)	313
	13-14	<b>3.46</b> (3.09-3.87)	<b>3.24</b> (2.84-3.76)	<b>5.57</b> (4.61-6.31)	<b>9.16</b> (7.57-11.6)	<b>12.4</b> (9.27-18.1)	451
Non-Hispanic blacks	11-12	<b>2.28</b> (2.10-2.46)	<b>2.12</b> (1.99-2.31)	<b>3.74</b> (3.20-4.03)	<b>6.79</b> (5.15-8.44)	<b>9.35</b> (7.57-12.2)	663
	13-14	<b>2.10</b> (1.86-2.37)	<b>1.92</b> (1.81-2.24)	<b>3.39</b> (3.07-3.92)	<b>5.42</b> (4.81-7.36)	<b>9.21</b> (6.46-15.5)	574
Non-Hispanic whites	11-12	<b>3.58</b> (3.36-3.81)	<b>3.50</b> (3.16-3.82)	<b>5.72</b> (5.28-6.10)	<b>9.22</b> (8.19-10.3)	<b>14.8</b> (10.2-17.7)	808
	13-14	<b>3.17</b> (3.00-3.36)	<b>3.13</b> (2.91-3.34)	<b>4.94</b> (4.63-5.56)	<b>7.88</b> (7.08-8.49)	<b>10.4</b> (9.45-11.4)	975
All Hispanics	11-12	<b>3.52</b> (2.95-4.20)	<b>3.31</b> (2.68-4.11)	<b>5.83</b> (4.67-7.08)	<b>9.91</b> (8.03-12.1)	<b>15.2</b> (11.7-19.4)	566
	13-14	<b>3.17</b> (2.88-3.49)	<b>3.01</b> (2.78-3.29)	<b>5.11</b> (4.55-5.66)	<b>8.41</b> (7.35-9.46)	<b>12.3</b> (9.18-15.6)	699
Asians	11-12	<b>3.76</b> (3.41-4.15)	<b>3.84</b> (3.45-4.12)	<b>6.00</b> (5.25-7.04)	<b>11.2</b> (8.22-18.8)	<b>21.2</b> (12.6-33.6)	341
	13-14	<b>3.79</b> (2.92-4.93)	<b>3.84</b> (2.79-5.03)	<b>6.42</b> (4.60-8.73)	<b>10.8</b> (8.10-15.7)	<b>17.9</b> (9.69-33.6)	291

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Perchlorate\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Perchlorate_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Perchlorate\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Perchlorate_FactSheet.html)

## Urinary Thiocyanate (2001 - 2010)

Geometric mean and selected percentiles of urine concentrations (in mg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	<b>1.52</b> (1.44-1.61)	<b>1.50</b> (1.40-1.60)	<b>3.60</b> (3.00-4.10)	<b>7.90</b> (6.90-9.00)	<b>12.0</b> (10.0-13.0)	1617
	05-06	<b>1.23</b> (1.12-1.35)	<b>1.18</b> (1.08-1.31)	<b>2.55</b> (2.31-2.83)	<b>6.11</b> (5.10-6.85)	<b>9.04</b> (8.14-9.93)	7697
	07-08	<b>1.35</b> (1.26-1.45)	<b>1.32</b> (1.23-1.42)	<b>2.77</b> (2.47-3.13)	<b>6.36</b> (5.39-7.33)	<b>9.54</b> (8.58-11.1)	7629
	09-10	<b>1.15</b> (1.08-1.24)	<b>1.12</b> (1.04-1.18)	<b>2.27</b> (2.11-2.45)	<b>5.39</b> (4.61-6.37)	<b>8.92</b> (7.59-9.83)	2844
<b>Age group</b>							
6-11 years	01-02	<b>1.35</b> (1.20-1.51)	<b>1.50</b> (1.30-1.70)	<b>2.50</b> (1.90-3.00)	<b>3.70</b> (3.30-4.10)	<b>4.90</b> (3.90-5.60)	374
	05-06	<b>.980</b> (.892-1.08)	<b>1.03</b> (.916-1.15)	<b>1.72</b> (1.55-1.92)	<b>2.65</b> (2.31-3.09)	<b>3.45</b> (2.96-4.21)	1054
	07-08	<b>1.10</b> (.989-1.22)	<b>1.12</b> (1.02-1.24)	<b>1.88</b> (1.68-2.07)	<b>2.92</b> (2.48-3.52)	<b>4.08</b> (3.35-5.30)	1143
	09-10	<b>.847</b> (.760-.945)	<b>.855</b> (.762-1.02)	<b>1.51</b> (1.31-1.82)	<b>2.27</b> (2.00-2.45)	<b>2.64</b> (2.30-3.09)	377
12-19 years	01-02	<b>1.59</b> (1.43-1.77)	<b>1.50</b> (1.40-1.70)	<b>2.90</b> (2.50-3.30)	<b>5.30</b> (4.30-7.40)	<b>7.70</b> (5.90-10.0)	826
	05-06	<b>1.24</b> (1.11-1.39)	<b>1.29</b> (1.15-1.47)	<b>2.27</b> (1.99-2.62)	<b>3.84</b> (3.18-4.65)	<b>6.07</b> (4.76-6.95)	2106
	07-08	<b>1.29</b> (1.15-1.46)	<b>1.35</b> (1.14-1.53)	<b>2.39</b> (2.06-2.69)	<b>3.93</b> (3.36-4.57)	<b>6.14</b> (4.55-7.27)	1135
	09-10	<b>.978</b> (.869-1.10)	<b>1.01</b> (.927-1.18)	<b>1.76</b> (1.68-1.99)	<b>2.96</b> (2.51-3.78)	<b>4.48</b> (3.05-6.62)	452
20 years and older	01-02	<b>1.54</b> (1.43-1.65)	<b>1.50</b> (1.40-1.60)	<b>3.60</b> (3.00-4.10)	<b>7.90</b> (6.90-9.00)	<b>12.0</b> (10.0-13.0)	1617
	05-06	<b>1.26</b> (1.14-1.40)	<b>1.19</b> (1.08-1.34)	<b>2.82</b> (2.50-3.15)	<b>6.87</b> (6.06-7.58)	<b>9.79</b> (8.78-10.7)	4537
	07-08	<b>1.39</b> (1.29-1.50)	<b>1.34</b> (1.25-1.46)	<b>3.11</b> (2.68-3.57)	<b>7.21</b> (6.05-8.31)	<b>10.8</b> (8.99-12.0)	5351
	09-10	<b>1.22</b> (1.13-1.32)	<b>1.15</b> (1.07-1.23)	<b>2.53</b> (2.31-2.93)	<b>6.32</b> (5.11-7.59)	<b>9.72</b> (8.62-11.4)	2015
<b>Gender</b>							
Males	01-02	<b>1.86</b> (1.67-2.07)	<b>1.80</b> (1.60-2.10)	<b>4.00</b> (3.40-4.90)	<b>8.40</b> (7.00-10.0)	<b>12.0</b> (10.0-13.0)	1335
	05-06	<b>1.49</b> (1.36-1.64)	<b>1.44</b> (1.27-1.62)	<b>3.10</b> (2.82-3.56)	<b>6.90</b> (6.13-7.64)	<b>9.93</b> (8.99-10.7)	3765
	07-08	<b>1.61</b> (1.50-1.72)	<b>1.60</b> (1.50-1.71)	<b>3.32</b> (2.96-3.77)	<b>7.27</b> (6.01-8.22)	<b>10.9</b> (9.04-12.3)	3839
	09-10	<b>1.33</b> (1.22-1.46)	<b>1.23</b> (1.15-1.36)	<b>2.71</b> (2.29-3.10)	<b>5.81</b> (5.01-7.19)	<b>9.25</b> (7.85-10.0)	1401
Females	01-02	<b>1.26</b> (1.16-1.36)	<b>1.30</b> (1.00-1.40)	<b>2.50</b> (2.40-2.80)	<b>6.00</b> (5.20-6.70)	<b>8.70</b> (7.20-10.0)	1482
	05-06	<b>1.02</b> (.920-1.13)	<b>.995</b> (.886-1.13)	<b>2.07</b> (1.86-2.25)	<b>4.61</b> (3.81-5.98)	<b>8.04</b> (7.26-8.78)	3932
	07-08	<b>1.14</b> (1.04-1.24)	<b>1.09</b> (.991-1.19)	<b>2.31</b> (2.06-2.62)	<b>5.51</b> (4.58-6.52)	<b>8.59</b> (7.36-9.85)	3790
	09-10	<b>1.00</b> (.894-1.13)	<b>.982</b> (.842-1.10)	<b>1.95</b> (1.59-2.29)	<b>4.63</b> (3.59-6.33)	<b>8.79</b> (6.44-10.0)	1443
<b>Race/ethnicity</b>							
Mexican Americans	01-02	<b>1.14</b> (.977-1.33)	<b>1.20</b> (.940-1.40)	<b>2.20</b> (1.80-2.60)	<b>3.90</b> (3.00-4.90)	<b>5.70</b> (4.20-6.60)	707
	05-06	<b>.823</b> (.744-.912)	<b>.844</b> (.763-.937)	<b>1.51</b> (1.36-1.71)	<b>2.70</b> (2.26-3.22)	<b>4.48</b> (3.49-5.40)	1972
	07-08	<b>.993</b> (.926-1.06)	<b>1.04</b> (.987-1.11)	<b>1.88</b> (1.75-2.02)	<b>3.30</b> (2.98-3.52)	<b>4.56</b> (3.92-5.43)	1505
	09-10	<b>.877</b> (.787-.977)	<b>.917</b> (.800-1.02)	<b>1.62</b> (1.34-1.92)	<b>2.97</b> (2.57-3.83)	<b>5.06</b> (4.06-5.56)	611
Non-Hispanic blacks	01-02	<b>1.91</b> (1.72-2.11)	<b>2.00</b> (1.80-2.20)	<b>3.90</b> (3.30-4.90)	<b>7.60</b> (6.20-10.0)	<b>10.0</b> (7.00-15.0)	679
	05-06	<b>1.50</b> (1.32-1.72)	<b>1.51</b> (1.36-1.68)	<b>3.13</b> (2.56-3.81)	<b>6.94</b> (5.66-8.09)	<b>10.3</b> (8.01-12.4)	2078
	07-08	<b>1.73</b> (1.61-1.86)	<b>1.73</b> (1.61-1.86)	<b>3.78</b> (3.53-4.23)	<b>8.29</b> (7.25-9.07)	<b>12.8</b> (11.2-14.5)	1707
	09-10	<b>1.34</b> (1.21-1.48)	<b>1.29</b> (1.15-1.49)	<b>2.67</b> (2.36-3.32)	<b>6.82</b> (6.01-8.08)	<b>12.1</b> (7.67-14.1)	544
Non-Hispanic whites	01-02	<b>1.56</b> (1.45-1.68)	<b>1.50</b> (1.40-1.70)	<b>3.40</b> (2.80-3.80)	<b>7.20</b> (6.30-8.50)	<b>12.0</b> (8.90-13.0)	1228
	05-06	<b>1.30</b> (1.18-1.44)	<b>1.25</b> (1.12-1.40)	<b>2.74</b> (2.46-3.01)	<b>6.53</b> (5.57-7.31)	<b>9.43</b> (8.58-10.4)	3056
	07-08	<b>1.42</b> (1.29-1.56)	<b>1.41</b> (1.28-1.53)	<b>2.98</b> (2.52-3.44)	<b>6.67</b> (5.24-8.14)	<b>9.71</b> (8.32-11.9)	3190
	09-10	<b>1.27</b> (1.18-1.36)	<b>1.18</b> (1.13-1.26)	<b>2.44</b> (2.27-2.72)	<b>5.95</b> (4.62-7.69)	<b>9.59</b> (8.53-11.3)	1215

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 05-06, 07-08, and 09-10 are 0.02, 0.02, 0.02, and 0.02 respectively.

## Urinary Thiocyanate (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in mg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>1.09</b> (.101-1.17)	<b>1.05</b> (.973-1.17)	<b>2.23</b> (2.04-2.43)	<b>4.69</b> (4.03-5.64)	<b>7.16</b> (5.66-8.20)	2467
	13-14	<b>1.04</b> (.963-1.13)	<b>1.00</b> (.884-1.12)	<b>2.10</b> (1.84-2.40)	<b>4.75</b> (3.82-5.42)	<b>7.90</b> (6.56-8.66)	2643
<b>Age group</b>							
6-11 years	11-12	<b>.897</b> (.816-.987)	<b>.982</b> (.847-1.11)	<b>1.54</b> (1.35-1.74)	<b>2.23</b> (1.93-3.02)	<b>3.03</b> (2.34-4.45)	394
	13-14	<b>.906</b> (.777-1.06)	<b>.972</b> (.779-1.17)	<b>1.57</b> (1.34-1.88)	<b>2.44</b> (2.08-2.89)	<b>3.31</b> (2.26-4.85)	398
12-19 years	11-12	<b>.983</b> (.802-1.21)	<b>.954</b> (.788-1.13)	<b>1.73</b> (1.31-2.42)	<b>3.48</b> (2.44-5.01)	<b>5.86</b> (3.48-8.47)	384
	13-14	<b>1.01</b> (.875-1.18)	<b>.981</b> (.837-1.21)	<b>1.86</b> (1.49-2.41)	<b>3.20</b> (2.48-4.79)	<b>5.37</b> (3.28-7.96)	449
20 years and older	11-12	<b>1.13</b> (1.05-1.21)	<b>1.10</b> (1.01-1.21)	<b>2.42</b> (2.18-2.86)	<b>5.35</b> (4.36-6.21)	<b>7.38</b> (6.43-8.45)	1689
	13-14	<b>1.06</b> (.972-1.16)	<b>1.00</b> (.877-1.13)	<b>2.26</b> (1.95-2.62)	<b>5.17</b> (4.44-5.93)	<b>8.38</b> (7.16-9.76)	1796
<b>Gender</b>							
Males	11-12	<b>1.27</b> (1.18-1.38)	<b>1.24</b> (1.10-1.37)	<b>2.43</b> (2.11-2.97)	<b>4.91</b> (3.99-6.43)	<b>7.30</b> (5.96-8.51)	1251
	13-14	<b>1.16</b> (1.07-1.26)	<b>1.13</b> (.991-1.26)	<b>2.35</b> (2.00-2.74)	<b>4.93</b> (4.33-5.80)	<b>8.12</b> (6.35-10.8)	1313
Females	11-12	<b>.931</b> (.815-1.07)	<b>.924</b> (.797-1.07)	<b>1.95</b> (1.61-2.27)	<b>4.36</b> (3.63-5.37)	<b>6.83</b> (5.51-8.20)	1216
	13-14	<b>.938</b> (.849-1.04)	<b>.903</b> (.771-1.04)	<b>1.81</b> (1.53-2.10)	<b>4.30</b> (3.40-5.36)	<b>7.43</b> (5.52-8.43)	1330
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>.892</b> (.730-1.09)	<b>.936</b> (.734-1.16)	<b>1.66</b> (1.38-1.94)	<b>3.03</b> (1.90-4.79)	<b>4.24</b> (2.64-5.25)	313
	13-14	<b>.824</b> (.719-.944)	<b>.877</b> (.749-.992)	<b>1.51</b> (1.29-1.87)	<b>2.51</b> (2.31-3.21)	<b>3.96</b> (2.51-6.35)	451
Non-Hispanic blacks	11-12	<b>1.29</b> (1.12-1.48)	<b>1.25</b> (1.14-1.40)	<b>2.37</b> (2.01-2.92)	<b>5.75</b> (4.50-7.28)	<b>9.91</b> (7.40-12.7)	663
	13-14	<b>1.58</b> (1.42-1.76)	<b>1.37</b> (1.30-1.54)	<b>3.33</b> (2.81-3.93)	<b>8.53</b> (6.12-9.87)	<b>14.1</b> (9.87-15.2)	574
Non-Hispanic whites	11-12	<b>1.16</b> (1.06-1.26)	<b>1.12</b> (.996-1.28)	<b>2.43</b> (2.16-2.92)	<b>5.11</b> (4.03-6.43)	<b>7.30</b> (5.87-8.45)	810
	13-14	<b>1.06</b> (.949-1.19)	<b>1.02</b> (.861-1.19)	<b>2.20</b> (1.78-2.67)	<b>4.53</b> (3.60-5.61)	<b>7.91</b> (6.16-8.89)	975
All Hispanics	11-12	<b>.865</b> (.733-1.02)	<b>.876</b> (.734-1.02)	<b>1.57</b> (1.38-1.82)	<b>3.42</b> (2.20-4.37)	<b>4.84</b> (3.85-6.40)	566
	13-14	<b>.849</b> (.753-.957)	<b>.891</b> (.757-.993)	<b>1.51</b> (1.31-1.84)	<b>2.93</b> (2.32-4.55)	<b>5.32</b> (3.09-6.84)	699
Asians	11-12	<b>.646</b> (.571-.731)	<b>.715</b> (.624-.765)	<b>1.19</b> (1.02-1.47)	<b>2.51</b> (1.82-2.71)	<b>3.19</b> (2.61-4.11)	341
	13-14	<b>.555</b> (.478-.644)	<b>.567</b> (.503-.640)	<b>.983</b> (.817-1.20)	<b>1.99</b> (1.47-2.37)	<b>3.17</b> (2.12-4.08)	291

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.02 and 0.02, respectively.

## Urinary Thiocyanate (creatinine corrected) (2001 - 2010)

Geometric mean and selected percentiles of urine concentrations (in mg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	1.53 (1.43-1.64)	1.47 (1.37-1.61)	3.35 (2.95-3.74)	7.34 (6.67-7.81)	10.3 (8.81-11.3)	1616
	05-06	1.23 (1.13-1.33)	1.15 (1.05-1.27)	2.44 (2.18-2.68)	5.67 (5.16-6.28)	8.23 (7.71-8.98)	7697
	07-08	1.39 (1.28-1.51)	1.33 (1.22-1.43)	2.72 (2.42-3.04)	6.11 (5.25-7.30)	9.59 (8.03-11.5)	7628
	09-10	1.24 (1.15-1.34)	1.13 (1.04-1.21)	2.31 (2.11-2.58)	5.78 (4.64-6.63)	9.13 (7.28-11.2)	2843
<b>Age group</b>							
6-11 years	01-02	1.56 (1.35-1.80)	1.55 (1.35-1.82)	2.67 (2.33-3.13)	4.46 (3.79-5.20)	5.33 (4.58-6.16)	374
	05-06	1.16 (1.06-1.28)	1.18 (1.06-1.34)	2.03 (1.81-2.32)	3.15 (2.83-3.43)	4.25 (3.49-4.58)	1054
	07-08	1.40 (1.27-1.54)	1.42 (1.24-1.59)	2.28 (2.02-2.53)	3.74 (3.29-4.26)	5.23 (4.39-6.65)	1143
	09-10	1.16 (1.04-1.30)	1.12 (1.02-1.23)	1.90 (1.58-2.26)	2.96 (2.47-3.57)	3.92 (3.04-4.67)	376
12-19 years	01-02	1.23 (1.12-1.35)	1.14 (1.08-1.24)	2.12 (1.78-2.45)	3.88 (3.28-4.91)	5.75 (3.93-8.13)	825
	05-06	.941 (.867-1.02)	.937 (.855-1.03)	1.69 (1.51-1.86)	2.95 (2.43-3.64)	4.15 (3.64-5.00)	2106
	07-08	1.01 (.910-1.12)	1.04 (.906-1.17)	1.75 (1.60-1.92)	2.94 (2.49-3.54)	4.69 (3.64-5.44)	1134
	09-10	.917 (.858-.980)	.875 (.784-.972)	1.53 (1.36-1.79)	2.90 (2.26-3.84)	4.86 (3.49-5.10)	452
20 years and older	01-02	1.59 (1.47-1.71)	1.47 (1.37-1.61)	3.35 (2.95-3.74)	7.34 (6.67-7.81)	10.3 (8.81-11.3)	1616
	05-06	1.29 (1.17-1.42)	1.20 (1.08-1.33)	2.68 (2.37-3.10)	6.43 (5.88-7.07)	8.99 (8.23-10.2)	4537
	07-08	1.46 (1.34-1.59)	1.37 (1.27-1.47)	3.00 (2.69-3.45)	7.02 (5.82-8.26)	10.5 (8.63-12.9)	5351
	09-10	1.30 (1.19-1.43)	1.17 (1.08-1.26)	2.63 (2.31-3.05)	6.41 (5.42-7.83)	9.88 (8.30-12.1)	2015
<b>Gender</b>							
Males	01-02	1.51 (1.37-1.67)	1.42 (1.31-1.59)	3.33 (3.00-3.67)	6.38 (5.81-6.92)	8.51 (7.41-9.72)	1335
	05-06	1.24 (1.12-1.37)	1.18 (1.05-1.32)	2.61 (2.26-3.01)	5.67 (5.00-6.43)	8.17 (7.15-9.13)	3765
	07-08	1.38 (1.28-1.50)	1.32 (1.23-1.42)	2.77 (2.42-3.08)	6.13 (5.47-6.97)	9.27 (7.82-11.1)	3839
	09-10	1.22 (1.09-1.36)	1.12 (1.02-1.24)	2.47 (2.14-2.96)	5.78 (4.51-6.67)	8.72 (6.88-11.3)	1400
Females	01-02	1.55 (1.43-1.69)	1.45 (1.33-1.58)	2.79 (2.42-3.25)	7.07 (5.86-7.69)	10.0 (8.18-11.1)	1480
	05-06	1.22 (1.12-1.33)	1.13 (1.04-1.24)	2.27 (2.00-2.54)	5.62 (4.91-6.37)	8.40 (7.20-10.5)	3932
	07-08	1.40 (1.27-1.55)	1.34 (1.19-1.45)	2.69 (2.40-3.03)	6.07 (4.89-7.80)	9.88 (7.93-12.1)	3789
	09-10	1.26 (1.12-1.42)	1.14 (1.01-1.26)	2.15 (1.88-2.74)	5.80 (4.17-7.29)	9.24 (6.88-12.0)	1443
<b>Race/ethnicity</b>							
Mexican Americans	01-02	1.07 (.898-1.27)	1.06 (.819-1.29)	1.97 (1.51-2.50)	3.62 (2.86-4.52)	5.10 (3.52-7.33)	707
	05-06	.768 (.685-.861)	.773 (.684-.881)	1.37 (1.20-1.59)	2.44 (2.19-2.85)	3.66 (3.28-4.27)	1972
	07-08	.995 (.923-1.07)	1.03 (.918-1.14)	1.88 (1.71-2.05)	3.27 (2.77-3.76)	4.59 (3.86-5.59)	1505
	09-10	.921 (.845-1.01)	.912 (.849-.985)	1.57 (1.38-1.90)	3.09 (2.79-3.63)	4.24 (3.72-5.62)	611
Non-Hispanic blacks	01-02	1.37 (1.18-1.59)	1.37 (1.18-1.61)	2.80 (2.21-3.43)	5.67 (4.17-6.74)	7.64 (5.91-11.3)	678
	05-06	1.08 (.972-1.20)	1.05 (.972-1.16)	2.15 (1.84-2.57)	4.77 (3.93-5.61)	6.91 (5.84-7.80)	2078
	07-08	1.31 (1.21-1.41)	1.25 (1.18-1.36)	2.81 (2.55-3.24)	6.19 (5.29-6.77)	8.74 (7.44-9.59)	1706
	09-10	1.07 (.963-1.19)	.993 (.888-1.08)	2.14 (1.87-2.49)	5.39 (3.94-6.76)	7.74 (6.56-11.3)	543
Non-Hispanic whites	01-02	1.67 (1.55-1.80)	1.55 (1.42-1.73)	3.29 (3.00-3.73)	7.09 (6.38-7.95)	10.3 (8.78-11.1)	1227
	05-06	1.38 (1.25-1.52)	1.30 (1.14-1.44)	2.78 (2.48-3.12)	6.31 (5.67-7.08)	9.00 (8.13-10.5)	3056
	07-08	1.55 (1.40-1.70)	1.45 (1.32-1.58)	2.96 (2.56-3.53)	7.03 (5.71-8.56)	10.9 (8.70-13.1)	3190
	09-10	1.42 (1.32-1.54)	1.25 (1.17-1.38)	2.71 (2.38-3.17)	6.59 (5.61-7.85)	10.2 (8.62-11.8)	1215

## Urinary Thiocyanate (creatinine corrected) (2011 - 2014)

Geometric mean and selected percentiles of urine concentrations (in mg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>1.24</b> (1.18-1.31)	<b>1.19</b> (1.11-1.28)	<b>2.20</b> (2.12-2.37)	<b>5.10</b> (4.05-5.98)	<b>8.53</b> (6.73-10.9)	2465
	13-14	<b>1.21</b> (1.13-1.29)	<b>1.15</b> (1.06-1.23)	<b>2.19</b> (1.96-2.53)	<b>4.66</b> (4.14-5.35)	<b>8.07</b> (7.12-9.33)	2642
<b>Age group</b>							
6-11 years	11-12	<b>1.28</b> (1.16-1.40)	<b>1.27</b> (1.12-1.39)	<b>2.11</b> (1.89-2.34)	<b>3.11</b> (2.69-4.13)	<b>4.73</b> (3.62-5.77)	393
	13-14	<b>1.36</b> (1.18-1.57)	<b>1.41</b> (1.19-1.62)	<b>2.34</b> (1.92-2.62)	<b>3.39</b> (2.69-4.29)	<b>5.02</b> (3.23-7.47)	398
12-19 years	11-12	<b>.958</b> (.831-1.10)	<b>.949</b> (.803-1.19)	<b>1.49</b> (1.35-1.89)	<b>2.82</b> (2.12-3.30)	<b>3.77</b> (2.97-4.91)	384
	13-14	<b>.919</b> (.810-1.04)	<b>.926</b> (.721-1.06)	<b>1.45</b> (1.28-1.64)	<b>2.70</b> (2.33-3.40)	<b>4.33</b> (2.71-8.41)	449
20 years and older	11-12	<b>1.29</b> (1.22-1.35)	<b>1.21</b> (1.12-1.31)	<b>2.41</b> (2.19-2.67)	<b>5.70</b> (4.69-7.11)	<b>9.90</b> (7.75-11.3)	1688
	13-14	<b>1.24</b> (1.15-1.34)	<b>1.17</b> (1.08-1.27)	<b>2.31</b> (2.03-2.75)	<b>5.11</b> (4.54-6.09)	<b>8.83</b> (7.82-10.2)	1795
<b>Gender</b>							
Males	11-12	<b>1.20</b> (1.11-1.29)	<b>1.16</b> (1.06-1.28)	<b>2.16</b> (2.07-2.48)	<b>5.00</b> (3.77-6.42)	<b>7.75</b> (6.10-10.4)	1250
	13-14	<b>1.17</b> (1.09-1.25)	<b>1.14</b> (1.03-1.24)	<b>2.10</b> (1.92-2.49)	<b>5.08</b> (4.41-5.70)	<b>8.07</b> (6.68-9.68)	1312
Females	11-12	<b>1.28</b> (1.17-1.40)	<b>1.22</b> (1.11-1.38)	<b>2.20</b> (2.01-2.59)	<b>5.10</b> (3.89-6.02)	<b>10.4</b> (6.32-14.0)	1215
	13-14	<b>1.25</b> (1.14-1.38)	<b>1.16</b> (1.06-1.25)	<b>2.23</b> (1.89-2.60)	<b>4.36</b> (3.83-5.14)	<b>7.86</b> (6.32-9.96)	1330
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>1.01</b> (.831-1.22)	<b>.935</b> (.790-1.20)	<b>1.90</b> (1.45-2.32)	<b>3.28</b> (2.53-3.73)	<b>4.49</b> (3.46-6.12)	313
	13-14	<b>.943</b> (.828-1.07)	<b>.917</b> (.853-1.03)	<b>1.58</b> (1.27-1.87)	<b>2.94</b> (2.27-3.92)	<b>4.62</b> (3.15-5.41)	451
Non-Hispanic blacks	11-12	<b>1.00</b> (.901-1.12)	<b>.958</b> (.892-1.04)	<b>1.96</b> (1.71-2.23)	<b>3.72</b> (3.31-4.55)	<b>6.36</b> (4.89-7.76)	663
	13-14	<b>1.21</b> (1.07-1.36)	<b>1.04</b> (.979-1.19)	<b>2.26</b> (2.01-3.17)	<b>6.42</b> (5.00-7.69)	<b>9.44</b> (7.73-10.7)	574
Non-Hispanic whites	11-12	<b>1.41</b> (1.31-1.52)	<b>1.35</b> (1.23-1.46)	<b>2.66</b> (2.21-2.91)	<b>5.78</b> (4.49-7.41)	<b>10.4</b> (7.41-12.8)	808
	13-14	<b>1.31</b> (1.20-1.43)	<b>1.27</b> (1.17-1.38)	<b>2.43</b> (2.03-2.86)	<b>4.88</b> (4.20-6.30)	<b>8.53</b> (7.38-10.4)	974
All Hispanics	11-12	<b>.968</b> (.826-1.13)	<b>.923</b> (.805-1.11)	<b>1.76</b> (1.45-2.07)	<b>3.26</b> (2.53-3.76)	<b>5.10</b> (3.76-6.40)	566
	13-14	<b>.949</b> (.836-1.08)	<b>.913</b> (.829-1.03)	<b>1.64</b> (1.34-1.89)	<b>3.11</b> (2.34-4.24)	<b>4.98</b> (3.12-8.34)	699
Asians	11-12	<b>.864</b> (.775-.964)	<b>.868</b> (.767-.993)	<b>1.44</b> (1.30-1.63)	<b>2.31</b> (1.96-2.81)	<b>3.69</b> (2.60-5.35)	341
	13-14	<b>.870</b> (.761-.995)	<b>.828</b> (.749-.933)	<b>1.47</b> (1.29-1.82)	<b>3.12</b> (1.99-3.61)	<b>3.77</b> (2.99-4.62)	291

## Serum Perfluorobutane sulfonic acid (PFBuS) (2003 – 2010)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size	
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2094	
	05-06	*	< LOD	< LOD	< LOD	.100 (<LOD-.200)	2120	
	07-08	*	< LOD	< LOD	< LOD	< LOD	2100	
	09-10	*	< LOD	< LOD	< LOD	< LOD	2233	
<b>Age group</b> 12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	640	
	05-06	*	< LOD	< LOD	< LOD	.100 (<LOD-.100)	640	
	07-08	*	< LOD	< LOD	< LOD	< LOD	357	
	09-10	*	< LOD	< LOD	< LOD	< LOD	364	
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1454	
	05-06	*	< LOD	< LOD	< LOD	.100 (<LOD-.200)	1480	
	07-08	*	< LOD	< LOD	< LOD	< LOD	1743	
	09-10	*	< LOD	< LOD	< LOD	< LOD	1869	
<b>Gender</b>	Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1053
		05-06	*	< LOD	< LOD	< LOD	.100 (<LOD-.200)	1048
		07-08	*	< LOD	< LOD	< LOD	< LOD	1059
		09-10	*	< LOD	< LOD	< LOD	< LOD	1075
	Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1041
		05-06	*	< LOD	< LOD	< LOD	.100 (<LOD-.200)	1072
		07-08	*	< LOD	< LOD	< LOD	< LOD	1041
		09-10	*	< LOD	< LOD	< LOD	< LOD	1158

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08, and 09-10 are 0.4, 0.1, 0.1, and 0.1 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/PFCs\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/PFCs_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PFCs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PFCs_FactSheet.html)

## Serum Perfluorobutane sulfonic acid (PFBuS) (2003 – 2010)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	485
	05-06	*	< LOD	< LOD	< LOD	.100 (<LOD-.200)	499
	07-08	*	< LOD	< LOD	< LOD	< LOD	391
	09-10	*	< LOD	< LOD	< LOD	< LOD	461
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	538
	05-06	*	< LOD	< LOD	< LOD	.100 (<LOD-.100)	544
	07-08	*	< LOD	< LOD	< LOD	< LOD	419
	09-10	*	< LOD	< LOD	< LOD	< LOD	391
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	962
	05-06	*	< LOD	< LOD	< LOD	.100 (<LOD-.400)	935
	07-08	*	< LOD	< LOD	< LOD	< LOD	931
	09-10	*	< LOD	< LOD	< LOD	< LOD	1031

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08, and 09-10 are 0.4, 0.1, 0.1, and 0.1 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/PFCs\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/PFCs_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PFCs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PFCs_FactSheet.html)



## Serum Perfluorobutane sulfonic acid (PFBuS) (2011 - 2014)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	1904
	13-14	*	< LOD	< LOD	< LOD	< LOD	2168
<b>Age group</b>							
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	344
	13-14	*	< LOD	< LOD	< LOD	< LOD	402
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	1560
	13-14	*	< LOD	< LOD	< LOD	< LOD	1766
<b>Gender</b>							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	966
	13-14	*	< LOD	< LOD	< LOD	< LOD	1032
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	938
	13-14	*	< LOD	< LOD	< LOD	< LOD	1136
<b>Race/ethnicity</b>							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	211
	13-14	*	< LOD	< LOD	< LOD	< LOD	332
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	485
	13-14	*	< LOD	< LOD	< LOD	< LOD	455
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	666
	13-14	*	< LOD	< LOD	< LOD	< LOD	862
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	406
	13-14	*	< LOD	< LOD	< LOD	< LOD	537
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	291
	13-14	*	< LOD	< LOD	< LOD	< LOD	236

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.1 and 0.1.  
 < LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.  
 \* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/PFCs\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/PFCs_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PFCs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PFCs_FactSheet.html)

## Serum Perfluorodecanoic acid (PFDeA) (1999 – 2010)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	.200 (<LOD-.300)	.400 (.300-.700)	.600 (.400-1.10)	1562
	03-04	*	< LOD	.300 (<LOD-.500)	.600 (.400-1.10)	.900 (.500-1.80)	2094
	05-06	.355 (.297-.423)	.300 (.300-.400)	.500 (.400-.700)	.900 (.600-1.60)	1.50 (.900-2.60)	2120
	07-08	.286 (.264-.309)	.300 (.300-.300)	.400 (.400-.500)	.700 (.600-.700)	.900 (.800-1.00)	2100
	09-10	.279 (.258-.303)	.300 (.300-.300)	.400 (.400-.500)	.700 (.600-.800)	.900 (.800-1.10)	2233
Age group 12-19 years	99-00	*	< LOD	< LOD	.300 (.200-.400)	.400 (.300-.600)	543
	03-04	*	< LOD	< LOD	.500 (<LOD-1.00)	.800 (.300-1.20)	640
	05-06	.295 (.258-.338)	.300 (.200-.300)	.500 (.400-.500)	.600 (.500-.800)	.800 (.600-1.60)	640
	07-08	.231 (.214-.248)	.200 (.200-.300)	.300 (.300-.400)	.500 (.400-.500)	.600 (.500-.700)	357
	09-10	.220 (.198-.245)	.200 (.200-.200)	.300 (.300-.300)	.400 (.400-.600)	.600 (.400-.800)	364
20 years and older	99-00	*	< LOD	.300 (.200-.300)	.400 (.300-.800)	.600 (.400-1.50)	1019
	03-04	*	< LOD	.400 (<LOD-.500)	.700 (.400-1.00)	.900 (.500-1.80)	1454
	05-06	.364 (.303-.438)	.300 (.300-.400)	.500 (.400-.700)	1.00 (.600-1.70)	1.50 (.900-2.60)	1480
	07-08	.295 (.271-.321)	.300 (.300-.300)	.400 (.400-.500)	.700 (.600-.800)	.900 (.800-1.10)	1743
	09-10	.289 (.265-.314)	.300 (.300-.300)	.400 (.400-.500)	.700 (.600-.800)	.900 (.800-1.20)	1869
Gender Males	99-00	*	< LOD	.300 (.200-.300)	.400 (.300-.700)	.500 (.300-1.90)	743
	03-04	*	< LOD	.400 (<LOD-.500)	.800 (.400-1.40)	1.10 (.600-2.10)	1053
	05-06	.381 (.318-.456)	.400 (.300-.400)	.600 (.400-.800)	1.00 (.600-2.20)	1.70 (1.00-2.60)	1048
	07-08	.306 (.283-.331)	.300 (.300-.300)	.400 (.400-.500)	.700 (.600-.800)	.900 (.800-1.20)	1059
	09-10	.289 (.264-.318)	.300 (.300-.300)	.400 (.400-.500)	.600 (.500-.800)	.800 (.600-1.20)	1075
Females	99-00	*	< LOD	.200 (<LOD-.300)	.400 (.300-.800)	.600 (.400-1.40)	819
	03-04	*	< LOD	.300 (<LOD-.400)	.500 (.400-.800)	.800 (.500-1.20)	1041
	05-06	.331 (.277-.396)	.300 (.300-.400)	.500 (.400-.600)	.900 (.600-1.40)	1.30 (.800-2.30)	1072
	07-08	.267 (.245-.292)	.300 (.200-.300)	.400 (.400-.500)	.600 (.500-.800)	.800 (.700-1.10)	1041
	09-10	.270 (.248-.295)	.300 (.200-.300)	.400 (.400-.500)	.700 (.600-.800)	1.00 (.800-1.10)	1158

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 03-04, 05-06, 07-08, and 09-10 are 0.2, 0.3, 0.2, 0.2, and 0.1 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/PFCs\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/PFCs_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PFCs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PFCs_FactSheet.html)

## Serum Perfluorodecanoic acid (PFDeA) (1999 – 2010)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00	*	< LOD	< LOD	.300 (<LOD-.300)	.300 (.200-1.50)	584
	03-04	*	< LOD	< LOD	.500 (.400-.500)	.600 (.500-.800)	485
	05-06	.283 (.245-.327)	.300 (.200-.300)	.400 (.300-.500)	.600 (.500-1.00)	1.00 (.500-2.40)	499
	07-08	.253 (.222-.289)	.200 (.200-.300)	.400 (.300-.500)	.600 (.400-.700)	.600 (.500-1.40)	391
	09-10	.242 (.215-.272)	.200 (.200-.300)	.400 (.300-.400)	.500 (.500-.600)	.700 (.600-.800)	461
Non-Hispanic blacks	99-00	*	.200 (<LOD-.300)	.400 (.200-.700)	.800 (.500-1.20)	1.10 (.600-2.30)	303
	03-04	*	< LOD	.400 (<LOD-.700)	.800 (.400-1.50)	1.00 (.500-3.10)	538
	05-06	.405 (.309-.531)	.400 (.300-.500)	.600 (.400-.900)	1.20 (.600-2.90)	2.30 (1.10-3.70)	544
	07-08	.331 (.298-.368)	.300 (.300-.400)	.500 (.400-.600)	.800 (.600-.900)	1.00 (.800-1.50)	419
	09-10	.336 (.298-.379)	.300 (.300-.300)	.500 (.400-.600)	.800 (.600-1.00)	1.10 (.800-2.60)	391
Non-Hispanic whites	99-00	*	< LOD	.300 (<LOD-.300)	.400 (.300-.600)	.500 (.400-.800)	519
	03-04	*	< LOD	.300 (<LOD-.500)	.600 (.400-1.00)	.900 (.500-1.80)	962
	05-06	.350 (.294-.417)	.300 (.300-.400)	.500 (.400-.700)	.900 (.600-1.50)	1.40 (.800-2.30)	935
	07-08	.276 (.254-.301)	.300 (.200-.300)	.400 (.400-.500)	.600 (.500-.700)	.900 (.700-.900)	931
	09-10	.270 (.240-.304)	.300 (.200-.300)	.400 (.300-.500)	.600 (.500-.800)	.800 (.600-1.10)	1031

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 03-04, 05-06, 07-08, and 09-10 are 0.2, 0.3, 0.2, 0.2, and 0.1 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/PFCs\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/PFCs_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PFCs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PFCs_FactSheet.html)

## Serum Perfluorodecanoic acid (PFDeA) (2011 - 2014)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	.199 (.181-.220)	.190 (.170-.210)	.300 (.270-.340)	.480 (.420-.580)	.690 (.600-.770)	1904
	13-14	.185 (.165-.208)	.200 (.200-.200)	.300 (.300-.300)	.500 (.400-.600)	.700 (.600-.900)	2168
<b>Age group</b>							
12-19 years	11-12	.146 (.126-.168)	.150 (.120-.170)	.200 (.180-.230)	.290 (.240-.340)	.360 (.290-.560)	344
	13-14	.136 (.122-.152)	.100 (.100-.200)	.200 (.200-.200)	.300 (.200-.400)	.400 (.300-.500)	402
20 years and older	11-12	.209 (.189-.230)	.200 (.180-.230)	.320 (.280-.370)	.510 (.440-.590)	.730 (.630-.850)	1560
	13-14	.193 (.171-.218)	.200 (.200-.200)	.300 (.300-.400)	.500 (.400-.600)	.800 (.600-.900)	1766
<b>Gender</b>							
Males	11-12	.206 (.184-.232)	.200 (.180-.230)	.310 (.260-.370)	.440 (.380-.550)	.620 (.480-.810)	966
	13-14	.198 (.175-.225)	.200 (.200-.200)	.300 (.300-.400)	.500 (.400-.700)	.800 (.600-1.00)	1032
Females	11-12	.193 (.177-.211)	.190 (.170-.210)	.290 (.260-.340)	.530 (.410-.640)	.690 (.640-.830)	938
	13-14	.174 (.155-.195)	.200 (.100-.200)	.300 (.200-.300)	.500 (.400-.500)	.700 (.500-.900)	1136
<b>Race/ethnicity</b>							
Mexican Americans	11-12	.176 (.150-.205)	.170 (.150-.200)	.260 (.210-.300)	.380 (.300-.530)	.530 (.360-.600)	211
	13-14	.145 (.125-.169)	.100 (.100-.200)	.200 (.200-.300)	.300 (.200-.500)	.400 (.300-1.40)	332
Non-Hispanic blacks	11-12	.214 (.193-.237)	.200 (.180-.220)	.330 (.280-.380)	.590 (.420-.850)	.880 (.670-1.06)	485
	13-14	.200 (.162-.246)	.200 (.200-.200)	.300 (.200-.500)	.600 (.400-.900)	.900 (.700-1.20)	455
Non-Hispanic whites	11-12	.193 (.171-.219)	.190 (.170-.220)	.290 (.260-.340)	.440 (.360-.590)	.620 (.480-.740)	666
	13-14	.184 (.158-.213)	.200 (.200-.200)	.300 (.200-.400)	.500 (.400-.500)	.700 (.500-.800)	862
All Hispanics	11-12	.182 (.156-.212)	.170 (.150-.200)	.270 (.210-.330)	.430 (.330-.530)	.540 (.440-.760)	406
	13-14	.150 (.135-.167)	.200 (.100-.200)	.200 (.200-.300)	.300 (.300-.400)	.400 (.300-1.00)	537
Asians	11-12	.367 (.308-.438)	.350 (.280-.420)	.670 (.510-.870)	1.35 (.870-2.05)	2.05 (1.19-2.52)	291
	13-14	.360 (.294-.439)	.400 (.300-.500)	.700 (.500-.900)	1.50 (1.00-2.10)	2.20 (1.60-3.30)	236

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.1 and 0.1.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/PFCs\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/PFCs_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PFCs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PFCs_FactSheet.html)

## Serum Perfluorododecanoic acid (PFDoA) (1999 – 2010)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size	
Total	99-00	*	< LOD	< LOD	< LOD	< LOD	1562	
	03-04	*	< LOD	< LOD	< LOD	< LOD	2094	
	05-06	*	< LOD	< LOD	< LOD	< LOD	2120	
	07-08	*	< LOD	< LOD	< LOD	< LOD	2100	
	09-10	*	< LOD	< LOD	< LOD	< LOD	2233	
<b>Age group</b> 12-19 years	99-00	*	< LOD	< LOD	< LOD	< LOD	543	
	03-04	*	< LOD	< LOD	< LOD	< LOD	640	
	05-06	*	< LOD	< LOD	< LOD	< LOD	640	
	07-08	*	< LOD	< LOD	< LOD	< LOD	357	
	09-10	*	< LOD	< LOD	< LOD	< LOD	364	
20 years and older	99-00	*	< LOD	< LOD	< LOD	< LOD	1019	
	03-04	*	< LOD	< LOD	< LOD	< LOD	1454	
	05-06	*	< LOD	< LOD	< LOD	< LOD	1480	
	07-08	*	< LOD	< LOD	< LOD	< LOD	1743	
	09-10	*	< LOD	< LOD	< LOD	.100 (<LOD-.100)	1869	
<b>Gender</b>	Males	99-00	*	< LOD	< LOD	< LOD	< LOD	743
		03-04	*	< LOD	< LOD	< LOD	< LOD	1053
		05-06	*	< LOD	< LOD	< LOD	< LOD	1048
		07-08	*	< LOD	< LOD	< LOD	< LOD	1059
		09-10	*	< LOD	< LOD	< LOD	< LOD	1075
	Females	99-00	*	< LOD	< LOD	< LOD	< LOD	819
		03-04	*	< LOD	< LOD	< LOD	< LOD	1041
		05-06	*	< LOD	< LOD	< LOD	< LOD	1072
		07-08	*	< LOD	< LOD	< LOD	< LOD	1041
		09-10	*	< LOD	< LOD	< LOD	.100 (<LOD-.100)	1158

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 03-04, 05-06, 07-08, and 09-10 are 0.2, 1.0, 0.2, 0.2, and 0.1 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/PFCs\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/PFCs_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PFCs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PFCs_FactSheet.html)

## Serum Perfluorododecanoic acid (PFDoA) (1999 – 2010)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00	*	< LOD	< LOD	< LOD	< LOD	584
	03-04	*	< LOD	< LOD	< LOD	< LOD	485
	05-06	*	< LOD	< LOD	< LOD	< LOD	499
	07-08	*	< LOD	< LOD	< LOD	< LOD	391
	09-10	*	< LOD	< LOD	< LOD	< LOD	461
Non-Hispanic blacks	99-00	*	< LOD	< LOD	< LOD	< LOD	303
	03-04	*	< LOD	< LOD	< LOD	< LOD	538
	05-06	*	< LOD	< LOD	< LOD	< LOD	544
	07-08	*	< LOD	< LOD	< LOD	< LOD	419
	09-10	*	< LOD	< LOD	< LOD	.100 (<LOD-.400)	391
Non-Hispanic whites	99-00	*	< LOD	< LOD	< LOD	< LOD	519
	03-04	*	< LOD	< LOD	< LOD	< LOD	962
	05-06	*	< LOD	< LOD	< LOD	< LOD	935
	07-08	*	< LOD	< LOD	< LOD	< LOD	931
	09-10	*	< LOD	< LOD	< LOD	< LOD	1031

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 03-04, 05-06, 07-08, and 09-10 are 0.2, 1.0, 0.2, 0.2, and 0.1 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/PFCs\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/PFCs_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PFCs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PFCs_FactSheet.html)

## Serum Perfluorododecanoic acid (PFDoA) (2011 - 2014)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	.140 (<LOD-.240)	1904
	13-14	*	< LOD	< LOD	.100 (<LOD-.200)	.200 (.100-.300)	2168
<b>Age group</b>							
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	344
	13-14	*	< LOD	< LOD	.100 (<LOD-.200)	.200 (<LOD-.300)	402
20 years and older	11-12	*	< LOD	< LOD	< LOD	.150 (<LOD-.280)	1560
	13-14	*	< LOD	< LOD	.100 (<LOD-.200)	.200 (.100-.300)	1766
<b>Gender</b>							
Males	11-12	*	< LOD	< LOD	< LOD	.140 (<LOD-.240)	966
	13-14	*	< LOD	< LOD	.100 (<LOD-.200)	.200 (.100-.300)	1032
Females	11-12	*	< LOD	< LOD	< LOD	.130 (<LOD-.280)	938
	13-14	*	< LOD	< LOD	.100 (<LOD-.200)	.200 (.100-.300)	1136
<b>Race/ethnicity</b>							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	.110 (<LOD-.230)	211
	13-14	*	< LOD	< LOD	.200 (<LOD-.300)	.300 (.200-.300)	332
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	.110 (<LOD-.160)	485
	13-14	*	< LOD	< LOD	.100 (<LOD-.200)	.200 (.100-.300)	455
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	.130 (<LOD-.290)	666
	13-14	*	< LOD	< LOD	.100 (<LOD-.200)	.200 (<LOD-.300)	862
All Hispanics	11-12	*	< LOD	< LOD	< LOD	.110 (<LOD-.150)	406
	13-14	*	< LOD	< LOD	.200 (.100-.300)	.300 (.200-.300)	537
Asians	11-12	*	< LOD	< LOD	.180 (.130-.350)	.360 (.180-.440)	291
	13-14	*	< LOD	.100 (<LOD-.200)	.200 (.200-.500)	.300 (.200-.500)	236

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.1 and 0.1.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/PFCs\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/PFCs_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PFCs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PFCs_FactSheet.html)



## Serum Perfluoroheptanoic acid (PFHpA) (1999 – 2010)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size	
Total	99-00	*	< LOD	< LOD	.500 (<LOD-.600)	.700 (.500-1.00)	1562	
	03-04	*	< LOD	< LOD	< LOD	.400 (<LOD-.500)	2094	
	05-06	*	< LOD	< LOD	< LOD	.700 (<LOD-1.70)	2120	
	07-08	*	< LOD	< LOD	< LOD	.500 (.400-.600)	2100	
	09-10	*	< LOD	< LOD	.200 (.100-.200)	.200 (.200-.300)	2233	
Age group 12-19 years	99-00	*	< LOD	< LOD	.800 (.600-1.10)	1.20 (.800-1.80)	543	
	03-04	*	< LOD	< LOD	.400 (<LOD-.600)	.600 (.500-.900)	640	
	05-06	*	< LOD	< LOD	.700 (<LOD-1.10)	1.10 (.600-2.70)	640	
	07-08	*	< LOD	< LOD	.500 (<LOD-.600)	.600 (.500-.700)	357	
	09-10	*	< LOD	.100 (.100-.200)	.200 (.200-.400)	.400 (.200-.500)	364	
20 years and older	99-00	*	< LOD	< LOD	< LOD	.600 (<LOD-.900)	1019	
	03-04	*	< LOD	< LOD	< LOD	< LOD	1454	
	05-06	*	< LOD	< LOD	< LOD	.600 (<LOD-2.10)	1480	
	07-08	*	< LOD	< LOD	< LOD	.500 (<LOD-.500)	1743	
	09-10	*	< LOD	< LOD	.100 (.100-.200)	.200 (.200-.200)	1869	
Gender	Males	99-00	*	< LOD	< LOD	.500 (<LOD-.600)	.700 (.500-1.00)	743
		03-04	*	< LOD	< LOD	< LOD	.300 (<LOD-.400)	1053
		05-06	*	< LOD	< LOD	.400 (<LOD-1.00)	.800 (<LOD-2.10)	1048
		07-08	*	< LOD	< LOD	< LOD	.600 (.400-.700)	1059
		09-10	*	< LOD	< LOD	.200 (.100-.200)	.200 (.200-.300)	1075
	Females	99-00	*	< LOD	< LOD	.500 (<LOD-.700)	.700 (<LOD-1.20)	819
		03-04	*	< LOD	< LOD	< LOD	.400 (.300-.600)	1041
		05-06	*	< LOD	< LOD	< LOD	.600 (<LOD-1.30)	1072
		07-08	*	< LOD	< LOD	< LOD	.500 (.400-.500)	1041
		09-10	*	< LOD	< LOD	.200 (.100-.200)	.200 (.200-.300)	1158

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 03-04, 05-06, 07-08, and 09-10 are 0.4, 0.3, 0.4, 0.4, and 0.1 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/PFCs\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/PFCs_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PFCs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PFCs_FactSheet.html)

## Serum Perfluoroheptanoic acid (PFHpA) (1999 – 2010)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00	*	< LOD	< LOD	.500 (<LOD-.900)	.900 (.500-1.30)	584
	03-04	*	< LOD	< LOD	< LOD	.500 (<LOD-.900)	485
	05-06	*	< LOD	< LOD	< LOD	.500 (<LOD-1.50)	499
	07-08	*	< LOD	< LOD	< LOD	.500 (<LOD-.500)	391
	09-10	*	< LOD	< LOD	.200 (.100-.200)	.200 (.200-.300)	461
Non-Hispanic blacks	99-00	*	< LOD	< LOD	< LOD	.600 (<LOD-1.20)	303
	03-04	*	< LOD	< LOD	< LOD	< LOD	538
	05-06	*	< LOD	< LOD	< LOD	.500 (<LOD-1.80)	544
	07-08	*	< LOD	< LOD	< LOD	.600 (.400-.700)	419
	09-10	*	< LOD	< LOD	.100 (.100-.200)	.200 (.200-.200)	391
Non-Hispanic whites	99-00	*	< LOD	< LOD	.400 (<LOD-.600)	.600 (.500-.900)	519
	03-04	*	< LOD	< LOD	< LOD	.300 (<LOD-.500)	962
	05-06	*	< LOD	< LOD	< LOD	.800 (<LOD-2.10)	935
	07-08	*	< LOD	< LOD	< LOD	.500 (.400-.700)	931
	09-10	*	< LOD	< LOD	.200 (.100-.200)	.200 (.200-.300)	1031

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 03-04, 05-06, 07-08, and 09-10 are 0.4, 0.3, 0.4, 0.4, and 0.1 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

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### Factsheet

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## Serum Perfluoroheptanoic acid (PFHpA) (2011 - 2014)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	.140 (.120-.170)	.220 (.180-.260)	1904
	13-14	*	< LOD	< LOD	.100 (<LOD-.100)	.200 (.100-.200)	2168
<b>Age group</b>							
12-19 years	11-12	*	< LOD	.100 (<LOD-.130)	.160 (.130-.200)	.190 (.160-.270)	344
	13-14	*	< LOD	< LOD	.200 (.100-.200)	.200 (.100-.600)	402
20 years and older	11-12	*	< LOD	< LOD	.140 (.120-.180)	.220 (.160-.280)	1560
	13-14	*	< LOD	< LOD	.100 (<LOD-.100)	.100 (.100-.200)	1766
<b>Gender</b>							
Males	11-12	*	< LOD	< LOD	.140 (.120-.200)	.220 (.180-.270)	966
	13-14	*	< LOD	< LOD	.100 (<LOD-.100)	.100 (.100-.200)	1032
Females	11-12	*	< LOD	< LOD	.140 (.110-.180)	.200 (.140-.360)	938
	13-14	*	< LOD	< LOD	.100 (<LOD-.100)	.200 (.100-.300)	1136
<b>Race/ethnicity</b>							
Mexican Americans	11-12	*	< LOD	< LOD	.130 (<LOD-.180)	.170 (.120-.230)	211
	13-14	*	< LOD	< LOD	< LOD	.100 (<LOD-.300)	332
Non-Hispanic blacks	11-12	*	< LOD	< LOD	.130 (.100-.150)	.180 (.140-.230)	485
	13-14	*	< LOD	< LOD	.100 (<LOD-.100)	.100 (<LOD-.200)	455
Non-Hispanic whites	11-12	*	< LOD	< LOD	.150 (.120-.190)	.230 (.160-.290)	666
	13-14	*	< LOD	< LOD	.100 (<LOD-.100)	.200 (.100-.200)	862
All Hispanics	11-12	*	< LOD	< LOD	.140 (.100-.180)	.190 (.160-.230)	406
	13-14	*	< LOD	< LOD	< LOD	.100 (<LOD-.300)	537
Asians	11-12	*	< LOD	< LOD	.160 (.120-.220)	.230 (.180-.310)	291
	13-14	*	< LOD	< LOD	.100 (<LOD-.100)	.100 (.100-.200)	236

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.1 and 0.1.  
 < LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.  
 \* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/PFCs\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/PFCs_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PFCs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PFCs_FactSheet.html)

## Serum Perfluorohexane sulfonic acid (PFHxS) (1999 – 2010)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	<b>2.13</b> (1.91-2.38)	<b>2.10</b> (1.80-2.30)	<b>3.40</b> (3.10-4.00)	<b>5.80</b> (5.20-6.90)	<b>8.70</b> (7.00-10.0)	1562
	03-04	<b>1.93</b> (1.73-2.16)	<b>1.90</b> (1.70-2.10)	<b>3.30</b> (2.80-3.90)	<b>5.90</b> (4.80-7.20)	<b>8.30</b> (7.10-9.70)	2094
	05-06	<b>1.67</b> (1.42-1.98)	<b>1.80</b> (1.50-2.10)	<b>3.20</b> (2.60-4.00)	<b>5.40</b> (4.40-7.10)	<b>8.30</b> (5.80-11.9)	2120
	07-08	<b>1.95</b> (1.76-2.17)	<b>2.00</b> (1.80-2.10)	<b>3.50</b> (3.10-4.00)	<b>5.90</b> (4.90-8.30)	<b>9.80</b> (6.10-15.2)	2100
	09-10	<b>1.66</b> (1.51-1.82)	<b>1.70</b> (1.50-1.90)	<b>3.00</b> (2.60-3.30)	<b>4.80</b> (4.40-5.30)	<b>6.90</b> (5.90-7.60)	2233
Age group 12-19 years	99-00	<b>2.69</b> (2.14-3.39)	<b>2.50</b> (2.00-3.70)	<b>5.00</b> (3.60-6.50)	<b>8.00</b> (5.80-12.9)	<b>12.9</b> (6.90-16.4)	543
	03-04	<b>2.44</b> (2.05-2.90)	<b>2.40</b> (1.80-3.20)	<b>4.90</b> (4.00-6.30)	<b>9.50</b> (6.80-12.5)	<b>13.3</b> (9.90-19.6)	640
	05-06	<b>2.09</b> (1.74-2.52)	<b>2.40</b> (2.00-2.90)	<b>4.30</b> (3.70-5.40)	<b>9.50</b> (6.40-13.1)	<b>14.1</b> (9.80-17.8)	640
	07-08	<b>2.40</b> (2.09-2.75)	<b>2.30</b> (1.80-2.70)	<b>4.30</b> (3.70-5.70)	<b>9.90</b> (6.50-12.5)	<b>15.9</b> (11.1-21.5)	357
	09-10	<b>2.03</b> (1.77-2.33)	<b>1.90</b> (1.60-2.10)	<b>3.80</b> (3.20-4.20)	<b>8.10</b> (6.30-9.70)	<b>12.3</b> (8.60-19.0)	364
20 years and older	99-00	<b>2.05</b> (1.85-2.27)	<b>2.00</b> (1.80-2.30)	<b>3.30</b> (3.00-3.70)	<b>5.40</b> (4.90-5.90)	<b>8.20</b> (6.70-9.50)	1019
	03-04	<b>1.86</b> (1.67-2.08)	<b>1.80</b> (1.60-2.10)	<b>3.00</b> (2.60-3.60)	<b>5.50</b> (4.50-6.70)	<b>7.60</b> (6.30-9.40)	1454
	05-06	<b>1.62</b> (1.37-1.92)	<b>1.70</b> (1.50-2.10)	<b>3.10</b> (2.50-3.80)	<b>5.20</b> (4.20-6.50)	<b>7.20</b> (5.10-11.6)	1480
	07-08	<b>1.90</b> (1.69-2.13)	<b>1.90</b> (1.70-2.10)	<b>3.30</b> (2.90-3.90)	<b>5.80</b> (4.50-8.00)	<b>9.00</b> (5.60-15.0)	1743
	09-10	<b>1.61</b> (1.45-1.79)	<b>1.70</b> (1.50-1.90)	<b>2.90</b> (2.50-3.30)	<b>4.50</b> (4.00-5.20)	<b>6.00</b> (5.40-7.10)	1869
Gender Males	99-00	<b>2.61</b> (2.27-3.00)	<b>2.60</b> (2.20-3.00)	<b>4.10</b> (3.50-4.70)	<b>6.60</b> (5.30-9.40)	<b>10.5</b> (6.90-15.0)	743
	03-04	<b>2.17</b> (1.87-2.51)	<b>2.10</b> (1.80-2.40)	<b>3.40</b> (2.80-4.50)	<b>6.10</b> (4.60-8.10)	<b>8.50</b> (6.50-10.5)	1053
	05-06	<b>2.08</b> (1.76-2.45)	<b>2.20</b> (1.80-2.70)	<b>3.70</b> (3.20-4.60)	<b>6.40</b> (4.80-9.30)	<b>9.50</b> (6.70-13.7)	1048
	07-08	<b>2.63</b> (2.36-2.94)	<b>2.60</b> (2.40-2.80)	<b>4.20</b> (3.80-4.90)	<b>7.30</b> (5.50-11.0)	<b>11.4</b> (7.10-18.1)	1059
	09-10	<b>2.21</b> (1.99-2.46)	<b>2.20</b> (1.90-2.50)	<b>3.40</b> (3.00-4.00)	<b>5.50</b> (5.00-6.40)	<b>7.80</b> (6.50-9.90)	1075
Females	99-00	<b>1.79</b> (1.56-2.06)	<b>1.70</b> (1.50-2.10)	<b>2.80</b> (2.30-3.50)	<b>5.10</b> (4.10-6.70)	<b>8.00</b> (5.70-9.00)	819
	03-04	<b>1.72</b> (1.56-1.91)	<b>1.60</b> (1.40-1.80)	<b>2.90</b> (2.50-3.50)	<b>5.80</b> (4.60-7.10)	<b>8.20</b> (6.70-10.0)	1041
	05-06	<b>1.37</b> (1.15-1.63)	<b>1.50</b> (1.20-1.70)	<b>2.80</b> (2.20-3.30)	<b>4.60</b> (3.90-5.80)	<b>6.60</b> (5.60-9.30)	1072
	07-08	<b>1.46</b> (1.30-1.64)	<b>1.40</b> (1.30-1.50)	<b>2.60</b> (2.20-3.10)	<b>4.70</b> (3.80-6.10)	<b>7.50</b> (5.00-12.5)	1041
	09-10	<b>1.26</b> (1.14-1.40)	<b>1.30</b> (1.20-1.40)	<b>2.20</b> (2.00-2.60)	<b>4.00</b> (3.50-4.50)	<b>5.40</b> (4.70-6.50)	1158

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 03-04, 05-06, 07-08, and 09-10 are 0.1, 0.3, 0.1, 0.1, and 0.1 respectively.

### Biomonitoring Summary

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### Factsheet

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## Serum Perfluorohexane sulfonic acid (PFHxS) (1999 – 2010)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00	<b>1.47</b> (1.13-1.92)	<b>1.50</b> (1.00-2.00)	<b>2.80</b> (1.80-3.80)	<b>4.50</b> (3.30-6.90)	<b>6.70</b> (4.60-9.50)	584
	03-04	<b>1.42</b> (1.17-1.72)	<b>1.50</b> (1.20-1.70)	<b>2.30</b> (1.90-2.90)	<b>4.30</b> (3.10-5.10)	<b>5.50</b> (4.00-8.90)	485
	05-06	<b>1.25</b> (.884-1.76)	<b>1.60</b> (1.20-2.10)	<b>2.80</b> (2.50-3.40)	<b>4.30</b> (3.60-5.20)	<b>6.00</b> (4.60-7.20)	499
	07-08	<b>1.65</b> (1.46-1.86)	<b>1.70</b> (1.40-1.90)	<b>3.00</b> (2.70-3.40)	<b>5.00</b> (3.70-6.10)	<b>6.70</b> (5.20-10.7)	391
	09-10	<b>1.01</b> (.835-1.22)	<b>1.10</b> (.800-1.30)	<b>1.80</b> (1.50-2.20)	<b>3.10</b> (2.50-3.70)	<b>4.00</b> (3.20-5.30)	461
Non-Hispanic blacks	99-00	<b>2.14</b> (1.58-2.89)	<b>2.10</b> (1.40-3.00)	<b>3.40</b> (2.70-5.00)	<b>6.70</b> (3.90-10.7)	<b>10.7</b> (6.80-14.3)	303
	03-04	<b>1.92</b> (1.62-2.26)	<b>1.90</b> (1.60-2.20)	<b>3.50</b> (2.80-4.60)	<b>6.00</b> (5.00-7.10)	<b>8.30</b> (6.30-12.0)	538
	05-06	<b>1.53</b> (1.13-2.07)	<b>1.70</b> (1.40-2.20)	<b>3.30</b> (2.50-4.10)	<b>5.40</b> (3.90-7.50)	<b>7.50</b> (5.30-11.0)	544
	07-08	<b>1.98</b> (1.55-2.52)	<b>2.10</b> (1.80-2.50)	<b>3.90</b> (2.80-5.40)	<b>7.90</b> (4.20-12.5)	<b>11.1</b> (5.90-17.2)	419
	09-10	<b>1.44</b> (1.26-1.64)	<b>1.40</b> (1.20-1.70)	<b>2.60</b> (2.10-3.00)	<b>4.40</b> (3.80-5.20)	<b>6.50</b> (4.60-8.20)	391
Non-Hispanic whites	99-00	<b>2.30</b> (2.06-2.56)	<b>2.30</b> (1.90-2.60)	<b>3.60</b> (3.20-4.20)	<b>5.90</b> (5.30-7.00)	<b>8.40</b> (7.00-9.70)	519
	03-04	<b>2.01</b> (1.77-2.27)	<b>1.90</b> (1.70-2.20)	<b>3.30</b> (2.80-4.10)	<b>6.10</b> (4.70-7.80)	<b>8.20</b> (6.90-10.1)	962
	05-06	<b>1.79</b> (1.48-2.17)	<b>1.80</b> (1.50-2.20)	<b>3.30</b> (2.70-4.30)	<b>5.60</b> (4.60-8.20)	<b>9.40</b> (6.10-13.1)	935
	07-08	<b>2.13</b> (1.89-2.41)	<b>2.10</b> (1.80-2.40)	<b>3.70</b> (3.20-4.20)	<b>6.40</b> (5.30-9.00)	<b>10.5</b> (6.50-15.6)	931
	09-10	<b>1.93</b> (1.77-2.10)	<b>2.00</b> (1.80-2.20)	<b>3.30</b> (2.90-3.70)	<b>5.30</b> (4.80-5.60)	<b>7.30</b> (6.20-8.80)	1031

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 03-04, 05-06, 07-08, and 09-10 are 0.1, 0.3, 0.1, 0.1, and 0.1 respectively.

### Biomonitoring Summary

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### Factsheet

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## Serum Perfluorohexane sulfonic acid (PFHxS) (2011 - 2014)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>1.28</b> (1.15-1.43)	<b>1.27</b> (1.11-1.45)	<b>2.26</b> (2.01-2.61)	<b>3.85</b> (3.28-4.61)	<b>5.44</b> (4.61-6.82)	1904
	13-14	<b>1.35</b> (1.20-1.52)	<b>1.40</b> (1.20-1.60)	<b>2.40</b> (2.20-2.70)	<b>4.10</b> (3.60-4.80)	<b>5.60</b> (4.70-7.10)	2168
<b>Age group</b>							
12-19 years	11-12	<b>1.28</b> (1.08-1.51)	<b>1.13</b> (.920-1.45)	<b>2.17</b> (1.53-2.79)	<b>4.53</b> (2.76-5.72)	<b>6.45</b> (4.21-9.34)	344
	13-14	<b>1.27</b> (1.06-1.53)	<b>1.10</b> (.900-1.40)	<b>2.10</b> (1.50-2.90)	<b>4.10</b> (2.50-6.30)	<b>6.30</b> (4.00-9.40)	402
20 years and older	11-12	<b>1.28</b> (1.14-1.43)	<b>1.28</b> (1.13-1.47)	<b>2.29</b> (2.02-2.62)	<b>3.76</b> (3.17-4.61)	<b>5.05</b> (4.61-6.44)	1560
	13-14	<b>1.36</b> (1.21-1.53)	<b>1.40</b> (1.30-1.60)	<b>2.50</b> (2.20-2.80)	<b>4.10</b> (3.60-4.80)	<b>5.50</b> (4.80-7.10)	1766
<b>Gender</b>							
Males	11-12	<b>1.68</b> (1.50-1.89)	<b>1.73</b> (1.46-2.03)	<b>2.75</b> (2.37-3.28)	<b>4.46</b> (3.76-5.09)	<b>6.90</b> (4.99-8.59)	966
	13-14	<b>1.84</b> (1.59-2.12)	<b>1.90</b> (1.60-2.10)	<b>3.00</b> (2.50-3.40)	<b>4.60</b> (4.00-5.70)	<b>6.30</b> (5.20-8.80)	1032
Females	11-12	<b>.989</b> (.876-1.12)	<b>.970</b> (.880-1.07)	<b>1.71</b> (1.39-2.05)	<b>2.96</b> (2.23-4.28)	<b>4.61</b> (3.00-5.61)	938
	13-14	<b>1.01</b> (.909-1.12)	<b>1.00</b> (.900-1.10)	<b>1.80</b> (1.60-2.10)	<b>3.40</b> (2.80-4.10)	<b>4.90</b> (3.80-5.90)	1136
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>.927</b> (.771-1.12)	<b>.980</b> (.690-1.28)	<b>1.56</b> (1.22-2.06)	<b>2.26</b> (1.95-2.54)	<b>2.78</b> (2.26-4.78)	211
	13-14	<b>.973</b> (.866-1.09)	<b>1.10</b> (1.00-1.10)	<b>1.60</b> (1.40-1.80)	<b>2.40</b> (2.10-2.70)	<b>2.90</b> (2.60-4.30)	332
Non-Hispanic blacks	11-12	<b>1.13</b> (1.03-1.23)	<b>1.10</b> (1.01-1.22)	<b>2.10</b> (1.84-2.35)	<b>3.44</b> (2.86-4.15)	<b>4.97</b> (3.68-6.89)	485
	13-14	<b>1.16</b> (1.00-1.33)	<b>1.20</b> (1.00-1.40)	<b>2.20</b> (1.80-2.70)	<b>3.60</b> (2.90-5.10)	<b>5.60</b> (3.80-9.80)	455
Non-Hispanic whites	11-12	<b>1.46</b> (1.28-1.66)	<b>1.41</b> (1.20-1.69)	<b>2.50</b> (2.10-3.00)	<b>4.30</b> (3.47-4.99)	<b>5.62</b> (4.70-7.60)	666
	13-14	<b>1.53</b> (1.28-1.83)	<b>1.50</b> (1.30-1.90)	<b>2.70</b> (2.20-3.30)	<b>4.80</b> (3.80-5.70)	<b>5.90</b> (4.80-9.30)	862
All Hispanics	11-12	<b>.904</b> (.737-1.11)	<b>.950</b> (.730-1.23)	<b>1.66</b> (1.36-2.06)	<b>2.54</b> (2.06-3.15)	<b>3.59</b> (2.52-5.42)	406
	13-14	<b>1.00</b> (.875-1.14)	<b>1.10</b> (1.00-1.20)	<b>1.80</b> (1.50-2.00)	<b>2.70</b> (2.20-3.60)	<b>3.90</b> (2.90-4.50)	537
Asians	11-12	<b>.942</b> (.791-1.12)	<b>.980</b> (.820-1.20)	<b>1.69</b> (1.41-1.94)	<b>2.62</b> (2.13-3.50)	<b>3.72</b> (2.75-5.98)	291
	13-14	<b>1.15</b> (.948-1.40)	<b>1.20</b> (.900-1.60)	<b>2.20</b> (1.70-2.70)	<b>3.30</b> (2.60-4.20)	<b>4.40</b> (3.30-5.90)	236

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.1 and 0.1.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/PFCs\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/PFCs_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PFCs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PFCs_FactSheet.html)

## Serum Perfluorononanoic acid (PFNA) (1999-2010)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.\*\*

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	<b>.551</b> (.456-.666)	<b>.600</b> (.500-.700)	<b>.900</b> (.700-1.00)	<b>1.30</b> (1.00-1.90)	<b>1.80</b> (1.30-2.40)	1562
	03-04	<b>.966</b> (.816-1.14)	<b>1.00</b> (.900-1.10)	<b>1.50</b> (1.20-1.80)	<b>2.30</b> (1.60-4.30)	<b>3.20</b> (1.80-7.70)	2094
	05-06	<b>1.09</b> (.909-1.29)	<b>1.10</b> (.900-1.20)	<b>1.70</b> (1.30-2.10)	<b>2.60</b> (1.80-4.20)	<b>3.60</b> (2.50-5.70)	2120
	07-08	<b>1.22</b> (1.12-1.32)	<b>1.23</b> (1.15-1.31)	<b>1.72</b> (1.56-1.89)	<b>2.62</b> (2.30-2.87)	<b>3.28</b> (2.95-3.77)	2100
	09-10	<b>1.26</b> (1.11-1.44)	<b>1.23</b> (1.07-1.31)	<b>1.80</b> (1.48-2.13)	<b>2.71</b> (1.97-4.26)	<b>3.77</b> (2.30-7.22)	2233
Age group 12-19 years	99-00	<b>.473</b> (.406-.551)	<b>.500</b> (.400-.600)	<b>.700</b> (.600-.800)	<b>.900</b> (.800-1.10)	<b>1.20</b> (.900-1.40)	543
	03-04	<b>.852</b> (.697-1.04)	<b>.800</b> (.700-1.00)	<b>1.20</b> (1.00-1.60)	<b>1.90</b> (1.20-3.70)	<b>2.80</b> (1.30-6.30)	640
	05-06	<b>.929</b> (.782-1.10)	<b>.900</b> (.800-1.10)	<b>1.40</b> (1.10-1.80)	<b>2.00</b> (1.60-2.70)	<b>2.70</b> (2.10-3.40)	640
	07-08	<b>1.16</b> (1.04-1.30)	<b>1.15</b> (.980-1.31)	<b>1.56</b> (1.31-1.97)	<b>2.05</b> (1.64-2.71)	<b>2.54</b> (2.13-3.28)	357
	09-10	<b>1.10</b> (.950-1.27)	<b>1.07</b> (.900-1.23)	<b>1.48</b> (1.31-1.80)	<b>2.21</b> (1.48-2.95)	<b>2.62</b> (1.89-4.84)	364
20 years and older	99-00	<b>.566</b> (.464-.690)	<b>.600</b> (.500-.700)	<b>.900</b> (.700-1.20)	<b>1.40</b> (1.00-1.90)	<b>1.90</b> (1.40-2.40)	1019
	03-04	<b>.984</b> (.835-1.16)	<b>1.00</b> (.900-1.10)	<b>1.50</b> (1.20-1.80)	<b>2.40</b> (1.60-4.40)	<b>3.40</b> (1.80-8.40)	1454
	05-06	<b>1.11</b> (.929-1.33)	<b>1.10</b> (1.00-1.20)	<b>1.70</b> (1.30-2.20)	<b>2.60</b> (1.80-4.40)	<b>3.90</b> (2.50-5.80)	1480
	07-08	<b>1.23</b> (1.13-1.33)	<b>1.23</b> (1.15-1.31)	<b>1.72</b> (1.64-1.89)	<b>2.62</b> (2.38-2.95)	<b>3.36</b> (3.03-3.77)	1743
	09-10	<b>1.29</b> (1.13-1.47)	<b>1.23</b> (1.15-1.39)	<b>1.80</b> (1.56-2.21)	<b>2.71</b> (1.97-4.67)	<b>3.94</b> (2.38-8.36)	1869
Gender							
	Males						
Males	99-00	<b>.604</b> (.510-.716)	<b>.600</b> (.500-.700)	<b>.900</b> (.800-1.10)	<b>1.30</b> (1.10-1.80)	<b>1.70</b> (1.30-2.40)	743
	03-04	<b>1.09</b> (.912-1.30)	<b>1.10</b> (.900-1.20)	<b>1.60</b> (1.40-1.90)	<b>2.40</b> (1.70-5.00)	<b>4.00</b> (1.80-8.70)	1053
	05-06	<b>1.19</b> (.993-1.43)	<b>1.20</b> (1.00-1.30)	<b>1.80</b> (1.40-2.50)	<b>2.90</b> (1.80-4.60)	<b>3.90</b> (2.50-6.70)	1048
	07-08	<b>1.36</b> (1.27-1.47)	<b>1.31</b> (1.23-1.39)	<b>1.89</b> (1.72-2.05)	<b>2.87</b> (2.54-3.12)	<b>3.53</b> (3.12-4.18)	1059
	09-10	<b>1.37</b> (1.17-1.59)	<b>1.31</b> (1.15-1.48)	<b>1.80</b> (1.56-2.30)	<b>2.79</b> (1.89-4.84)	<b>4.10</b> (2.21-12.1)	1075
Females	99-00	<b>.508</b> (.409-.632)	<b>.500</b> (.400-.600)	<b>.800</b> (.600-1.00)	<b>1.30</b> (.900-2.00)	<b>1.80</b> (1.30-2.60)	819
	03-04	<b>.861</b> (.721-1.03)	<b>.900</b> (.800-1.00)	<b>1.30</b> (1.00-1.70)	<b>2.20</b> (1.40-3.40)	<b>3.00</b> (1.70-6.10)	1041
	05-06	<b>.992</b> (.833-1.18)	<b>.900</b> (.800-1.10)	<b>1.50</b> (1.20-1.90)	<b>2.40</b> (1.70-3.50)	<b>3.10</b> (2.10-5.70)	1072
	07-08	<b>1.09</b> (.985-1.21)	<b>1.07</b> (.980-1.23)	<b>1.56</b> (1.48-1.72)	<b>2.21</b> (1.97-2.54)	<b>2.79</b> (2.54-3.53)	1041
	09-10	<b>1.17</b> (1.05-1.31)	<b>1.15</b> (.980-1.23)	<b>1.72</b> (1.39-2.05)	<b>2.62</b> (1.97-3.77)	<b>3.53</b> (2.30-6.15)	1158

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 03-04, 05-06, 07-08, and 09-10 are 0.1, 0.1, 0.1, 0.082, and 0.082 respectively.

\*\*To correct for inadequate purity in the analytical standards, all results and LODs have been adjusted by a factor of 0.82 for Survey periods 2007-2008 and 2009-2010 compared with results previously released.

### Biomonitoring Summary

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### Factsheet

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## Serum Perfluorononanoic acid (PFNA) (1999 – 2010)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.\*\*

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00	<b>.341</b> (.292-.398)	<b>.400</b> (.300-.400)	<b>.500</b> (.400-.700)	<b>.700</b> (.600-.900)	<b>.900</b> (.700-1.30)	584
	03-04	<b>.689</b> (.586-.809)	<b>.700</b> (.600-.900)	<b>1.10</b> (.900-1.40)	<b>1.60</b> (1.30-2.00)	<b>2.00</b> (1.60-2.80)	485
	05-06	<b>.821</b> (.710-.951)	<b>.800</b> (.700-.900)	<b>1.20</b> (1.10-1.40)	<b>1.60</b> (1.30-2.30)	<b>2.30</b> (1.50-3.20)	499
	07-08	<b>1.10</b> (.967-1.25)	<b>1.15</b> (.980-1.31)	<b>1.56</b> (1.39-1.80)	<b>2.13</b> (1.80-2.71)	<b>2.71</b> (2.13-3.28)	391
	09-10	<b>.993</b> (.906-1.09)	<b>.980</b> (.900-1.07)	<b>1.39</b> (1.31-1.56)	<b>2.05</b> (1.80-2.38)	<b>2.46</b> (2.21-3.03)	461
Non-Hispanic blacks	99-00	<b>.764</b> (.606-.964)	<b>.700</b> (.600-1.00)	<b>1.30</b> (.800-1.80)	<b>1.90</b> (1.50-2.50)	<b>2.50</b> (1.90-2.90)	303
	03-04	<b>1.14</b> (.834-1.54)	<b>1.10</b> (.900-1.40)	<b>1.70</b> (1.20-2.90)	<b>3.20</b> (1.50-6.50)	<b>4.70</b> (2.10-9.30)	538
	05-06	<b>1.17</b> (.916-1.50)	<b>1.20</b> (.900-1.40)	<b>1.60</b> (1.30-2.50)	<b>2.60</b> (1.70-5.60)	<b>4.40</b> (2.40-8.20)	544
	07-08	<b>1.35</b> (1.23-1.48)	<b>1.39</b> (1.23-1.48)	<b>1.89</b> (1.72-2.13)	<b>2.79</b> (2.30-3.36)	<b>3.36</b> (2.79-4.67)	419
	09-10	<b>1.42</b> (1.29-1.56)	<b>1.39</b> (1.23-1.56)	<b>1.97</b> (1.80-2.30)	<b>2.79</b> (2.38-3.36)	<b>3.36</b> (2.62-4.84)	391
Non-Hispanic whites	99-00	<b>.566</b> (.467-.687)	<b>.600</b> (.500-.700)	<b>.900</b> (.700-1.10)	<b>1.30</b> (1.00-1.90)	<b>1.70</b> (1.30-2.30)	519
	03-04	<b>.963</b> (.826-1.12)	<b>.900</b> (.900-1.10)	<b>1.50</b> (1.20-1.70)	<b>2.30</b> (1.60-3.60)	<b>3.00</b> (1.80-6.20)	962
	05-06	<b>1.10</b> (.914-1.31)	<b>1.10</b> (.900-1.20)	<b>1.70</b> (1.30-2.10)	<b>2.60</b> (1.80-4.20)	<b>3.50</b> (2.40-5.70)	935
	07-08	<b>1.22</b> (1.10-1.34)	<b>1.23</b> (1.15-1.31)	<b>1.72</b> (1.48-1.89)	<b>2.54</b> (2.13-3.03)	<b>3.20</b> (2.79-3.85)	931
	09-10	<b>1.28</b> (1.08-1.51)	<b>1.23</b> (1.07-1.39)	<b>1.80</b> (1.48-2.21)	<b>2.62</b> (1.80-5.08)	<b>3.85</b> (2.05-10.8)	1031

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 03-04, 05-06, 07-08, and 09-10 are 0.1, 0.1, 0.1, 0.082, and 0.082 respectively.

\*\*To correct for inadequate purity in the analytical standards, all results and LODs have been adjusted by a factor of 0.82 for Survey periods 2007-2008 and 2009-2010 compared with results previously released.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/PFCs\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/PFCs_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PFCs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PFCs_FactSheet.html)

## Serum Perfluorononanoic acid (PFNA) (2011 - 2014)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>.881</b> (.801-.968)	<b>.860</b> (.750-.960)	<b>1.30</b> (1.13-1.45)	<b>1.96</b> (1.68-2.21)	<b>2.54</b> (2.28-2.89)	1904
	13-14	<b>.675</b> (.613-.742)	<b>.700</b> (.600-.800)	<b>1.00</b> (.900-1.20)	<b>1.60</b> (1.40-1.70)	<b>2.00</b> (1.80-2.30)	2168
<b>Age group</b>							
12-19 years	11-12	<b>.741</b> (.638-.861)	<b>.680</b> (.620-.810)	<b>1.00</b> (.800-1.33)	<b>1.67</b> (1.12-2.06)	<b>2.06</b> (1.51-3.07)	344
	13-14	<b>.599</b> (.492-.730)	<b>.500</b> (.500-.600)	<b>.800</b> (.600-1.30)	<b>1.50</b> (.800-2.80)	<b>2.00</b> (1.00-3.40)	402
20 years and older	11-12	<b>.903</b> (.823-.992)	<b>.890</b> (.800-.980)	<b>1.34</b> (1.16-1.48)	<b>2.00</b> (1.71-2.33)	<b>2.64</b> (2.37-3.03)	1560
	13-14	<b>.685</b> (.625-.752)	<b>.700</b> (.600-.800)	<b>1.00</b> (1.00-1.20)	<b>1.60</b> (1.40-1.70)	<b>2.00</b> (1.80-2.30)	1766
<b>Gender</b>							
Males	11-12	<b>.946</b> (.836-1.07)	<b>.930</b> (.810-1.09)	<b>1.36</b> (1.18-1.52)	<b>1.89</b> (1.61-2.37)	<b>2.57</b> (2.14-3.12)	966
	13-14	<b>.763</b> (.682-.854)	<b>.800</b> (.700-.800)	<b>1.10</b> (1.00-1.30)	<b>1.70</b> (1.50-1.80)	<b>2.20</b> (1.80-2.40)	1032
Females	11-12	<b>.824</b> (.762-.890)	<b>.770</b> (.700-.870)	<b>1.19</b> (1.00-1.44)	<b>2.00</b> (1.69-2.28)	<b>2.52</b> (2.20-2.76)	938
	13-14	<b>.600</b> (.549-.657)	<b>.600</b> (.500-.700)	<b>.900</b> (.900-1.00)	<b>1.50</b> (1.30-1.60)	<b>1.90</b> (1.70-2.10)	1136
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>.810</b> (.631-1.04)	<b>.790</b> (.580-1.10)	<b>1.17</b> (.840-1.66)	<b>1.74</b> (1.19-2.47)	<b>2.36</b> (1.66-2.85)	211
	13-14	<b>.538</b> (.452-.641)	<b>.500</b> (.500-.600)	<b>.800</b> (.600-.900)	<b>1.10</b> (.800-1.70)	<b>1.60</b> (1.10-2.10)	332
Non-Hispanic blacks	11-12	<b>.939</b> (.842-1.05)	<b>.950</b> (.870-1.00)	<b>1.35</b> (1.18-1.59)	<b>2.03</b> (1.60-3.03)	<b>3.12</b> (1.89-5.08)	485
	13-14	<b>.665</b> (.564-.783)	<b>.700</b> (.600-.800)	<b>1.10</b> (.900-1.30)	<b>1.70</b> (1.30-2.10)	<b>2.20</b> (1.80-2.50)	455
Non-Hispanic whites	11-12	<b>.864</b> (.766-.975)	<b>.850</b> (.710-.980)	<b>1.26</b> (1.04-1.45)	<b>1.83</b> (1.54-2.21)	<b>2.37</b> (2.00-3.14)	666
	13-14	<b>.699</b> (.621-.786)	<b>.700</b> (.600-.800)	<b>1.10</b> (1.00-1.20)	<b>1.60</b> (1.40-1.80)	<b>2.00</b> (1.70-2.40)	862
All Hispanics	11-12	<b>.850</b> (.699-1.03)	<b>.840</b> (.660-1.00)	<b>1.21</b> (.970-1.67)	<b>1.99</b> (1.51-2.53)	<b>2.53</b> (2.07-2.85)	406
	13-14	<b>.549</b> (.484-.622)	<b>.600</b> (.500-.600)	<b>.800</b> (.700-.900)	<b>1.10</b> (.900-1.50)	<b>1.60</b> (1.20-2.10)	537
Asians	11-12	<b>1.18</b> (.996-1.40)	<b>1.18</b> (.970-1.49)	<b>1.94</b> (1.56-2.38)	<b>2.96</b> (2.52-3.50)	<b>3.72</b> (3.04-4.31)	291
	13-14	<b>.893</b> (.789-1.01)	<b>.900</b> (.800-1.10)	<b>1.50</b> (1.20-1.60)	<b>2.20</b> (1.80-2.80)	<b>3.10</b> (2.40-4.20)	236

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.082 and 0.1.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/PFCs\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/PFCs_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PFCs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PFCs_FactSheet.html)

## Serum Perfluorooctanoic acid (PFOA) (1999 – 2010)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	<b>5.21</b> (4.72-5.74)	<b>5.20</b> (4.80-5.90)	<b>6.90</b> (6.30-7.80)	<b>9.40</b> (8.20-11.1)	<b>11.9</b> (10.9-13.5)	1562
	03-04	<b>3.95</b> (3.65-4.27)	<b>4.10</b> (3.80-4.40)	<b>5.80</b> (5.30-6.40)	<b>7.80</b> (6.70-9.60)	<b>9.80</b> (7.40-14.1)	2094
	05-06	<b>3.92</b> (3.48-4.42)	<b>4.20</b> (3.80-4.50)	<b>6.20</b> (5.40-7.20)	<b>9.00</b> (7.40-11.2)	<b>11.3</b> (8.80-14.5)	2120
	07-08	<b>4.12</b> (4.01-4.24)	<b>4.30</b> (4.20-4.50)	<b>5.90</b> (5.70-6.20)	<b>7.90</b> (7.50-8.30)	<b>9.60</b> (8.90-10.1)	2100
	09-10	<b>3.07</b> (2.81-3.36)	<b>3.20</b> (2.90-3.50)	<b>4.60</b> (4.10-5.10)	<b>6.00</b> (5.30-7.20)	<b>7.50</b> (6.20-9.70)	2233
Age group 12-19 years	99-00	<b>5.46</b> (4.98-5.99)	<b>5.60</b> (4.90-6.10)	<b>6.90</b> (6.20-7.70)	<b>9.40</b> (7.70-11.0)	<b>11.6</b> (10.2-12.5)	543
	03-04	<b>3.89</b> (3.47-4.35)	<b>4.00</b> (3.50-4.50)	<b>5.40</b> (4.60-6.10)	<b>7.00</b> (5.60-9.20)	<b>8.60</b> (5.90-12.6)	640
	05-06	<b>3.59</b> (3.26-3.96)	<b>3.80</b> (3.30-4.20)	<b>5.40</b> (4.60-5.90)	<b>6.90</b> (6.30-7.90)	<b>8.40</b> (7.30-10.1)	640
	07-08	<b>3.91</b> (3.71-4.12)	<b>4.00</b> (3.70-4.40)	<b>5.00</b> (4.70-5.50)	<b>6.10</b> (5.70-6.70)	<b>7.30</b> (6.20-8.00)	357
	09-10	<b>2.74</b> (2.46-3.05)	<b>2.90</b> (2.60-3.10)	<b>3.80</b> (3.30-4.20)	<b>4.80</b> (4.10-5.30)	<b>5.00</b> (4.40-7.20)	364
20 years and older	99-00	<b>5.16</b> (4.66-5.72)	<b>5.20</b> (4.70-5.70)	<b>7.00</b> (6.30-7.80)	<b>9.40</b> (8.20-11.1)	<b>12.0</b> (10.8-14.0)	1019
	03-04	<b>3.96</b> (3.67-4.27)	<b>4.10</b> (3.90-4.40)	<b>5.90</b> (5.40-6.50)	<b>7.80</b> (6.80-9.60)	<b>9.90</b> (7.60-14.2)	1454
	05-06	<b>3.97</b> (3.51-4.49)	<b>4.20</b> (3.80-4.60)	<b>6.40</b> (5.40-7.50)	<b>9.30</b> (7.40-11.9)	<b>11.6</b> (9.00-14.8)	1480
	07-08	<b>4.15</b> (4.02-4.30)	<b>4.30</b> (4.20-4.60)	<b>6.10</b> (5.80-6.50)	<b>8.10</b> (7.70-8.70)	<b>9.80</b> (9.00-10.4)	1743
	09-10	<b>3.12</b> (2.84-3.43)	<b>3.30</b> (3.00-3.60)	<b>4.70</b> (4.20-5.30)	<b>6.40</b> (5.40-7.50)	<b>7.70</b> (6.30-10.2)	1869
Gender Males	99-00	<b>5.71</b> (5.17-6.31)	<b>6.00</b> (5.40-6.50)	<b>7.70</b> (6.80-8.70)	<b>10.6</b> (9.00-11.8)	<b>12.1</b> (11.2-13.1)	743
	03-04	<b>4.47</b> (4.07-4.91)	<b>4.60</b> (4.30-5.00)	<b>6.30</b> (5.70-7.20)	<b>8.40</b> (6.80-12.5)	<b>10.7</b> (7.40-17.5)	1053
	05-06	<b>4.69</b> (4.23-5.20)	<b>4.90</b> (4.40-5.40)	<b>7.20</b> (6.10-8.00)	<b>9.90</b> (8.00-12.2)	<b>12.2</b> (9.60-15.2)	1048
	07-08	<b>4.80</b> (4.55-5.06)	<b>4.90</b> (4.60-5.20)	<b>6.70</b> (6.30-7.10)	<b>8.70</b> (8.10-9.30)	<b>10.1</b> (9.50-11.1)	1059
	09-10	<b>3.53</b> (3.22-3.87)	<b>3.70</b> (3.40-4.00)	<b>4.90</b> (4.50-5.40)	<b>6.80</b> (5.40-8.00)	<b>7.90</b> (6.40-10.2)	1075
Females	99-00	<b>4.80</b> (4.32-5.34)	<b>4.70</b> (4.40-5.20)	<b>6.30</b> (5.60-7.10)	<b>8.30</b> (7.50-9.90)	<b>11.3</b> (9.20-14.4)	819
	03-04	<b>3.50</b> (3.21-3.82)	<b>3.60</b> (3.30-3.90)	<b>5.20</b> (4.70-5.80)	<b>7.10</b> (6.30-8.20)	<b>8.60</b> (7.40-10.6)	1041
	05-06	<b>3.31</b> (2.89-3.79)	<b>3.50</b> (3.10-4.00)	<b>5.20</b> (4.40-6.00)	<b>7.90</b> (6.10-9.70)	<b>10.1</b> (7.50-14.2)	1072
	07-08	<b>3.55</b> (3.38-3.73)	<b>3.70</b> (3.50-3.90)	<b>5.20</b> (4.80-5.60)	<b>7.00</b> (6.50-7.50)	<b>8.30</b> (7.20-9.90)	1041
	09-10	<b>2.69</b> (2.45-2.96)	<b>2.70</b> (2.50-3.00)	<b>4.10</b> (3.60-4.70)	<b>5.60</b> (5.10-6.50)	<b>6.90</b> (5.80-8.40)	1158

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 03-04, 05-06, 07-08, and 09-10 are 0.1, 0.2, 0.1, 0.1, and 0.1 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/PFCs\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/PFCs_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PFCs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PFCs_FactSheet.html)

## Serum Perfluorooctanoic acid (PFOA) (1999 – 2010)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00	<b>3.89</b> (3.58-4.21)	<b>4.20</b> (3.80-4.60)	<b>5.80</b> (5.20-6.30)	<b>7.70</b> (6.40-8.00)	<b>8.20</b> (7.70-8.90)	584
	03-04	<b>3.11</b> (2.84-3.40)	<b>3.30</b> (3.10-3.70)	<b>4.50</b> (4.20-5.20)	<b>6.70</b> (5.70-7.30)	<b>7.60</b> (6.70-10.5)	485
	05-06	<b>2.62</b> (2.33-2.95)	<b>2.80</b> (2.50-3.30)	<b>4.30</b> (3.80-4.70)	<b>5.80</b> (5.30-6.70)	<b>7.40</b> (5.90-8.10)	499
	07-08	<b>3.54</b> (3.35-3.75)	<b>3.80</b> (3.50-4.00)	<b>5.20</b> (4.90-5.60)	<b>6.60</b> (6.20-7.10)	<b>7.60</b> (6.80-9.00)	391
	09-10	<b>2.26</b> (2.00-2.54)	<b>2.40</b> (2.10-2.60)	<b>3.60</b> (3.10-3.80)	<b>4.60</b> (4.00-5.30)	<b>5.40</b> (4.50-6.60)	461
Non-Hispanic blacks	99-00	<b>4.78</b> (4.10-5.57)	<b>4.80</b> (3.80-5.90)	<b>6.40</b> (5.90-7.50)	<b>9.00</b> (7.40-11.5)	<b>11.5</b> (9.20-14.0)	303
	03-04	<b>3.37</b> (2.99-3.79)	<b>3.70</b> (3.20-4.20)	<b>5.20</b> (4.40-6.30)	<b>7.70</b> (5.30-11.6)	<b>9.60</b> (6.50-13.9)	538
	05-06	<b>3.27</b> (2.61-4.08)	<b>3.70</b> (3.00-4.20)	<b>5.50</b> (4.40-6.80)	<b>8.10</b> (6.00-11.3)	<b>10.4</b> (7.80-12.3)	544
	07-08	<b>3.86</b> (3.57-4.16)	<b>4.00</b> (3.50-4.30)	<b>5.90</b> (5.20-6.50)	<b>7.80</b> (7.10-8.70)	<b>9.20</b> (8.50-10.1)	419
	09-10	<b>2.74</b> (2.47-3.04)	<b>2.80</b> (2.60-3.00)	<b>4.00</b> (3.70-4.40)	<b>5.50</b> (5.00-6.20)	<b>6.70</b> (5.60-9.40)	391
Non-Hispanic whites	99-00	<b>5.61</b> (5.06-6.23)	<b>5.60</b> (4.90-6.20)	<b>7.30</b> (6.50-8.20)	<b>10.3</b> (8.40-12.1)	<b>13.0</b> (11.0-14.9)	519
	03-04	<b>4.18</b> (3.85-4.53)	<b>4.30</b> (3.90-4.70)	<b>6.00</b> (5.50-6.70)	<b>7.90</b> (7.20-9.20)	<b>9.90</b> (7.60-13.3)	962
	05-06	<b>4.27</b> (3.80-4.81)	<b>4.40</b> (4.00-5.00)	<b>6.60</b> (5.60-7.80)	<b>9.60</b> (7.40-12.2)	<b>11.6</b> (8.80-14.8)	935
	07-08	<b>4.38</b> (4.20-4.56)	<b>4.60</b> (4.30-4.70)	<b>6.10</b> (5.80-6.60)	<b>8.20</b> (7.80-8.80)	<b>9.90</b> (9.30-10.6)	931
	09-10	<b>3.36</b> (3.06-3.69)	<b>3.50</b> (3.20-3.90)	<b>4.80</b> (4.40-5.40)	<b>6.60</b> (5.40-7.80)	<b>7.80</b> (6.20-10.5)	1031

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 03-04, 05-06, 07-08, and 09-10 are 0.1, 0.2, 0.1, 0.1, and 0.1 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/PFCs\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/PFCs_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PFCs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PFCs_FactSheet.html)

## Serum Perfluorooctanoic acid (PFOA) (2011 - 2014)‡

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>2.08</b> (1.95-2.22)	<b>2.08</b> (1.96-2.26)	<b>3.03</b> (2.76-3.27)	<b>4.35</b> (3.82-4.85)	<b>5.68</b> (5.02-6.49)	1904
	13-14‡	<b>1.94</b> (1.76-2.14)	<b>2.07</b> (1.87-2.20)	<b>3.07</b> (2.67-3.37)	<b>4.27</b> (3.57-5.17)	<b>5.57</b> (4.60-6.27)	2165
<b>Age group</b>							
12-19 years	11-12	<b>1.80</b> (1.71-1.91)	<b>1.74</b> (1.67-1.89)	<b>2.41</b> (2.17-2.62)	<b>2.93</b> (2.68-3.19)	<b>3.59</b> (2.93-4.25)	344
	13-14‡	<b>1.66</b> (1.50-1.84)	<b>1.67</b> (1.37-1.97)	<b>2.20</b> (1.97-2.57)	<b>2.87</b> (2.57-3.40)	<b>3.47</b> (2.87-4.37)	401
20 years and older	11-12	<b>2.12</b> (1.98-2.28)	<b>2.16</b> (2.01-2.33)	<b>3.15</b> (2.90-3.36)	<b>4.64</b> (3.93-5.25)	<b>5.94</b> (5.34-7.45)	1560
	13-14‡	<b>1.98</b> (1.79-2.19)	<b>2.07</b> (1.90-2.27)	<b>3.17</b> (2.77-3.47)	<b>4.47</b> (3.70-5.27)	<b>5.60</b> (4.67-6.40)	1764
<b>Gender</b>							
Males	11-12	<b>2.37</b> (2.22-2.53)	<b>2.38</b> (2.26-2.56)	<b>3.25</b> (3.00-3.56)	<b>4.61</b> (4.11-5.02)	<b>5.62</b> (4.85-6.20)	966
	13-14‡	<b>2.29</b> (2.09-2.50)	<b>2.37</b> (2.17-2.57)	<b>3.27</b> (2.87-3.60)	<b>4.67</b> (3.77-5.60)	<b>5.67</b> (4.67-6.27)	1031
Females	11-12	<b>1.84</b> (1.68-2.01)	<b>1.78</b> (1.62-1.98)	<b>2.65</b> (2.34-3.14)	<b>3.91</b> (3.36-4.99)	<b>5.68</b> (4.33-8.45)	938
	13-14‡	<b>1.66</b> (1.48-1.87)	<b>1.67</b> (1.47-1.87)	<b>2.67</b> (2.27-3.07)	<b>3.77</b> (3.37-4.70)	<b>5.07</b> (4.07-6.70)	1134
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>1.66</b> (1.37-2.02)	<b>1.71</b> (1.32-2.23)	<b>2.43</b> (1.98-2.98)	<b>3.38</b> (2.43-4.48)	<b>4.08</b> (2.98-6.15)	211
	13-14‡	<b>1.36</b> (1.25-1.47)	<b>1.37</b> (1.27-1.47)	<b>1.97</b> (1.87-2.10)	<b>2.70</b> (2.40-3.10)	<b>3.17</b> (2.57-3.77)	332
Non-Hispanic blacks	11-12	<b>1.80</b> (1.71-1.90)	<b>1.94</b> (1.76-2.09)	<b>2.82</b> (2.65-2.95)	<b>3.94</b> (3.51-4.40)	<b>5.11</b> (4.40-5.79)	485
	13-14‡	<b>1.52</b> (1.34-1.73)	<b>1.67</b> (1.37-1.97)	<b>2.57</b> (2.17-2.97)	<b>3.60</b> (3.07-4.50)	<b>4.60</b> (3.40-5.77)	455
Non-Hispanic whites	11-12	<b>2.25</b> (2.05-2.47)	<b>2.25</b> (1.98-2.48)	<b>3.21</b> (2.90-3.50)	<b>4.68</b> (3.95-5.35)	<b>6.20</b> (5.34-7.74)	666
	13-14‡	<b>2.20</b> (1.91-2.52)	<b>2.27</b> (1.97-2.67)	<b>3.37</b> (2.77-3.77)	<b>4.77</b> (3.77-5.67)	<b>5.77</b> (4.80-6.87)	861
All Hispanics	11-12	<b>1.70</b> (1.48-1.95)	<b>1.79</b> (1.59-1.95)	<b>2.46</b> (2.15-2.91)	<b>3.60</b> (2.95-4.48)	<b>4.70</b> (3.87-5.94)	406
	13-14‡	<b>1.45</b> (1.33-1.59)	<b>1.47</b> (1.37-1.67)	<b>2.10</b> (1.97-2.40)	<b>3.07</b> (2.67-3.27)	<b>3.47</b> (3.17-3.97)	537
Asians	11-12	<b>2.08</b> (1.83-2.36)	<b>2.21</b> (2.04-2.27)	<b>2.92</b> (2.55-3.45)	<b>4.66</b> (3.42-5.79)	<b>5.79</b> (4.93-8.91)	291
	13-14‡	<b>1.97</b> (1.75-2.23)	<b>1.87</b> (1.67-2.27)	<b>2.97</b> (2.47-3.57)	<b>4.67</b> (3.97-5.77)	<b>5.90</b> (5.00-6.40)	234

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 0.1.

‡See Calculation of PFOS and PFOA as the Sum of Isomers for additional information about Survey years 2013-2014.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/PFCs\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/PFCs_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PFCs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PFCs_FactSheet.html)

## Serum *n*-Perfluorooctanoic acid (*n*-PFOA) (2013 - 2014)

*Linear PFOA isomer*

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Total</b>	13-14	<b>1.83</b> (1.65-2.03)	<b>1.90</b> (1.80-2.10)	<b>2.90</b> (2.60-3.20)	<b>4.10</b> (3.50-5.10)	<b>5.30</b> (4.40-6.00)	2165
<b>Age group</b>							
12-19 years	13-14	<b>1.56</b> (1.41-1.74)	<b>1.60</b> (1.30-1.80)	<b>2.10</b> (1.90-2.50)	<b>2.70</b> (2.30-3.40)	<b>3.40</b> (2.70-4.80)	401
20 years and older	13-14	<b>1.87</b> (1.68-2.08)	<b>2.00</b> (1.80-2.20)	<b>3.00</b> (2.70-3.30)	<b>4.40</b> (3.60-5.10)	<b>5.40</b> (4.60-6.20)	1764
<b>Gender</b>							
Males	13-14	<b>2.18</b> (1.98-2.39)	<b>2.30</b> (2.10-2.50)	<b>3.20</b> (2.80-3.50)	<b>4.60</b> (3.70-5.30)	<b>5.40</b> (4.60-5.90)	1031
Females	13-14	<b>1.55</b> (1.37-1.75)	<b>1.60</b> (1.40-1.80)	<b>2.60</b> (2.20-2.90)	<b>3.70</b> (3.30-4.70)	<b>4.80</b> (3.90-6.60)	1134
<b>Race/ethnicity</b>							
Mexican Americans	13-14	<b>1.27</b> (1.16-1.38)	<b>1.30</b> (1.20-1.40)	<b>1.90</b> (1.80-2.00)	<b>2.60</b> (2.30-3.10)	<b>3.10</b> (2.50-3.70)	332
Non-Hispanic blacks	13-14	<b>1.41</b> (1.23-1.62)	<b>1.60</b> (1.30-1.90)	<b>2.50</b> (2.10-2.80)	<b>3.50</b> (2.90-4.40)	<b>4.40</b> (3.30-5.70)	455
Non-Hispanic whites	13-14	<b>2.08</b> (1.80-2.41)	<b>2.20</b> (1.90-2.60)	<b>3.20</b> (2.70-3.60)	<b>4.60</b> (3.60-5.50)	<b>5.60</b> (4.70-6.70)	861
All Hispanics	13-14	<b>1.35</b> (1.23-1.49)	<b>1.40</b> (1.30-1.60)	<b>2.00</b> (1.90-2.30)	<b>2.90</b> (2.50-3.10)	<b>3.40</b> (3.10-3.70)	537
Asians	13-14	<b>1.87</b> (1.65-2.12)	<b>1.80</b> (1.60-2.20)	<b>2.90</b> (2.40-3.50)	<b>4.60</b> (3.90-5.70)	<b>5.70</b> (4.70-6.80)	234

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.1.

## Serum branched Perfluorooctanoic acid (Sb-PFOA) (2013 - 2014)

Branched isomers of PFOA

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Total</b>	13-14	*	< LOD	< LOD	.200 (.100-.200)	.200 (.200-.300)	2165
<b>Age group</b>							
12-19 years	13-14	*	< LOD	.100 (<LOD-.100)	.200 (.100-.200)	.200 (.100-.400)	401
20 years and older	13-14	*	< LOD	< LOD	.100 (.100-.200)	.200 (.200-.300)	1764
<b>Gender</b>							
Males	13-14	*	< LOD	< LOD	.200 (.100-.200)	.200 (.200-.400)	1031
Females	13-14	*	< LOD	< LOD	.100 (.100-.200)	.200 (.200-.300)	1134
<b>Race/ethnicity</b>							
Mexican Americans	13-14	*	< LOD	< LOD	.100 (<LOD-.200)	.200 (.100-.200)	332
Non-Hispanic blacks	13-14	*	< LOD	< LOD	.100 (<LOD-.200)	.200 (.100-.300)	455
Non-Hispanic whites	13-14	*	< LOD	< LOD	.200 (.100-.200)	.200 (.200-.500)	861
All Hispanics	13-14	*	< LOD	< LOD	.100 (<LOD-.200)	.200 (.100-.300)	537
Asians	13-14	*	< LOD	< LOD	.100 (<LOD-.400)	.200 (<LOD-3.00)	234

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.1.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.



## Serum Perfluorooctane sulfonic acid (PFOS) (1999 – 2010)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	30.4 (27.1-33.9)	30.2 (27.8-33.9)	43.7 (37.5-47.3)	57.0 (50.2-71.7)	75.7 (58.1-97.5)	1562
	03-04	20.7 (19.2-22.3)	21.2 (19.8-22.4)	30.0 (27.5-33.0)	41.3 (35.6-50.0)	54.6 (44.0-66.5)	2094
	05-06	17.1 (16.0-18.2)	17.5 (16.8-18.6)	27.2 (24.9-29.6)	39.4 (34.9-43.1)	47.5 (42.7-56.8)	2120
	07-08	13.2 (12.2-14.2)	13.6 (12.8-14.7)	21.0 (18.9-23.3)	32.6 (29.4-36.3)	40.5 (35.4-47.4)	2100
	09-10	9.32 (8.13-10.7)	9.70 (8.50-10.8)	14.8 (12.9-17.3)	23.7 (18.3-30.2)	32.0 (22.6-48.5)	2233
Age group 12-19 years	99-00	29.1 (26.2-32.4)	29.5 (26.9-34.2)	39.0 (35.9-45.0)	52.7 (46.0-56.2)	57.4 (52.7-66.5)	543
	03-04	19.3 (17.5-21.4)	19.9 (17.8-22.0)	27.1 (23.7-30.2)	36.5 (28.6-45.6)	42.6 (35.1-52.1)	640
	05-06	15.0 (14.3-15.7)	14.9 (13.6-16.6)	22.7 (19.7-24.9)	30.6 (27.8-34.1)	38.5 (33.0-44.6)	640
	07-08	11.3 (10.3-12.3)	11.3 (10.3-13.0)	15.9 (15.1-17.7)	21.7 (17.7-28.2)	28.0 (22.0-32.2)	357
	09-10	6.84 (5.81-8.06)	6.90 (6.00-8.40)	10.7 (8.90-12.5)	14.4 (12.4-18.1)	18.1 (13.5-26.0)	364
20 years and older	99-00	30.6 (27.1-34.4)	30.3 (27.9-33.9)	44.4 (37.9-48.0)	58.0 (50.1-75.7)	78.0 (59.9-107)	1019
	03-04	20.9 (19.3-22.5)	21.4 (19.8-22.8)	30.4 (28.1-33.0)	42.7 (35.7-53.3)	57.8 (45.7-69.4)	1454
	05-06	17.4 (16.2-18.7)	18.0 (17.1-19.4)	27.8 (25.3-30.8)	40.2 (35.6-44.5)	49.6 (42.8-60.7)	1480
	07-08	13.5 (12.4-14.6)	14.0 (13.0-15.5)	21.7 (19.5-24.6)	33.9 (29.9-39.0)	42.8 (37.3-50.3)	1743
	09-10	9.72 (8.45-11.2)	10.1 (8.90-11.2)	15.7 (13.4-18.4)	25.3 (19.3-32.9)	34.1 (23.4-52.7)	1869
Gender Males	99-00	33.4 (29.6-37.6)	34.9 (31.1-37.9)	46.3 (41.2-51.6)	58.4 (50.2-78.3)	78.3 (58.0-108)	743
	03-04	23.2 (21.1-25.6)	23.9 (22.4-25.5)	32.2 (28.8-35.9)	45.3 (35.5-62.7)	62.7 (43.8-81.8)	1053
	05-06	20.5 (19.4-21.8)	21.3 (20.0-22.5)	31.4 (27.9-33.7)	43.3 (38.7-49.7)	54.3 (43.5-80.7)	1048
	07-08	16.3 (15.0-17.7)	17.0 (15.7-17.8)	23.9 (21.6-26.9)	36.4 (33.5-41.1)	45.3 (40.4-53.1)	1059
	09-10	11.5 (9.93-13.3)	11.8 (10.6-12.9)	16.8 (14.3-20.4)	25.7 (19.4-39.7)	37.4 (22.5-72.3)	1075
Females	99-00	28.0 (24.6-31.8)	27.8 (24.5-30.2)	39.0 (32.7-46.0)	55.4 (46.3-70.2)	75.7 (56.1-98.4)	819
	03-04	18.4 (17.0-20.0)	18.2 (16.9-19.8)	27.4 (23.8-30.2)	39.8 (34.4-42.6)	46.6 (42.3-61.5)	1041
	05-06	14.4 (13.3-15.4)	14.6 (13.5-15.9)	23.3 (21.1-25.3)	34.2 (30.6-37.7)	42.8 (38.0-46.5)	1072
	07-08	10.7 (9.70-11.7)	10.7 (9.80-11.7)	17.2 (15.4-19.1)	28.7 (21.7-32.5)	33.6 (29.9-41.6)	1041
	09-10	7.65 (6.73-8.71)	7.80 (6.70-9.00)	12.0 (10.8-14.4)	21.1 (16.4-26.9)	28.8 (22.3-34.1)	1158

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 03-04, 05-06, 07-08, and 09-10 are 0.2, 0.4, 0.2, 0.2, and 0.2 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/PFCs\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/PFCs_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PFCs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PFCs_FactSheet.html)

## Serum Perfluorooctane sulfonic acid (PFOS) (1999 – 2010)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00	22.7 (19.8-25.9)	23.7 (20.8-27.2)	33.0 (27.9-39.7)	41.9 (36.7-54.5)	53.6 (41.3-72.0)	584
	03-04	14.7 (13.0-16.6)	15.9 (13.4-17.9)	21.2 (18.7-23.5)	28.1 (24.1-35.0)	35.5 (28.9-38.5)	485
	05-06	11.2 (10.3-12.2)	11.6 (9.90-13.3)	17.2 (15.4-19.3)	24.9 (22.0-30.3)	31.9 (26.4-40.6)	499
	07-08	10.6 (9.47-11.9)	10.8 (9.70-12.2)	17.1 (14.9-19.2)	26.3 (20.7-30.4)	31.5 (25.7-36.1)	391
	09-10	6.23 (5.28-7.36)	6.10 (5.10-8.10)	11.2 (8.50-14.1)	16.8 (14.9-18.8)	20.4 (17.5-22.7)	461
Non-Hispanic blacks	99-00	32.9 (26.0-41.6)	32.0 (23.9-45.8)	50.6 (37.4-62.2)	69.3 (60.9-75.9)	81.5 (68.0-129)	303
	03-04	21.6 (19.1-24.4)	22.1 (19.6-24.9)	32.3 (28.1-36.2)	43.8 (37.2-57.3)	57.7 (43.8-78.4)	538
	05-06	18.4 (15.6-21.8)	19.0 (16.7-22.3)	27.6 (24.3-35.5)	45.9 (34.4-58.1)	57.9 (45.0-84.4)	544
	07-08	15.0 (12.6-17.8)	15.2 (12.9-17.7)	25.8 (21.0-33.3)	42.7 (31.5-57.3)	57.3 (43.4-79.2)	419
	09-10	9.11 (7.93-10.5)	9.50 (8.20-11.2)	16.0 (13.4-17.4)	23.0 (20.5-26.1)	28.7 (25.7-39.7)	391
Non-Hispanic whites	99-00	32.3 (29.5-35.3)	32.8 (29.5-36.0)	45.1 (40.4-47.4)	56.3 (51.7-70.0)	78.0 (58.0-98.4)	519
	03-04	21.4 (19.9-23.1)	22.0 (20.5-23.0)	30.2 (27.7-33.3)	41.7 (35.7-49.6)	56.3 (44.0-70.0)	962
	05-06	18.1 (17.1-19.1)	18.6 (17.3-19.8)	28.3 (26.1-30.8)	39.7 (35.6-43.3)	46.6 (42.7-54.3)	935
	07-08	13.7 (12.7-14.8)	14.3 (13.2-15.5)	21.1 (18.7-23.7)	32.9 (29.7-36.0)	40.4 (36.1-44.9)	931
	09-10	10.2 (8.69-11.9)	10.4 (9.20-11.5)	15.6 (13.0-18.7)	24.7 (17.5-35.1)	33.1 (20.7-56.7)	1031

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 03-04, 05-06, 07-08, and 09-10 are 0.2, 0.4, 0.2, 0.2, and 0.2 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/PFCs\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/PFCs_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PFCs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PFCs_FactSheet.html)

## Serum Perfluorooctane sulfonic acid (PFOS) (2011 - 2014)‡

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>6.31</b> (5.84-6.82)	<b>6.53</b> (5.99-7.13)	<b>10.5</b> (9.78-11.1)	<b>15.7</b> (14.7-17.5)	<b>21.7</b> (19.3-23.9)	1904
	13-14‡	<b>4.99</b> (4.50-5.52)	<b>5.20</b> (4.80-5.70)	<b>8.70</b> (7.90-9.40)	<b>13.9</b> (11.9-15.5)	<b>18.5</b> (15.4-22.0)	2165
<b>Age group</b>							
12-19 years	11-12	<b>4.16</b> (3.70-4.68)	<b>4.11</b> (3.48-4.65)	<b>5.90</b> (5.14-7.25)	<b>9.05</b> (6.49-10.8)	<b>10.8</b> (8.52-14.2)	344
	13-14‡	<b>3.54</b> (3.17-3.96)	<b>3.60</b> (3.10-4.20)	<b>5.20</b> (4.60-6.20)	<b>7.80</b> (7.00-8.90)	<b>9.30</b> (7.90-11.7)	401
20 years and older	11-12	<b>6.71</b> (6.24-7.20)	<b>7.07</b> (6.65-7.52)	<b>11.0</b> (10.4-11.9)	<b>17.0</b> (15.3-18.5)	<b>22.7</b> (20.4-24.8)	1560
	13-14‡	<b>5.22</b> (4.70-5.81)	<b>5.60</b> (5.10-6.00)	<b>9.10</b> (8.20-10.2)	<b>14.5</b> (12.9-16.1)	<b>19.5</b> (15.8-23.0)	1764
<b>Gender</b>							
Males	11-12	<b>7.91</b> (7.19-8.70)	<b>8.31</b> (7.35-9.15)	<b>12.5</b> (11.4-13.5)	<b>19.3</b> (15.7-21.4)	<b>24.1</b> (22.2-28.5)	966
	13-14‡	<b>6.36</b> (5.62-7.20)	<b>6.40</b> (5.70-7.30)	<b>10.2</b> (8.70-11.5)	<b>15.5</b> (13.2-19.8)	<b>22.1</b> (16.7-26.9)	1031
Females	11-12	<b>5.10</b> (4.70-5.53)	<b>5.27</b> (4.67-5.64)	<b>8.57</b> (7.87-9.30)	<b>12.5</b> (11.0-14.9)	<b>17.5</b> (14.9-20.5)	938
	13-14‡	<b>3.96</b> (3.60-4.35)	<b>4.00</b> (3.60-4.60)	<b>7.20</b> (6.40-7.70)	<b>11.8</b> (9.70-13.6)	<b>15.1</b> (13.9-17.3)	1134
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>4.79</b> (4.07-5.64)	<b>5.18</b> (3.92-6.33)	<b>7.91</b> (6.18-9.48)	<b>10.5</b> (8.50-12.6)	<b>12.1</b> (10.0-14.4)	211
	13-14‡	<b>3.47</b> (2.90-4.16)	<b>3.70</b> (3.00-4.40)	<b>5.20</b> (4.60-6.40)	<b>8.80</b> (6.40-10.3)	<b>10.8</b> (9.20-11.8)	332
Non-Hispanic blacks	11-12	<b>6.35</b> (5.41-7.46)	<b>6.57</b> (5.71-7.65)	<b>11.3</b> (9.74-13.9)	<b>21.8</b> (13.9-31.3)	<b>30.7</b> (21.6-45.1)	485
	13-14‡	<b>5.32</b> (4.12-6.88)	<b>5.30</b> (4.30-6.80)	<b>10.2</b> (7.60-13.7)	<b>17.4</b> (12.4-24.5)	<b>24.5</b> (16.3-39.7)	455
Non-Hispanic whites	11-12	<b>6.71</b> (6.15-7.32)	<b>6.83</b> (6.07-7.73)	<b>10.7</b> (9.89-12.2)	<b>15.7</b> (14.8-18.1)	<b>21.3</b> (18.7-23.5)	666
	13-14‡	<b>5.31</b> (4.72-5.98)	<b>5.70</b> (5.10-6.40)	<b>8.90</b> (8.20-9.90)	<b>14.1</b> (12.2-15.6)	<b>18.0</b> (15.5-20.4)	861
All Hispanics	11-12	<b>4.63</b> (3.86-5.55)	<b>5.18</b> (4.41-6.19)	<b>8.10</b> (6.64-9.78)	<b>11.0</b> (9.96-12.6)	<b>13.4</b> (11.5-16.1)	406
	13-14‡	<b>3.51</b> (3.09-3.98)	<b>3.70</b> (3.20-4.20)	<b>5.50</b> (4.90-6.40)	<b>8.80</b> (8.00-9.70)	<b>10.8</b> (9.70-12.1)	537
Asians	11-12	<b>7.10</b> (5.80-8.68)	<b>7.53</b> (5.96-9.25)	<b>12.6</b> (10.8-17.0)	<b>24.6</b> (19.1-33.3)	<b>35.1</b> (26.4-42.3)	291
	13-14‡	<b>6.18</b> (5.08-7.52)	<b>6.30</b> (5.00-7.90)	<b>13.2</b> (9.40-15.4)	<b>23.8</b> (15.2-33.9)	<b>33.6</b> (20.1-69.0)	234

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 0.2.

‡. See Calculation of PFOS and PFOA as the Sum of Isomers for additional information about Survey years 2013-2014.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/PFCs\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/PFCs_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PFCs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PFCs_FactSheet.html)

## Serum *n*-Perfluorooctane sulfonic acid (*n*-PFOS) (2013 - 2014)

*Linear PFOS isomer*

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Total</b>	13-14	<b>3.45</b> (3.10-3.85)	<b>3.50</b> (3.20-3.90)	<b>6.00</b> (5.20-6.60)	<b>9.90</b> (8.50-11.3)	<b>14.0</b> (11.0-16.7)	2165
<b>Age group</b>							
12-19 years	13-14	<b>2.59</b> (2.29-2.93)	<b>2.70</b> (2.30-2.90)	<b>3.90</b> (3.40-4.80)	<b>6.20</b> (4.80-7.00)	<b>7.10</b> (6.20-8.60)	401
20 years and older	13-14	<b>3.59</b> (3.21-4.02)	<b>3.70</b> (3.40-4.10)	<b>6.30</b> (5.50-7.20)	<b>10.3</b> (9.10-12.3)	<b>15.1</b> (11.9-17.7)	1764
<b>Gender</b>							
Males	13-14	<b>4.26</b> (3.74-4.86)	<b>4.20</b> (3.70-4.80)	<b>6.60</b> (6.00-7.90)	<b>10.8</b> (9.30-15.1)	<b>15.4</b> (12.1-20.2)	1031
Females	13-14	<b>2.83</b> (2.56-3.13)	<b>2.90</b> (2.60-3.20)	<b>4.90</b> (4.40-5.60)	<b>8.50</b> (7.30-9.90)	<b>11.6</b> (9.90-13.0)	1134
<b>Race/ethnicity</b>							
Mexican Americans	13-14	<b>2.38</b> (1.99-2.84)	<b>2.40</b> (2.10-2.80)	<b>3.50</b> (3.00-3.90)	<b>6.10</b> (3.90-8.00)	<b>7.90</b> (6.20-8.90)	332
Non-Hispanic blacks	13-14	<b>4.02</b> (3.03-5.34)	<b>4.00</b> (3.00-5.50)	<b>7.50</b> (5.30-10.9)	<b>14.4</b> (9.00-20.3)	<b>19.3</b> (14.4-32.6)	455
Non-Hispanic whites	13-14	<b>3.58</b> (3.17-4.06)	<b>3.70</b> (3.40-4.20)	<b>6.10</b> (5.40-6.70)	<b>10.0</b> (8.60-11.0)	<b>13.0</b> (10.8-15.1)	861
All Hispanics	13-14	<b>2.43</b> (2.14-2.76)	<b>2.50</b> (2.10-2.80)	<b>3.90</b> (3.30-4.50)	<b>6.20</b> (4.90-7.60)	<b>8.00</b> (7.10-8.80)	537
Asians	13-14	<b>4.79</b> (3.83-5.99)	<b>4.60</b> (4.00-6.20)	<b>9.90</b> (8.00-12.5)	<b>19.2</b> (12.4-32.5)	<b>31.1</b> (17.0-64.8)	234

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.1.

## Serum branched Perfluoromethylheptane sulfonic acid (Sm-PFOS) (2013 - 2014)

*Perfluoromethylheptane sulfonic acid isomers*

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Total</b>	13-14	<b>1.39</b> (1.25-1.55)	<b>1.50</b> (1.40-1.60)	<b>2.70</b> (2.50-2.90)	<b>4.00</b> (3.60-4.50)	<b>5.10</b> (4.60-5.80)	2165
<b>Age group</b>							
12-19 years	13-14	<b>.897</b> (.800-1.01)	<b>1.00</b> (.800-1.10)	<b>1.40</b> (1.20-1.50)	<b>1.90</b> (1.50-2.10)	<b>2.30</b> (1.80-3.00)	401
20 years and older	13-14	<b>1.47</b> (1.32-1.65)	<b>1.60</b> (1.50-1.80)	<b>2.90</b> (2.60-3.10)	<b>4.20</b> (3.70-4.70)	<b>5.30</b> (4.70-6.00)	1764
<b>Gender</b>							
Males	13-14	<b>1.94</b> (1.72-2.19)	<b>2.10</b> (1.80-2.40)	<b>3.20</b> (2.90-3.60)	<b>4.60</b> (4.00-5.60)	<b>5.90</b> (4.90-7.00)	1031
Females	13-14	<b>1.01</b> (.914-1.12)	<b>1.10</b> (.900-1.20)	<b>1.90</b> (1.70-2.10)	<b>3.30</b> (3.00-3.60)	<b>4.20</b> (3.70-4.70)	1134
<b>Race/ethnicity</b>							
Mexican Americans	13-14	<b>1.00</b> (.823-1.23)	<b>1.10</b> (.900-1.30)	<b>1.70</b> (1.50-2.20)	<b>2.70</b> (2.20-3.20)	<b>3.70</b> (2.90-4.20)	332
Non-Hispanic blacks	13-14	<b>1.15</b> (.942-1.40)	<b>1.20</b> (1.00-1.50)	<b>2.40</b> (1.90-3.00)	<b>4.40</b> (3.40-5.20)	<b>5.50</b> (4.50-7.00)	455
Non-Hispanic whites	13-14	<b>1.61</b> (1.41-1.82)	<b>1.70</b> (1.50-2.00)	<b>3.00</b> (2.70-3.20)	<b>4.20</b> (3.70-4.90)	<b>5.50</b> (4.80-6.00)	861
All Hispanics	13-14	<b>.987</b> (.859-1.13)	<b>1.00</b> (.900-1.20)	<b>1.80</b> (1.60-2.10)	<b>2.70</b> (2.40-3.20)	<b>3.50</b> (2.90-4.00)	537
Asians	13-14	<b>1.10</b> (.955-1.28)	<b>1.20</b> (1.00-1.40)	<b>2.30</b> (1.60-2.70)	<b>3.50</b> (2.50-4.50)	<b>4.40</b> (3.50-7.20)	234

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.1.

## Serum Perfluorooctane sulfonamide (PFOSA) (1999 – 2010)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	.355 (.296-.426)	.400 (.300-.400)	.700 (.500-.800)	1.00 (.900-1.40)	1.40 (1.00-2.00)	1562
	03-04	*	.100 (.100-.100)	.100 (.100-.100)	.300 (.200-.300)	.300 (.300-.400)	2094
	05-06	*	< LOD	.100 (<LOD-.200)	.200 (.200-.300)	.300 (.200-.500)	2120
	07-08	*	< LOD	< LOD	< LOD	< LOD	2100
	09-10	*	< LOD	< LOD	< LOD	< LOD	2233
Age group 12-19 years	99-00	.429 (.370-.498)	.400 (.400-.500)	.700 (.700-.900)	1.10 (.900-1.40)	1.60 (1.10-2.90)	543
	03-04	*	.100 (.100-.100)	.100 (.100-.200)	.300 (.200-.300)	.300 (.200-.500)	640
	05-06	*	< LOD	< LOD	.200 (.100-.300)	.300 (.200-.500)	640
	07-08	*	< LOD	< LOD	< LOD	< LOD	357
	09-10	*	< LOD	< LOD	< LOD	< LOD	364
20 years and older	99-00	.344 (.283-.418)	.300 (.300-.400)	.600 (.500-.800)	1.00 (.800-1.40)	1.40 (1.00-2.00)	1019
	03-04	*	.100 (.100-.100)	.100 (.100-.100)	.300 (.200-.300)	.300 (.300-.400)	1454
	05-06	*	< LOD	.100 (<LOD-.200)	.200 (.200-.300)	.300 (.200-.500)	1480
	07-08	*	< LOD	< LOD	< LOD	< LOD	1743
	09-10	*	< LOD	< LOD	< LOD	< LOD	1869
Gender Males	99-00	.351 (.289-.426)	.400 (.300-.400)	.600 (.500-.700)	.900 (.700-1.30)	1.30 (.900-1.90)	743
	03-04	*	.100 (.100-.100)	.100 (.100-.100)	.300 (.200-.300)	.300 (.200-.500)	1053
	05-06	*	< LOD	.100 (.100-.200)	.200 (.200-.300)	.300 (.200-.600)	1048
	07-08	*	< LOD	< LOD	< LOD	< LOD	1059
	09-10	*	< LOD	< LOD	< LOD	< LOD	1075
Females	99-00	.358 (.298-.431)	.300 (.300-.500)	.700 (.500-.900)	1.10 (.900-1.40)	1.50 (1.20-2.00)	819
	03-04	*	.100 (.100-.100)	.100 (.100-.200)	.300 (.200-.300)	.300 (.300-.500)	1041
	05-06	*	< LOD	.100 (<LOD-.100)	.200 (.200-.300)	.300 (.200-.400)	1072
	07-08	*	< LOD	< LOD	< LOD	< LOD	1041
	09-10	*	< LOD	< LOD	< LOD	< LOD	1158

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 03-04, 05-06, 07-08, and 09-10 are 0.05, 0.1, 0.1, 0.1, and 0.1 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/PFCs\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/PFCs_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PFCs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PFCs_FactSheet.html)

## Serum Perfluorooctane sulfonamide (PFOSA) (1999 -2010)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00	<b>.285</b> (.245-.332)	<b>.300</b> (.200-.400)	<b>.500</b> (.400-.600)	<b>.800</b> (.700-1.00)	<b>1.10</b> (.800-1.60)	584
	03-04	*	<b>.100</b> (.100-.100)	<b>.100</b> (.100-.100)	<b>.100</b> (.100-.100)	<b>.200</b> (.100-.300)	485
	05-06	*	< LOD	< LOD	<b>.200</b> (<LOD-.300)	<b>.200</b> (<LOD-5.00)	499
	07-08	*	< LOD	< LOD	< LOD	< LOD	391
	09-10	*	< LOD	< LOD	< LOD	< LOD	461
Non-Hispanic blacks	99-00	<b>.347</b> (.289-.417)	<b>.300</b> (.300-.400)	<b>.600</b> (.500-.800)	<b>1.00</b> (.700-1.70)	<b>1.70</b> (.900-2.60)	303
	03-04	*	<b>.100</b> (.100-.100)	<b>.100</b> (.100-.200)	<b>.300</b> (.200-.300)	<b>.300</b> (.200-.500)	538
	05-06	*	< LOD	< LOD	<b>.200</b> (.100-.200)	<b>.200</b> (.200-.400)	544
	07-08	*	< LOD	< LOD	< LOD	< LOD	419
	09-10	*	< LOD	< LOD	< LOD	< LOD	391
Non-Hispanic whites	99-00	<b>.382</b> (.305-.479)	<b>.400</b> (.300-.500)	<b>.700</b> (.600-.900)	<b>1.10</b> (.900-1.40)	<b>1.50</b> (1.10-2.00)	519
	03-04	*	<b>.100</b> (.100-.100)	<b>.100</b> (.100-.200)	<b>.300</b> (.200-.300)	<b>.300</b> (.300-.500)	962
	05-06	*	< LOD	<b>.100</b> (.100-.200)	<b>.200</b> (.200-.300)	<b>.300</b> (.200-.500)	935
	07-08	*	< LOD	< LOD	< LOD	< LOD	931
	09-10	*	< LOD	< LOD	< LOD	< LOD	1031

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 03-04, 05-06, 07-08, and 09-10 are 0.05, 0.1, 0.1, 0.1, and 0.1 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/PFCs\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/PFCs_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PFCs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PFCs_FactSheet.html)



## Serum Perfluorooctane sulfonamide (PFOSA) (2011 - 2012)‡

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	1904
<b>Age group</b>							
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	344
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	1560
<b>Gender</b>							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	966
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	938
<b>Race/ethnicity</b>							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	211
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	485
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	666
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	406
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	291

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 0.1.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Not measured after Survey years 2011-2012.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/PFCs\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/PFCs_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PFCs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PFCs_FactSheet.html)

## Serum 2-(N-Ethyl-perfluorooctane sulfonamido) acetic acid (Et-PFOSA-AcOH) (1999 – 2010)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size	
Total	99-00	<b>.642</b> (.596-.691)	<b>.600</b> (.500-.700)	<b>1.10</b> (1.00-1.20)	<b>1.60</b> (1.50-1.80)	<b>2.30</b> (1.90-2.70)	1562	
	03-04	*	< LOD	< LOD	< LOD	< LOD	2094	
	05-06	*	< LOD	< LOD	< LOD	<b>.300</b> (<LOD-.300)	2120	
	07-08	*	< LOD	< LOD	< LOD	< LOD	2100	
	09-10	*	< LOD	< LOD	< LOD	<b>.100</b> (<LOD-.100)	2233	
Age group 12-19 years	99-00	<b>.826</b> (.764-.893)	<b>.800</b> (.700-.800)	<b>1.20</b> (1.10-1.30)	<b>1.70</b> (1.50-2.00)	<b>2.40</b> (1.90-3.30)	543	
	03-04	*	< LOD	< LOD	< LOD	< LOD	640	
	05-06	*	< LOD	< LOD	< LOD	<b>.200</b> (<LOD-.400)	640	
	07-08	*	< LOD	< LOD	< LOD	< LOD	357	
	09-10	*	< LOD	< LOD	< LOD	< LOD	364	
20 years and older	99-00	<b>.614</b> (.569-.663)	<b>.600</b> (.500-.700)	<b>1.00</b> (.900-1.10)	<b>1.60</b> (1.50-1.80)	<b>2.30</b> (1.80-2.70)	1019	
	03-04	*	< LOD	< LOD	< LOD	< LOD	1454	
	05-06	*	< LOD	< LOD	< LOD	<b>.300</b> (<LOD-.300)	1480	
	07-08	*	< LOD	< LOD	< LOD	< LOD	1743	
	09-10	*	< LOD	< LOD	< LOD	<b>.100</b> (<LOD-.100)	1869	
Gender	Males	99-00	<b>.619</b> (.572-.671)	<b>.600</b> (.500-.700)	<b>1.00</b> (.900-1.10)	<b>1.50</b> (1.30-1.80)	<b>1.90</b> (1.60-2.90)	743
		03-04	*	< LOD	< LOD	< LOD	< LOD	1053
		05-06	*	< LOD	< LOD	< LOD	<b>.300</b> (.200-.300)	1048
		07-08	*	< LOD	< LOD	< LOD	< LOD	1059
		09-10	*	< LOD	< LOD	< LOD	<b>.100</b> (<LOD-.100)	1075
	Females	99-00	<b>.662</b> (.599-.732)	<b>.700</b> (.500-.700)	<b>1.10</b> (1.00-1.20)	<b>1.70</b> (1.50-2.20)	<b>2.50</b> (2.00-2.80)	819
		03-04	*	< LOD	< LOD	< LOD	< LOD	1041
		05-06	*	< LOD	< LOD	< LOD	<b>.300</b> (<LOD-.300)	1072
		07-08	*	< LOD	< LOD	< LOD	< LOD	1041
		09-10	*	< LOD	< LOD	< LOD	<b>.100</b> (<LOD-.100)	1158

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 03-04, 05-06, 07-08, and 09-10 are 0.2, 0.4, 0.2, 0.2, and 0.1 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/PFCs\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/PFCs_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PFCs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PFCs_FactSheet.html)

## Serum 2-(N-Ethyl-perfluorooctane sulfonamido) acetic acid (Et-PFOSA-AcOH) (1999 – 2010)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00	.577 (.477-.698)	.600 (.400-.700)	1.00 (.800-1.20)	1.70 (1.30-2.00)	2.50 (1.90-3.00)	584
	03-04	*	< LOD	< LOD	< LOD	< LOD	485
	05-06	*	< LOD	< LOD	< LOD	< LOD	499
	07-08	*	< LOD	< LOD	< LOD	< LOD	391
	09-10	*	< LOD	< LOD	< LOD	< LOD	461
Non-Hispanic blacks	99-00	.555 (.476-.646)	.500 (.500-.600)	.900 (.700-1.00)	1.50 (1.20-1.90)	2.20 (1.40-3.20)	303
	03-04	*	< LOD	< LOD	< LOD	.400 (<LOD-.500)	538
	05-06	*	< LOD	< LOD	< LOD	< LOD	544
	07-08	*	< LOD	< LOD	< LOD	< LOD	419
	09-10	*	< LOD	< LOD	< LOD	< LOD	391
Non-Hispanic whites	99-00	.660 (.606-.717)	.700 (.600-.700)	1.10 (1.00-1.20)	1.70 (1.50-1.90)	2.40 (1.90-2.80)	519
	03-04	*	< LOD	< LOD	< LOD	< LOD	962
	05-06	*	< LOD	< LOD	< LOD	.300 (.200-.400)	935
	07-08	*	< LOD	< LOD	< LOD	< LOD	931
	09-10	*	< LOD	< LOD	< LOD	.100 (<LOD-.200)	1031

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 03-04, 05-06, 07-08, and 09-10 are 0.2, 0.4, 0.2, 0.2, and 0.1 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/PFCs\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/PFCs_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PFCs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PFCs_FactSheet.html)

## Serum 2-(N-Ethyl-perfluorooctane sulfonamido) acetic acid (Et-PFOSA-AcOH) (2011 - 2012)‡

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Total</b>	11-12	*	< LOD	< LOD	< LOD	.110 (<LOD-.130)	1904
<b>Age group</b>							
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	344
20 years and older	11-12	*	< LOD	< LOD	< LOD	.110 (<LOD-.150)	1560
<b>Gender</b>							
Males	11-12	*	< LOD	< LOD	< LOD	.110 (<LOD-.140)	966
Females	11-12	*	< LOD	< LOD	< LOD	.100 (<LOD-.130)	938
<b>Race/ethnicity</b>							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	.100 (<LOD-.160)	211
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	485
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	.120 (<LOD-.140)	666
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	406
Asians	11-12	*	< LOD	< LOD	< LOD	.110 (<LOD-.200)	291

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 0.1.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Not measured after Survey years 2011-2012.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/PFCs\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/PFCs_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PFCs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PFCs_FactSheet.html)

## Serum 2-(N-Methyl-perfluorooctane sulfonamido) acetic acid (Me-PFOSA-AcOH) (1999 – 2010)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	<b>.846</b> (.738-.970)	<b>.870</b> (.780-.960)	<b>1.40</b> (1.13-1.66)	<b>2.18</b> (1.83-2.62)	<b>2.79</b> (2.44-3.23)	1562
	03-04	*	< LOD	<b>.610</b> (<LOD-.610)	<b>.870</b> (.780-.960)	<b>1.13</b> (.960-1.31)	2094
	05-06	<b>.410</b> (.372-.451)	<b>.440</b> (.350-.440)	<b>.700</b> (.610-.780)	<b>1.22</b> (1.13-1.22)	<b>1.57</b> (1.48-1.74)	2120
	07-08	<b>.303</b> (.277-.330)	<b>.300</b> (.300-.300)	<b>.500</b> (.400-.600)	<b>1.00</b> (.800-1.00)	<b>1.30</b> (1.20-1.40)	2100
	09-10	<b>.198</b> (.184-.213)	<b>.200</b> (.200-.200)	<b>.300</b> (.300-.300)	<b>.700</b> (.600-.700)	<b>1.00</b> (.900-1.00)	2233
Age group 12-19 years	99-00	<b>1.17</b> (1.03-1.34)	<b>1.22</b> (1.05-1.31)	<b>1.83</b> (1.31-2.18)	<b>2.70</b> (2.18-3.05)	<b>3.23</b> (2.79-4.10)	543
	03-04	*	< LOD	<b>.610</b> (<LOD-.700)	<b>.960</b> (.780-1.13)	<b>1.31</b> (1.05-1.57)	640
	05-06	<b>.432</b> (.380-.490)	<b>.440</b> (.350-.520)	<b>.780</b> (.610-.870)	<b>1.13</b> (.960-1.31)	<b>1.48</b> (1.13-1.66)	640
	07-08	<b>.340</b> (.305-.379)	<b>.300</b> (.300-.400)	<b>.600</b> (.500-.600)	<b>1.00</b> (.800-1.50)	<b>1.60</b> (1.00-2.00)	357
	09-10	<b>.235</b> (.203-.273)	<b>.300</b> (.200-.300)	<b>.400</b> (.300-.500)	<b>.700</b> (.500-.900)	<b>.900</b> (.600-1.70)	364
20 years and older	99-00	<b>.800</b> (.693-.923)	<b>.780</b> (.700-.960)	<b>1.31</b> (1.13-1.57)	<b>2.09</b> (1.74-2.44)	<b>2.70</b> (2.27-3.14)	1019
	03-04	*	< LOD	<b>.610</b> (<LOD-.610)	<b>.870</b> (.780-.960)	<b>1.05</b> (.960-1.40)	1454
	05-06	<b>.406</b> (.369-.448)	<b>.440</b> (.350-.440)	<b>.700</b> (.610-.780)	<b>1.22</b> (1.13-1.31)	<b>1.66</b> (1.48-1.74)	1480
	07-08	<b>.297</b> (.270-.327)	<b>.300</b> (.300-.300)	<b>.500</b> (.400-.600)	<b>1.00</b> (.800-1.00)	<b>1.20</b> (1.10-1.40)	1743
	09-10	<b>.193</b> (.178-.210)	<b>.200</b> (.200-.200)	<b>.300</b> (.300-.300)	<b>.700</b> (.600-.800)	<b>1.00</b> (.900-1.00)	1869
Gender Males	99-00	<b>.885</b> (.756-1.04)	<b>.870</b> (.780-1.05)	<b>1.40</b> (1.13-1.74)	<b>2.27</b> (2.01-2.79)	<b>2.79</b> (2.44-3.66)	743
	03-04	*	< LOD	<b>.610</b> (<LOD-.610)	<b>.960</b> (.780-1.05)	<b>1.13</b> (.960-1.48)	1053
	05-06	<b>.435</b> (.400-.472)	<b>.440</b> (.350-.440)	<b>.780</b> (.700-.870)	<b>1.22</b> (1.13-1.31)	<b>1.66</b> (1.40-1.74)	1048
	07-08	<b>.307</b> (.281-.334)	<b>.300</b> (.300-.300)	<b>.500</b> (.400-.600)	<b>.900</b> (.800-1.00)	<b>1.30</b> (1.10-1.40)	1059
	09-10	<b>.200</b> (.187-.214)	<b>.200</b> (.200-.200)	<b>.300</b> (.300-.400)	<b>.700</b> (.600-.800)	<b>1.00</b> (.800-1.10)	1075
Females	99-00	<b>.813</b> (.717-.923)	<b>.780</b> (.700-.960)	<b>1.31</b> (1.13-1.66)	<b>2.01</b> (1.74-2.35)	<b>2.62</b> (2.27-3.23)	819
	03-04	*	< LOD	< LOD	<b>.870</b> (.780-.960)	<b>.960</b> (.870-1.57)	1041
	05-06	<b>.387</b> (.342-.438)	<b>.350</b> (.350-.440)	<b>.700</b> (.610-.780)	<b>1.13</b> (1.05-1.31)	<b>1.57</b> (1.40-1.83)	1072
	07-08	<b>.299</b> (.267-.334)	<b>.300</b> (.300-.300)	<b>.500</b> (.400-.600)	<b>1.00</b> (.800-1.10)	<b>1.30</b> (1.10-1.70)	1041
	09-10	<b>.196</b> (.178-.216)	<b>.200</b> (.200-.200)	<b>.300</b> (.300-.300)	<b>.600</b> (.500-.800)	<b>1.00</b> (.800-1.00)	1158

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 03-04, 05-06, 07-08, and 09-10 are 0.174, 0.523, 0.174, 0.174, and 0.087 respectively. < LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/PFCs\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/PFCs_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PFCs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PFCs_FactSheet.html)

## Serum 2-(N-Methyl-perfluorooctane sulfonamido) acetic acid (Me-PFOSA-AcOH) (1999 – 2010)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00	<b>.668</b> (.545-.817)	<b>.700</b> (.520-.780)	<b>1.13</b> (.870-1.31)	<b>1.83</b> (1.40-2.35)	<b>2.35</b> (1.74-3.92)	584
	03-04	*	< LOD	< LOD	<b>.610</b> (<LOD-.780)	<b>.780</b> (<LOD-1.13)	485
	05-06	<b>.292</b> (.245-.348)	<b>.260</b> (.260-.350)	<b>.440</b> (.350-.700)	<b>.780</b> (.610-1.05)	<b>1.05</b> (.870-1.22)	499
	07-08	*	<b>.200</b> (<LOD-.200)	<b>.300</b> (.300-.300)	<b>.500</b> (.400-.800)	<b>.800</b> (.500-1.10)	391
	09-10	<b>.139</b> (.118-.163)	<b>.100</b> (.100-.200)	<b>.300</b> (.200-.300)	<b>.500</b> (.400-.600)	<b>.700</b> (.500-1.00)	461
Non-Hispanic blacks	99-00	<b>.989</b> (.853-1.15)	<b>1.05</b> (.780-1.22)	<b>1.57</b> (1.31-1.83)	<b>2.35</b> (1.92-2.79)	<b>3.14</b> (2.27-4.27)	303
	03-04	*	< LOD	<b>.700</b> (<LOD-.780)	<b>.960</b> (.780-1.22)	<b>1.31</b> (.960-1.57)	538
	05-06	<b>.418</b> (.361-.486)	<b>.440</b> (.350-.520)	<b>.700</b> (.610-.870)	<b>1.22</b> (1.05-1.48)	<b>1.66</b> (1.48-2.01)	544
	07-08	<b>.330</b> (.304-.357)	<b>.300</b> (.300-.300)	<b>.500</b> (.500-.700)	<b>1.00</b> (.800-1.20)	<b>1.40</b> (1.20-1.70)	419
	09-10	<b>.193</b> (.166-.225)	<b>.200</b> (.200-.200)	<b>.300</b> (.300-.400)	<b>.600</b> (.400-.800)	<b>.900</b> (.600-1.10)	391
Non-Hispanic whites	99-00	<b>.883</b> (.758-1.03)	<b>.870</b> (.780-1.05)	<b>1.40</b> (1.22-1.74)	<b>2.18</b> (1.92-2.70)	<b>2.79</b> (2.44-3.66)	519
	03-04	*	< LOD	<b>.610</b> (<LOD-.700)	<b>.870</b> (.780-.960)	<b>1.13</b> (.960-1.40)	962
	05-06	<b>.428</b> (.380-.483)	<b>.440</b> (.350-.520)	<b>.780</b> (.700-.870)	<b>1.22</b> (1.13-1.31)	<b>1.66</b> (1.40-1.83)	935
	07-08	<b>.332</b> (.296-.372)	<b>.300</b> (.300-.300)	<b>.600</b> (.500-.700)	<b>1.00</b> (.800-1.10)	<b>1.30</b> (1.10-1.60)	931
	09-10	<b>.216</b> (.201-.232)	<b>.200</b> (.200-.300)	<b>.300</b> (.300-.400)	<b>.700</b> (.600-.800)	<b>1.00</b> (.900-1.10)	1031

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 03-04, 05-06, 07-08, and 09-10 are 0.174, 0.523, 0.174, 0.174, and 0.087 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/PFCs\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/PFCs_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PFCs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PFCs_FactSheet.html)

## Serum 2-(N-Methyl-perfluorooctane sulfonamido) acetic acid (Me-PFOSA-AcOH) (2011 - 2014)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size	
<b>Total</b>	11-12	*	.100 (<LOD-.160)	.250 (.200-.310)	.500 (.440-.530)	.690 (.580-.850)	1904	
	13-14	*	< LOD	.200 (.200-.200)	.400 (.300-.500)	.600 (.500-.900)	2168	
<b>Age group</b>								
	12-19 years	11-12	.134 (.110-.163)	.110 (.090-.170)	.260 (.170-.350)	.420 (.350-.480)	.510 (.420-.850)	344
		13-14	*	.100 (<LOD-.100)	.200 (.200-.300)	.500 (.400-.500)	.600 (.500-.900)	402
20 years and older	11-12	*	.100 (<LOD-.160)	.250 (.200-.310)	.510 (.460-.550)	.700 (.640-.840)	1560	
	13-14	*	< LOD	.200 (.200-.200)	.400 (.300-.500)	.600 (.500-1.00)	1766	
<b>Gender</b>								
	Males	11-12	*	.110 (<LOD-.160)	.270 (.190-.350)	.490 (.390-.660)	.720 (.510-1.06)	966
		13-14	*	< LOD	.200 (.200-.200)	.400 (.300-.500)	.600 (.400-.900)	1032
Females	11-12	*	.100 (<LOD-.160)	.250 (.200-.300)	.510 (.410-.540)	.690 (.560-.810)	938	
	13-14	*	< LOD	.200 (.200-.200)	.400 (.300-.600)	.700 (.500-1.10)	1136	
<b>Race/ethnicity</b>								
	Mexican Americans	11-12	*	< LOD	.220 (.160-.310)	.440 (.310-.590)	.590 (.390-.970)	211
		13-14	*	< LOD	.100 (<LOD-.100)	.200 (.100-.500)	.500 (.300-.500)	332
Non-Hispanic blacks	11-12	*	.100 (<LOD-.150)	.240 (.170-.340)	.520 (.390-.660)	.780 (.580-1.06)	485	
	13-14	*	< LOD	.200 (.100-.300)	.400 (.200-1.00)	.800 (.400-1.60)	455	
Non-Hispanic whites	11-12	*	.120 (<LOD-.170)	.280 (.230-.340)	.510 (.460-.580)	.700 (.600-.990)	666	
	13-14	*	.100 (<LOD-.100)	.200 (.200-.300)	.500 (.400-.500)	.700 (.500-1.00)	862	
All Hispanics	11-12	*	< LOD	.170 (.130-.230)	.350 (.260-.450)	.510 (.380-.740)	406	
	13-14	*	< LOD	.100 (<LOD-.100)	.200 (.200-.300)	.300 (.200-.500)	537	
Asians	11-12	*	< LOD	.170 (.130-.260)	.370 (.300-.520)	.580 (.420-.860)	291	
	13-14	*	< LOD	.100 (<LOD-.200)	.200 (.100-.400)	.400 (.200-.600)	236	

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.087 and 0.1, respectively.  
< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/PFCs\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/PFCs_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PFCs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PFCs_FactSheet.html)



## Serum Perfluoroundecanoic acid (PFUA) (1999 – 2010)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	< LOD	.300 (<LOD-.400)	.400 (.300-.700)	1562
	03-04	*	< LOD	< LOD	< LOD	.600 (<LOD-1.30)	2094
	05-06	*	< LOD	.300 (.200-.400)	.500 (.400-.800)	.700 (.600-1.20)	2120
	07-08	*	< LOD	.200 (<LOD-.300)	.400 (.300-.500)	.600 (.500-.800)	2100
	09-10	.172 (.151-.196)	.200 (.100-.200)	.300 (.200-.400)	.600 (.400-.800)	.900 (.600-1.10)	2233
Age group 12-19 years	99-00	*	< LOD	< LOD	< LOD	.200 (<LOD-.300)	543
	03-04	*	< LOD	< LOD	< LOD	.300 (<LOD-1.10)	640
	05-06	*	< LOD	< LOD	.300 (.200-.500)	.500 (.300-.900)	640
	07-08	*	< LOD	< LOD	.200 (<LOD-.200)	.300 (.200-.300)	357
	09-10	*	.100 (<LOD-.100)	.200 (.100-.200)	.300 (.200-.600)	.400 (.200-.900)	364
20 years and older	99-00	*	< LOD	< LOD	.300 (<LOD-.500)	.500 (.300-.700)	1019
	03-04	*	< LOD	< LOD	.300 (<LOD-.600)	.600 (<LOD-1.40)	1454
	05-06	*	< LOD	.300 (.200-.400)	.500 (.400-.800)	.800 (.600-1.10)	1480
	07-08	*	< LOD	.200 (.200-.300)	.400 (.300-.600)	.600 (.500-.900)	1743
	09-10	.182 (.160-.207)	.200 (.200-.200)	.300 (.300-.400)	.600 (.400-.800)	.900 (.700-1.20)	1869
Gender Males	99-00	*	< LOD	< LOD	.300 (<LOD-.500)	.500 (.300-.600)	743
	03-04	*	< LOD	< LOD	.400 (<LOD-1.00)	.700 (<LOD-2.30)	1053
	05-06	*	< LOD	.300 (.200-.400)	.600 (.400-.700)	.800 (.600-1.10)	1048
	07-08	*	< LOD	.200 (<LOD-.300)	.400 (.300-.500)	.700 (.500-1.00)	1059
	09-10	.170 (.147-.196)	.200 (.100-.200)	.300 (.200-.400)	.500 (.400-.900)	.800 (.500-1.20)	1075
Females	99-00	*	< LOD	< LOD	.300 (<LOD-.400)	.400 (.200-.800)	819
	03-04	*	< LOD	< LOD	< LOD	.400 (<LOD-.700)	1041
	05-06	*	< LOD	.300 (<LOD-.400)	.500 (.400-.700)	.700 (.500-1.10)	1072
	07-08	*	< LOD	.200 (<LOD-.200)	.400 (.300-.500)	.600 (.400-.700)	1041
	09-10	.175 (.153-.199)	.200 (.100-.200)	.300 (.200-.400)	.600 (.400-.800)	.900 (.700-1.20)	1158

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 03-04, 05-06, 07-08, and 09-10 are 0.2, 0.3, 0.2, 0.2, and 0.1 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/PFCs\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/PFCs_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PFCs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PFCs_FactSheet.html)

## Serum Perfluoroundecanoic acid (PFUA) (1999 – 2010)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00	*	< LOD	< LOD	< LOD	< LOD	584
	03-04	*	< LOD	< LOD	< LOD	< LOD	485
	05-06	*	< LOD	< LOD	.300 (<LOD-.700)	.500 (.300-1.00)	499
	07-08	*	< LOD	< LOD	.300 (<LOD-.400)	.300 (<LOD-1.40)	391
	09-10	*	.100 (.100-.100)	.200 (.200-.200)	.300 (.300-.400)	.400 (.300-.600)	461
Non-Hispanic blacks	99-00	*	< LOD	.300 (<LOD-.500)	.600 (.300-1.00)	.900 (.600-1.80)	303
	03-04	*	< LOD	< LOD	.600 (<LOD-1.40)	.900 (.300-2.90)	538
	05-06	*	< LOD	.300 (<LOD-.500)	.600 (.400-1.50)	1.20 (.600-2.70)	544
	07-08	*	< LOD	.300 (.200-.400)	.500 (.400-.700)	.800 (.600-1.20)	419
	09-10	.237 (.199-.283)	.200 (.200-.200)	.400 (.300-.500)	.800 (.500-1.10)	1.30 (.800-1.80)	391
Non-Hispanic whites	99-00	*	< LOD	< LOD	.200 (<LOD-.300)	.300 (<LOD-.800)	519
	03-04	*	< LOD	< LOD	< LOD	.500 (<LOD-.900)	962
	05-06	*	< LOD	.300 (.200-.400)	.500 (.400-.700)	.600 (.400-1.50)	935
	07-08	*	< LOD	.200 (<LOD-.200)	.300 (.300-.500)	.500 (.400-.600)	931
	09-10	.162 (.136-.193)	.200 (.100-.200)	.300 (.200-.400)	.500 (.300-.800)	.800 (.500-1.00)	1031

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 03-04, 05-06, 07-08, and 09-10 are 0.2, 0.3, 0.2, 0.2, and 0.1 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/PFCs\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/PFCs_BiomonitoringSummary.html)

### Factsheet

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## Serum Perfluoroundecanoic acid (PFUA) (2011 - 2014)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	.120 (.100-.140)	.220 (.180-.250)	.380 (.310-.520)	.620 (.440-.790)	1904
	13-14	*	< LOD	.200 (.100-.200)	.300 (.200-.400)	.500 (.400-.600)	2168
<b>Age group</b>							
12-19 years	11-12	*	< LOD	.110 (<LOD-.140)	.180 (.140-.220)	.250 (.190-.390)	344
	13-14	*	< LOD	< LOD	.200 (.100-.200)	.200 (.200-.300)	402
20 years and older	11-12	.146 (.129-.165)	.130 (.110-.150)	.230 (.190-.280)	.420 (.330-.530)	.660 (.490-.840)	1560
	13-14	*	< LOD	.200 (.100-.200)	.300 (.300-.500)	.500 (.400-.700)	1766
<b>Gender</b>							
Males	11-12	*	.120 (.100-.150)	.220 (.180-.260)	.340 (.290-.480)	.590 (.390-.820)	966
	13-14	*	< LOD	.200 (.100-.200)	.300 (.200-.500)	.500 (.400-.700)	1032
Females	11-12	*	.120 (.100-.140)	.210 (.180-.270)	.420 (.320-.540)	.650 (.520-.740)	938
	13-14	*	< LOD	.200 (.100-.200)	.300 (.200-.400)	.500 (.400-.600)	1136
<b>Race/ethnicity</b>							
Mexican Americans	11-12	*	< LOD	.150 (.130-.180)	.230 (.190-.300)	.310 (.230-.330)	211
	13-14	*	< LOD	< LOD	.200 (.100-.300)	.200 (.100-.600)	332
Non-Hispanic blacks	11-12	.164 (.135-.199)	.140 (.110-.190)	.260 (.200-.390)	.530 (.350-.840)	.840 (.520-1.26)	485
	13-14	*	.100 (<LOD-.200)	.200 (.100-.400)	.500 (.300-.700)	.700 (.500-.900)	455
Non-Hispanic whites	11-12	*	.110 (<LOD-.140)	.200 (.160-.240)	.330 (.280-.410)	.450 (.330-.690)	666
	13-14	*	< LOD	.200 (.100-.200)	.300 (.200-.400)	.400 (.300-.600)	862
All Hispanics	11-12	*	.110 (<LOD-.130)	.180 (.160-.210)	.310 (.230-.390)	.420 (.300-.630)	406
	13-14	*	< LOD	.100 (<LOD-.100)	.200 (.100-.200)	.200 (.100-.600)	537
Asians	11-12	.338 (.277-.412)	.330 (.220-.510)	.840 (.630-1.01)	1.38 (1.02-2.33)	2.40 (1.33-3.41)	291
	13-14	.274 (.231-.326)	.300 (.200-.400)	.600 (.400-.800)	1.00 (.900-1.20)	1.50 (1.00-2.40)	236

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.1 and 0.1.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/PFCs\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/PFCs_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PFCs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PFCs_FactSheet.html)

## Urinary Mono-benzyl phthalate (MBzP) (1999 – 2010)

Metabolite of Benzylbutyl phthalate (BzBP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.\*\*

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	11.0 (9.88-12.3)	12.2 (11.0-13.6)	25.5 (23.5-28.6)	48.3 (39.8-59.3)	74.4 (68.1-83.4)	2541
	01-02	10.8 (10.0-11.7)	11.4 (10.7-12.5)	27.4 (24.8-29.7)	58.2 (51.3-63.5)	87.6 (73.7-102)	2782
	03-04	9.89 (9.12-10.7)	10.3 (9.22-11.8)	23.3 (21.7-25.2)	47.9 (41.3-54.4)	72.6 (61.4-90.2)	2605
	05-06	8.32 (7.28-9.51)	8.93 (7.78-10.4)	20.7 (18.2-23.7)	44.6 (37.6-52.8)	67.1 (57.4-77.7)	2548
	07-08	7.24 (6.47-8.09)	8.42 (7.20-9.50)	18.3 (16.6-20.4)	37.3 (31.3-43.3)	58.8 (48.7-69.1)	2604
	09-10	6.46 (5.76-7.24)	6.70 (5.97-7.49)	15.4 (13.4-17.1)	31.0 (26.8-36.1)	48.3 (43.1-55.4)	2749
Age group 6-11 years	99-00	28.4 (23.7-34.0)	29.0 (24.3-35.0)	59.0 (40.2-70.6)	92.8 (70.6-154)	154 (77.8-287)	328
	01-02	24.1 (21.0-27.6)	26.6 (19.2-31.2)	49.3 (44.4-66.8)	120 (83.7-137)	169 (132-237)	393
	03-04	24.4 (20.3-29.2)	25.2 (21.7-28.7)	45.9 (36.3-66.5)	105 (79.1-154)	184 (105-263)	342
	05-06	21.3 (19.2-23.7)	23.5 (19.4-26.6)	46.1 (37.1-56.9)	78.6 (64.3-104)	116 (88.4-137)	356
	07-08	15.4 (12.3-19.3)	17.6 (13.8-20.8)	33.8 (27.0-47.5)	69.9 (51.3-104)	131 (69.9-221)	389
	09-10	11.6 (9.51-14.1)	12.6 (10.4-14.5)	28.4 (20.2-37.8)	63.9 (47.4-76.8)	87.8 (65.4-212)	415
12-19 years	99-00	18.4 (15.7-21.6)	20.4 (16.1-25.1)	36.9 (31.5-42.1)	63.7 (48.4-82.6)	90.2 (67.5-122)	752
	01-02	16.7 (14.3-19.6)	17.9 (15.3-22.3)	40.0 (34.1-45.3)	81.1 (66.1-95.5)	122 (96.3-143)	742
	03-04	15.9 (14.0-18.1)	17.9 (16.1-19.6)	35.9 (28.7-46.5)	64.7 (51.2-86.3)	110 (71.9-136)	729
	05-06	14.2 (11.9-16.9)	14.8 (11.5-18.3)	31.8 (24.2-41.0)	62.6 (44.0-85.0)	94.2 (67.7-134)	702
	07-08	11.6 (9.56-14.2)	14.6 (11.5-16.6)	27.2 (22.0-31.5)	46.7 (35.4-58.3)	63.9 (54.7-102)	401
	09-10	10.6 (8.75-12.9)	11.9 (10.1-15.4)	24.8 (21.9-29.2)	43.1 (36.0-45.8)	56.1 (44.7-74.3)	420
20 years and older	99-00	8.96 (7.83-10.3)	9.94 (8.71-11.2)	21.0 (18.1-23.8)	37.4 (31.6-45.0)	62.1 (39.4-85.5)	1461
	01-02	9.16 (8.40-9.98)	10.0 (9.22-10.7)	22.9 (20.5-24.1)	47.1 (38.7-54.9)	71.8 (59.6-87.1)	1647
	03-04	8.22 (7.42-9.11)	8.71 (7.78-9.72)	19.4 (17.0-21.2)	39.0 (33.9-44.3)	57.2 (47.9-68.3)	1534
	05-06	6.87 (6.00-7.86)	7.34 (6.41-8.71)	17.1 (14.5-19.7)	34.0 (28.3-43.4)	56.9 (45.9-66.7)	1490
	07-08	6.18 (5.40-7.08)	7.13 (6.12-8.06)	15.5 (13.4-17.6)	30.5 (25.2-37.7)	49.5 (40.3-63.9)	1814
	09-10	5.61 (4.97-6.34)	5.95 (5.17-6.61)	12.7 (10.9-14.8)	25.6 (21.5-29.4)	39.6 (34.2-47.7)	1914
Gender Males	99-00	11.6 (10.1-13.4)	12.7 (10.9-14.4)	25.5 (22.7-29.0)	50.0 (43.1-62.8)	77.8 (69.3-93.4)	1215
	01-02	11.2 (9.78-12.9)	11.5 (10.5-13.3)	26.6 (23.8-31.0)	56.4 (45.7-70.1)	87.5 (63.5-132)	1371
	03-04	10.5 (9.50-11.6)	10.9 (9.50-12.6)	23.3 (21.2-25.6)	47.2 (38.6-57.3)	72.6 (56.6-94.8)	1250
	05-06	9.47 (8.20-10.9)	10.2 (8.78-12.2)	23.3 (19.3-25.9)	51.6 (39.8-61.6)	71.0 (61.6-83.2)	1270
	07-08	7.80 (6.96-8.74)	8.64 (7.49-10.0)	17.6 (15.8-20.4)	33.8 (28.4-41.3)	49.3 (41.5-62.1)	1294
	09-10	6.93 (6.07-7.92)	6.98 (6.21-7.80)	15.6 (13.3-17.6)	33.0 (27.4-37.8)	49.0 (40.4-62.8)	1399
Females	99-00	10.5 (9.17-12.0)	11.6 (10.2-13.8)	25.8 (22.2-29.8)	45.9 (38.7-59.3)	73.9 (60.6-83.4)	1326
	01-02	10.5 (9.40-11.7)	11.1 (9.94-12.9)	27.4 (23.3-31.5)	58.6 (49.2-66.0)	88.0 (73.2-103)	1411
	03-04	9.33 (8.53-10.2)	9.58 (8.71-11.2)	24.0 (21.2-26.1)	48.3 (42.3-52.1)	72.5 (60.8-86.3)	1355
	05-06	7.34 (6.30-8.55)	7.70 (6.55-9.36)	18.4 (15.6-22.2)	39.5 (33.0-46.3)	62.1 (48.0-73.7)	1278
	07-08	6.73 (5.77-7.85)	7.99 (6.41-9.36)	18.8 (15.4-22.5)	40.1 (32.2-50.9)	64.4 (51.1-78.8)	1310
	09-10	6.04 (5.38-6.77)	6.36 (5.18-7.47)	15.3 (12.9-16.9)	29.3 (24.5-36.9)	47.7 (38.0-60.4)	1350

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.576, 0.216, 0.072, 0.216, 0.216, and 0.216 respectively.

\*\*To correct for inadequate purity in the analytical standards, all results and LODs have been adjusted by a factor of 0.72 for survey periods 1999-2008 compared with results previously released.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/BzBP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/BzBP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-benzyl phthalate (MBzP) (1999 – 2010)

Metabolite of Benzylbutyl phthalate (BzBP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.\*\*

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00	<b>10.0</b> (8.69-11.6)	<b>11.3</b> (9.65-12.2)	<b>23.8</b> (19.8-26.0)	<b>48.6</b> (40.0-60.5)	<b>71.1</b> (58.0-108)	814
	01-02	<b>9.49</b> (7.75-11.6)	<b>10.7</b> (7.78-13.3)	<b>21.2</b> (18.9-27.4)	<b>50.7</b> (38.2-61.5)	<b>68.2</b> (50.6-116)	677
	03-04	<b>10.7</b> (9.52-12.0)	<b>11.2</b> (9.72-13.2)	<b>23.3</b> (19.9-25.5)	<b>51.4</b> (35.0-66.5)	<b>71.9</b> (62.3-104)	652
	05-06	<b>8.95</b> (7.12-11.3)	<b>10.2</b> (8.57-11.9)	<b>20.1</b> (14.3-31.0)	<b>43.1</b> (33.9-49.8)	<b>59.8</b> (43.6-77.3)	637
	07-08	<b>7.87</b> (6.39-9.68)	<b>9.43</b> (6.91-11.5)	<b>18.7</b> (14.1-25.3)	<b>38.0</b> (30.2-47.5)	<b>60.4</b> (40.5-73.9)	531
Non-Hispanic blacks	09-10	<b>7.58</b> (6.42-8.96)	<b>7.39</b> (6.33-9.00)	<b>17.1</b> (14.3-20.3)	<b>33.8</b> (26.5-43.5)	<b>54.5</b> (34.4-79.7)	566
	99-00	<b>16.6</b> (14.9-18.4)	<b>16.6</b> (14.8-18.4)	<b>35.5</b> (31.7-40.0)	<b>68.2</b> (57.6-93.4)	<b>99.1</b> (76.6-174)	603
	01-02	<b>17.1</b> (15.1-19.4)	<b>17.4</b> (14.3-20.2)	<b>36.4</b> (29.9-45.3)	<b>72.6</b> (62.2-91.3)	<b>103</b> (91.2-129)	703
	03-04	<b>13.6</b> (11.8-15.7)	<b>14.4</b> (11.1-17.7)	<b>31.5</b> (28.0-35.3)	<b>58.2</b> (50.4-76.0)	<b>86.2</b> (71.8-124)	699
	05-06	<b>11.9</b> (9.03-15.7)	<b>12.7</b> (10.1-17.1)	<b>26.1</b> (21.0-35.0)	<b>60.6</b> (47.2-74.6)	<b>83.2</b> (74.6-102)	678
Non-Hispanic whites	07-08	<b>9.37</b> (8.28-10.6)	<b>9.72</b> (8.35-11.7)	<b>21.4</b> (18.4-24.8)	<b>46.9</b> (34.3-61.6)	<b>71.3</b> (63.7-89.6)	597
	09-10	<b>8.98</b> (7.67-10.5)	<b>9.14</b> (7.76-10.5)	<b>21.0</b> (16.4-24.7)	<b>38.9</b> (30.3-52.6)	<b>67.4</b> (51.3-80.7)	516
	99-00	<b>10.3</b> (9.12-11.6)	<b>11.6</b> (10.3-13.4)	<b>24.5</b> (22.0-27.6)	<b>42.3</b> (36.9-53.4)	<b>73.9</b> (53.4-83.4)	912
	01-02	<b>10.1</b> (9.12-11.1)	<b>10.5</b> (9.65-11.2)	<b>25.6</b> (23.2-28.4)	<b>55.2</b> (47.6-65.0)	<b>87.5</b> (67.1-112)	1216
	03-04	<b>9.25</b> (8.30-10.3)	<b>9.50</b> (8.42-11.5)	<b>22.0</b> (20.0-25.3)	<b>45.9</b> (38.6-52.1)	<b>65.9</b> (54.9-87.9)	1088
Non-Hispanic whites	05-06	<b>7.67</b> (6.61-8.90)	<b>8.06</b> (6.98-10.1)	<b>19.8</b> (17.1-23.5)	<b>43.4</b> (32.4-52.5)	<b>65.8</b> (52.5-76.8)	1038
	07-08	<b>7.10</b> (6.33-7.97)	<b>8.14</b> (7.06-9.29)	<b>17.9</b> (16.5-20.3)	<b>37.7</b> (31.0-44.2)	<b>57.0</b> (46.0-68.6)	1077
	09-10	<b>6.07</b> (5.24-7.03)	<b>6.31</b> (5.54-7.23)	<b>14.7</b> (12.4-16.7)	<b>29.5</b> (23.4-36.9)	<b>44.6</b> (34.9-64.1)	1206

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.576, 0.216, 0.072, 0.216, 0.216, and 0.216 respectively.

\*\*To correct for inadequate purity in the analytical standards, all results and LODs have been adjusted by a factor of 0.72 for survey periods 1999-2008 compared with results previously released.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/BzBP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/BzBP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-benzyl phthalate (MBzP) (2011 - 2012)

Metabolite of Benzylbutyl phthalate (BzBP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	4.52 (4.17-4.90)	4.40 (4.10-5.00)	10.7 (9.80-12.2)	21.7 (20.2-24.4)	35.9 (29.2-41.7)	2489
<b>Age group</b>							
6-11 years	11-12	8.62 (7.22-10.3)	8.50 (6.60-10.4)	21.6 (15.8-26.2)	50.7 (31.4-71.7)	75.2 (51.3-124)	396
12-19 years	11-12	6.62 (5.28-8.30)	7.30 (4.80-10.2)	17.0 (13.3-20.2)	31.5 (24.1-39.2)	42.6 (33.4-65.3)	388
20 years and older	11-12	3.98 (3.60-4.39)	4.00 (3.70-4.40)	9.70 (8.10-10.5)	19.2 (17.0-21.0)	28.0 (22.4-37.0)	1705
<b>Gender</b>							
Males	11-12	4.80 (4.25-5.41)	4.80 (4.20-5.40)	11.1 (9.80-12.7)	22.4 (19.9-25.7)	37.0 (28.0-58.3)	1259
Females	11-12	4.27 (3.81-4.77)	4.20 (3.80-4.90)	10.5 (9.50-12.3)	21.6 (19.7-24.4)	33.9 (27.4-42.0)	1230
<b>Race/ethnicity</b>							
Mexican Americans	11-12	5.11 (4.03-6.48)	5.10 (3.90-6.60)	11.3 (7.60-16.9)	20.4 (14.7-28.8)	29.1 (19.9-69.3)	316
Non-Hispanic blacks	11-12	7.43 (6.14-8.98)	7.50 (6.40-9.00)	16.4 (13.4-20.1)	33.9 (24.3-48.6)	54.9 (42.7-76.1)	665
Non-Hispanic whites	11-12	4.14 (3.84-4.46)	4.10 (3.80-4.40)	10.1 (8.50-11.4)	20.2 (17.9-22.9)	30.4 (24.8-38.2)	813
All Hispanics	11-12	4.80 (4.03-5.72)	4.90 (4.00-5.70)	11.3 (8.40-14.8)	22.4 (17.6-29.8)	33.6 (22.4-45.5)	571
Asians	11-12	2.99 (2.44-3.67)	2.90 (2.40-3.50)	7.20 (5.20-9.50)	15.1 (11.2-21.5)	27.7 (17.5-45.9)	352

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 0.3.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/BzBP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/BzBP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-benzyl phthalate (MBzP) (creatinine corrected) (1999 – 2010)

Metabolite of Benzylbutyl phthalate (BzBP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.\*\*

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	10.0 (9.33-10.8)	9.60 (9.22-10.3)	18.1 (16.8-19.6)	36.1 (29.9-42.3)	55.7 (50.1-62.1)	2541
	01-02	10.2 (9.50-10.9)	9.71 (9.12-10.4)	19.1 (17.8-20.9)	39.5 (35.3-42.1)	65.1 (53.6-73.2)	2782
	03-04	9.29 (8.76-9.86)	9.04 (8.07-9.82)	17.7 (16.0-19.0)	33.1 (29.5-37.1)	50.4 (44.9-57.5)	2605
	05-06	8.11 (7.28-9.04)	8.24 (7.37-8.98)	15.3 (13.9-17.4)	30.2 (26.4-35.1)	47.4 (42.7-53.3)	2548
	07-08	7.29 (6.71-7.93)	7.20 (6.57-8.17)	14.3 (13.1-15.4)	28.3 (24.4-31.8)	42.6 (36.3-49.1)	2604
	09-10	6.74 (6.06-7.50)	6.40 (5.63-7.30)	12.4 (11.3-13.8)	24.0 (20.4-26.6)	34.1 (30.5-41.4)	2749
	Age group 6-11 years	99-00	28.8 (24.2-34.3)	27.8 (21.7-36.9)	52.9 (40.8-71.4)	75.1 (64.4-102)	102 (71.8-124)
01-02		27.4 (24.8-30.3)	26.9 (24.3-30.4)	48.9 (40.2-57.9)	96.7 (83.3-127)	140 (86.9-219)	393
03-04		25.8 (21.9-30.3)	23.2 (20.1-29.1)	43.7 (36.1-57.2)	97.8 (61.6-154)	165 (71.8-286)	342
05-06		23.5 (21.1-26.2)	25.5 (20.5-29.5)	47.1 (35.8-57.8)	77.6 (62.8-94.3)	104 (85.8-130)	356
07-08		19.0 (16.0-22.5)	20.7 (15.6-27.0)	35.4 (32.3-40.0)	67.2 (51.9-91.5)	118 (74.3-159)	389
09-10		15.1 (12.7-18.0)	14.6 (12.0-17.2)	29.3 (25.9-37.6)	66.5 (45.3-84.1)	92.2 (67.1-163)	415
12-19 years		99-00	12.4 (11.1-14.0)	12.3 (10.5-14.6)	20.4 (17.5-25.1)	35.8 (27.9-49.9)	50.4 (35.7-59.0)
	01-02	12.9 (11.3-14.8)	13.0 (11.3-15.0)	24.4 (21.1-27.8)	48.7 (40.2-61.9)	72.0 (58.1-88.6)	742
	03-04	11.9 (11.1-12.8)	12.2 (11.1-13.1)	21.6 (18.0-25.6)	37.5 (29.3-44.5)	56.0 (39.5-82.6)	729
	05-06	10.6 (9.14-12.2)	10.5 (8.33-13.0)	18.5 (15.9-23.7)	35.8 (28.1-46.0)	48.8 (41.3-65.3)	702
	07-08	9.06 (7.76-10.6)	9.39 (8.12-11.1)	16.7 (13.8-21.0)	32.1 (22.0-45.9)	48.4 (32.3-55.6)	401
	09-10	8.54 (7.36-9.90)	8.73 (7.44-10.8)	14.9 (13.2-17.5)	24.9 (21.6-28.9)	32.5 (25.7-42.7)	420
	20 years and older	99-00	8.47 (7.73-9.27)	8.68 (8.01-9.26)	14.5 (13.2-16.8)	24.9 (22.0-29.4)	41.1 (29.7-53.2)
01-02		8.66 (8.08-9.28)	8.47 (8.00-9.00)	15.6 (14.3-17.1)	30.5 (25.8-34.7)	46.8 (39.0-56.4)	1647
03-04		7.90 (7.39-8.45)	7.58 (6.98-8.37)	14.2 (13.1-15.4)	26.3 (25.0-28.2)	40.2 (33.7-44.9)	1534
05-06		6.89 (6.20-7.66)	7.10 (6.60-7.71)	13.1 (12.1-14.2)	22.4 (19.9-25.5)	34.6 (28.9-43.1)	1490
07-08		6.35 (5.74-7.03)	6.41 (5.65-7.15)	12.3 (11.1-13.6)	21.8 (19.1-25.7)	32.6 (28.7-40.5)	1814
09-10		5.94 (5.31-6.66)	5.67 (5.03-6.53)	10.8 (9.18-12.5)	19.2 (16.6-23.5)	29.1 (24.2-33.4)	1914
Gender Males		99-00	9.14 (8.51-9.82)	8.96 (8.32-9.39)	17.1 (15.5-18.8)	32.0 (25.5-41.0)	52.9 (34.9-71.8)
	01-02	9.13 (8.18-10.2)	8.55 (7.85-9.53)	17.4 (15.1-19.0)	35.3 (31.5-40.4)	57.8 (43.8-74.7)	1371
	03-04	8.25 (7.60-8.95)	7.99 (7.01-9.03)	15.2 (14.0-17.0)	28.4 (24.6-35.8)	45.3 (37.4-59.8)	1250
	05-06	7.61 (6.65-8.70)	7.57 (6.65-8.91)	14.3 (13.0-16.6)	30.0 (25.5-34.5)	43.7 (36.2-48.2)	1270
	07-08	6.57 (5.91-7.31)	6.66 (5.68-7.46)	12.8 (11.3-14.8)	24.4 (21.2-29.5)	36.3 (30.6-45.5)	1294
	09-10	6.21 (5.56-6.94)	5.88 (5.13-6.74)	11.6 (10.1-12.9)	21.3 (18.8-24.1)	32.2 (27.6-35.6)	1399
	Females	99-00	11.0 (9.96-12.1)	10.6 (9.60-11.5)	18.6 (17.3-21.1)	40.6 (33.7-43.6)	57.9 (43.3-84.2)
01-02		11.3 (10.2-12.4)	10.8 (9.97-11.9)	21.2 (18.6-24.5)	42.1 (35.9-50.0)	69.0 (50.0-83.4)	1411
03-04		10.4 (9.65-11.2)	9.97 (9.20-10.9)	20.1 (17.8-22.6)	37.4 (31.2-43.4)	52.9 (45.8-65.0)	1355
05-06		8.63 (7.84-9.51)	8.67 (8.12-9.26)	15.9 (14.8-18.3)	32.0 (26.3-41.4)	52.3 (45.2-62.8)	1278
07-08		8.07 (7.29-8.93)	8.37 (7.20-9.16)	15.5 (13.9-18.0)	31.5 (27.5-34.2)	48.3 (40.2-54.9)	1310
09-10		7.29 (6.47-8.21)	6.90 (5.90-8.04)	13.6 (11.9-15.3)	25.6 (21.9-30.4)	38.8 (30.7-47.3)	1350

\*\*To correct for inadequate purity in the analytical standards, all results and LODs have been adjusted by a factor of 0.72 for survey periods 1999-2008 compared with results previously released.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/BzBP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/BzBP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)



## Urinary Mono-benzyl phthalate (MBzP) (creatinine corrected) (1999 – 2010)

Metabolite of Benzylbutyl phthalate (BzBP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.\*\*

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00	<b>9.10</b> (8.20-10.1)	<b>8.60</b> (7.87-9.53)	<b>17.4</b> (15.5-19.1)	<b>33.5</b> (30.2-38.7)	<b>49.1</b> (40.6-67.5)	814
	01-02	<b>8.95</b> (7.69-10.4)	<b>8.55</b> (7.16-10.7)	<b>17.1</b> (14.1-20.9)	<b>33.6</b> (26.3-44.4)	<b>51.5</b> (36.8-86.5)	677
	03-04	<b>9.66</b> (8.41-11.1)	<b>9.00</b> (8.25-9.66)	<b>17.3</b> (15.1-20.0)	<b>38.2</b> (27.6-46.7)	<b>56.0</b> (41.1-89.8)	652
	05-06	<b>8.05</b> (6.69-9.69)	<b>8.38</b> (7.48-8.91)	<b>16.0</b> (12.6-20.2)	<b>31.0</b> (22.4-40.6)	<b>45.7</b> (31.3-54.2)	637
	07-08	<b>7.68</b> (6.13-9.62)	<b>8.06</b> (6.42-10.3)	<b>15.5</b> (12.5-19.2)	<b>29.1</b> (21.9-36.9)	<b>42.9</b> (33.5-51.8)	531
	09-10	<b>7.53</b> (6.52-8.69)	<b>7.29</b> (6.30-8.18)	<b>13.3</b> (11.6-16.3)	<b>32.3</b> (23.3-43.6)	<b>52.2</b> (33.0-66.1)	566
Non-Hispanic blacks	99-00	<b>10.7</b> (9.75-11.7)	<b>9.83</b> (8.76-10.9)	<b>19.4</b> (16.2-22.9)	<b>40.5</b> (28.4-54.7)	<b>62.5</b> (46.4-71.9)	603
	01-02	<b>12.0</b> (10.5-13.7)	<b>11.3</b> (9.84-13.9)	<b>24.1</b> (19.1-27.4)	<b>43.3</b> (38.7-50.0)	<b>77.7</b> (54.4-83.4)	703
	03-04	<b>9.65</b> (8.46-11.0)	<b>9.81</b> (8.32-11.2)	<b>17.4</b> (15.8-20.7)	<b>36.0</b> (29.6-41.6)	<b>53.8</b> (42.5-65.2)	699
	05-06	<b>8.38</b> (6.44-10.9)	<b>8.24</b> (6.72-10.6)	<b>16.1</b> (12.8-21.5)	<b>34.1</b> (25.8-43.9)	<b>52.3</b> (39.9-62.9)	678
	07-08	<b>7.28</b> (6.51-8.14)	<b>7.07</b> (5.97-8.28)	<b>14.7</b> (12.2-16.0)	<b>25.8</b> (22.6-31.5)	<b>42.3</b> (32.6-50.3)	597
	09-10	<b>6.50</b> (5.49-7.70)	<b>6.50</b> (5.38-7.45)	<b>11.7</b> (9.80-14.9)	<b>23.9</b> (17.0-31.8)	<b>34.4</b> (25.8-48.9)	516
Non-Hispanic whites	99-00	<b>10.0</b> (9.16-11.0)	<b>9.66</b> (9.25-10.7)	<b>18.2</b> (16.6-19.8)	<b>38.3</b> (27.9-46.7)	<b>56.1</b> (48.5-65.0)	912
	01-02	<b>9.97</b> (9.24-10.8)	<b>9.33</b> (8.69-10.3)	<b>18.5</b> (17.1-20.1)	<b>38.2</b> (33.5-42.1)	<b>64.2</b> (49.7-78.5)	1216
	03-04	<b>9.14</b> (8.48-9.84)	<b>8.97</b> (7.77-9.93)	<b>17.6</b> (15.6-19.2)	<b>30.2</b> (28.1-35.2)	<b>47.2</b> (41.4-57.3)	1088
	05-06	<b>8.08</b> (7.17-9.10)	<b>8.35</b> (7.31-9.49)	<b>15.2</b> (13.7-17.4)	<b>29.9</b> (25.1-36.5)	<b>47.4</b> (40.0-57.1)	1038
	07-08	<b>7.42</b> (6.90-7.97)	<b>7.38</b> (6.65-8.23)	<b>14.0</b> (12.9-15.4)	<b>28.3</b> (24.2-32.3)	<b>44.5</b> (36.3-52.4)	1077
	09-10	<b>6.83</b> (6.08-7.67)	<b>6.37</b> (5.58-7.34)	<b>12.6</b> (11.1-14.5)	<b>24.0</b> (19.5-27.6)	<b>33.4</b> (27.9-44.6)	1206

\*\*To correct for inadequate purity in the analytical standards, all results and LODs have been adjusted by a factor of 0.72 for survey periods 1999-2008 compared with results previously released.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/BzBP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/BzBP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-benzyl phthalate (MBzP) (creatinine corrected) (2011 - 2012)

*Metabolite of Benzylbutyl phthalate (BzBP)*

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Total</b>	11-12	<b>5.15</b> (4.80-5.52)	<b>4.96</b> (4.62-5.35)	<b>9.49</b> (8.71-10.5)	<b>17.4</b> (16.2-19.1)	<b>26.7</b> (24.3-30.0)	2487
<b>Age group</b>							
6-11 years	11-12	<b>12.5</b> (10.8-14.5)	<b>11.9</b> (10.0-14.3)	<b>24.1</b> (18.5-28.9)	<b>53.2</b> (35.9-67.4)	<b>81.0</b> (54.1-97.7)	395
12-19 years	11-12	<b>6.45</b> (5.81-7.16)	<b>6.23</b> (5.39-7.54)	<b>11.7</b> (10.1-13.2)	<b>18.3</b> (15.2-22.1)	<b>25.5</b> (20.3-39.9)	388
20 years and older	11-12	<b>4.52</b> (4.18-4.89)	<b>4.46</b> (4.05-4.76)	<b>8.08</b> (7.50-8.83)	<b>15.1</b> (12.9-16.8)	<b>21.6</b> (18.5-24.5)	1704
<b>Gender</b>							
Males	11-12	<b>4.49</b> (4.01-5.04)	<b>4.26</b> (3.91-4.73)	<b>8.46</b> (7.56-9.10)	<b>15.4</b> (13.8-18.3)	<b>24.7</b> (18.3-37.0)	1258
Females	11-12	<b>5.87</b> (5.43-6.35)	<b>5.65</b> (5.00-6.43)	<b>10.5</b> (9.45-12.1)	<b>19.7</b> (16.4-23.3)	<b>28.7</b> (24.5-34.8)	1229
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>5.76</b> (4.41-7.51)	<b>5.86</b> (5.00-7.08)	<b>10.2</b> (8.61-13.1)	<b>17.8</b> (12.4-34.6)	<b>28.3</b> (17.1-50.2)	316
Non-Hispanic blacks	11-12	<b>5.78</b> (4.83-6.92)	<b>5.30</b> (4.49-6.16)	<b>10.5</b> (8.68-13.6)	<b>21.1</b> (17.4-27.5)	<b>35.3</b> (25.2-53.4)	665
Non-Hispanic whites	11-12	<b>5.04</b> (4.67-5.44)	<b>4.82</b> (4.44-5.37)	<b>9.11</b> (8.18-10.7)	<b>16.6</b> (15.1-18.5)	<b>24.7</b> (21.4-28.7)	811
All Hispanics	11-12	<b>5.38</b> (4.45-6.51)	<b>5.29</b> (4.55-6.14)	<b>9.63</b> (7.95-12.7)	<b>18.4</b> (13.9-34.6)	<b>35.6</b> (18.4-49.3)	571
Asians	11-12	<b>4.01</b> (3.49-4.60)	<b>3.96</b> (3.27-4.72)	<b>7.74</b> (6.39-9.73)	<b>13.4</b> (10.5-16.4)	<b>20.5</b> (14.3-27.7)	352

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/BzBP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/BzBP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-*n*-butyl phthalate (MnBP) (1999 – 2010)

Metabolite of Dibutyl phthalate (DBP) and Benzylbutyl phthalate (BzBP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.\*

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	24.6 (22.1-27.4)	26.0 (23.6-29.2)	51.6 (44.5-60.3)	98.6 (90.2-114)	150 (121-169)	2541
	01-02	18.9 (17.4-20.6)	20.4 (19.2-21.8)	40.4 (36.5-44.2)	73.6 (65.3-85.6)	108 (94.1-122)	2782
	03-04	21.1 (19.8-22.5)	23.2 (21.2-24.8)	42.7 (38.5-47.2)	80.7 (70.2-93.9)	122 (104-137)	2605
	05-06	19.6 (18.2-21.3)	20.6 (18.6-23.0)	40.4 (36.4-44.9)	71.5 (66.5-79.5)	107 (96.3-124)	2548
	07-08	18.9 (17.2-20.7)	20.0 (18.1-21.9)	39.1 (34.5-43.4)	72.4 (64.5-77.7)	110 (94.5-120)	2604
	09-10	14.6 (13.2-16.2)	15.9 (14.3-17.3)	30.5 (27.2-33.3)	54.4 (49.7-59.1)	75.9 (67.5-86.8)	2749
Age group 6-11 years	99-00	41.4 (35.6-48.0)	40.0 (36.2-49.2)	75.5 (59.1-92.8)	124 (98.4-159)	166 (127-279)	328
	01-02	31.1 (26.6-36.5)	32.4 (25.6-37.1)	62.1 (51.3-76.9)	107 (84.3-136)	159 (110-290)	393
	03-04	36.3 (30.7-42.9)	36.7 (28.5-47.5)	71.3 (56.9-87.2)	137 (107-162)	191 (150-243)	342
	05-06	30.5 (27.5-33.8)	32.3 (27.8-35.0)	57.4 (46.8-65.4)	93.4 (75.6-130)	136 (108-181)	356
	07-08	26.9 (22.5-32.1)	28.7 (21.3-38.0)	53.6 (45.6-63.6)	85.6 (71.4-102)	119 (91.6-150)	389
	09-10	21.7 (19.0-24.8)	23.3 (20.8-26.2)	44.9 (39.1-49.7)	83.8 (59.6-121)	124 (92.3-173)	415
12-19 years	99-00	36.0 (30.8-42.1)	36.3 (30.6-44.9)	68.6 (55.9-79.7)	119 (90.2-159)	165 (121-227)	752
	01-02	25.1 (21.6-29.2)	26.7 (22.0-32.7)	52.6 (48.4-60.4)	92.4 (72.7-121)	148 (106-185)	742
	03-04	26.7 (24.1-29.5)	28.2 (25.2-33.1)	52.0 (45.3-60.9)	97.5 (74.7-116)	134 (110-158)	729
	05-06	27.5 (24.3-31.3)	29.0 (23.7-36.6)	57.2 (48.7-64.9)	88.6 (75.1-105)	125 (96.2-154)	702
	07-08	26.2 (22.5-30.6)	27.3 (22.1-32.8)	51.7 (46.2-63.8)	111 (77.7-132)	149 (103-188)	401
	09-10	18.9 (16.1-22.2)	22.3 (19.4-24.4)	37.2 (31.3-43.4)	61.7 (52.8-73.2)	81.4 (68.9-86.3)	420
20 years and older	99-00	21.6 (19.0-24.5)	23.1 (19.7-26.1)	46.3 (36.9-53.6)	95.0 (78.7-111)	143 (117-161)	1461
	01-02	17.0 (15.4-18.8)	19.1 (17.1-20.4)	35.1 (31.6-40.2)	64.8 (57.3-79.7)	95.4 (84.6-113)	1647
	03-04	19.0 (17.7-20.5)	20.7 (18.9-22.9)	38.4 (35.7-42.7)	74.7 (64.1-82.6)	108 (90.7-127)	1534
	05-06	17.7 (16.0-19.6)	18.4 (16.6-20.6)	36.7 (32.5-41.4)	65.1 (55.4-74.3)	101 (84.3-121)	1490
	07-08	17.2 (15.6-19.1)	18.6 (16.7-20.3)	34.5 (31.5-39.1)	63.8 (56.4-72.5)	98.3 (83.0-115)	1814
	09-10	13.5 (12.0-15.1)	14.5 (13.0-16.0)	28.1 (24.1-32.0)	50.0 (44.1-56.1)	68.9 (60.6-77.3)	1914
Gender Males	99-00	22.0 (20.1-24.1)	23.2 (20.4-26.3)	43.1 (36.6-49.5)	84.4 (71.3-96.2)	116 (97.8-132)	1215
	01-02	17.7 (16.0-19.6)	19.3 (17.3-21.0)	34.5 (30.3-40.6)	62.1 (54.1-75.5)	95.2 (75.5-117)	1371
	03-04	20.0 (18.1-22.0)	21.1 (19.0-24.0)	39.4 (35.5-43.4)	65.5 (59.0-73.0)	95.9 (79.8-111)	1250
	05-06	19.8 (18.4-21.4)	20.7 (19.0-23.0)	38.5 (34.6-42.0)	63.8 (56.8-72.0)	96.2 (79.0-113)	1270
	07-08	18.4 (16.8-20.3)	19.0 (17.3-21.3)	36.0 (32.5-40.4)	60.9 (52.8-68.8)	88.3 (72.6-110)	1294
	09-10	14.5 (13.0-16.3)	15.4 (13.7-16.9)	28.4 (25.9-31.2)	51.7 (44.3-54.8)	68.9 (58.9-78.0)	1399
Females	99-00	27.3 (23.6-31.5)	30.0 (25.9-33.3)	59.7 (51.6-69.6)	120 (98.3-145)	167 (143-223)	1326
	01-02	20.2 (18.2-22.4)	21.7 (19.7-24.3)	46.7 (43.1-51.1)	85.0 (72.7-92.5)	121 (106-136)	1411
	03-04	22.2 (21.2-23.3)	24.4 (23.4-25.8)	47.3 (42.7-53.0)	95.9 (79.9-114)	137 (122-156)	1355
	05-06	19.5 (17.2-22.0)	20.4 (17.1-24.7)	42.3 (36.7-52.0)	83.2 (71.0-90.2)	124 (101-137)	1278
	07-08	19.3 (17.2-21.7)	20.8 (18.1-23.2)	42.5 (35.6-50.6)	83.7 (68.6-109)	132 (109-151)	1310
	09-10	14.7 (13.1-16.5)	16.4 (13.9-19.3)	32.7 (29.9-37.1)	57.7 (52.7-63.9)	86.2 (68.9-113)	1350

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.9, 1.1, 0.4, 0.6, 0.6, and 0.4 respectively.

\*In the 1999-2000 survey period, concentrations of mono-isobutyl and mono-*n*-butyl phthalates were measured together and expressed as the combined value, monobutyl phthalate (MBP)

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DBP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DBP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-*n*-butyl phthalate (MnBP) (1999 – 2010)

Metabolite of Dibutyl phthalate (DBP) and Benzylbutyl phthalate (BzBP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.\*

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00	<b>23.4</b> (21.8-25.1)	<b>26.3</b> (23.9-28.1)	<b>48.1</b> (41.2-56.7)	<b>92.2</b> (78.9-101)	<b>117</b> (104-131)	814
	01-02	<b>20.1</b> (16.6-24.5)	<b>23.1</b> (18.0-26.5)	<b>42.1</b> (34.0-51.5)	<b>77.1</b> (62.9-92.5)	<b>112</b> (84.6-143)	677
	03-04	<b>24.1</b> (19.8-29.5)	<b>26.9</b> (20.2-32.0)	<b>47.4</b> (38.0-58.5)	<b>85.6</b> (61.7-117)	<b>127</b> (99.8-165)	652
	05-06	<b>22.4</b> (18.6-27.0)	<b>23.5</b> (19.0-29.0)	<b>45.4</b> (37.1-55.4)	<b>90.2</b> (71.1-119)	<b>132</b> (106-174)	637
	07-08	<b>22.2</b> (18.5-26.7)	<b>22.4</b> (17.8-27.1)	<b>43.8</b> (36.2-50.4)	<b>76.4</b> (59.8-106)	<b>145</b> (85.6-223)	531
Non-Hispanic blacks	09-10	<b>17.2</b> (15.3-19.4)	<b>17.3</b> (14.3-20.9)	<b>34.3</b> (31.4-38.8)	<b>56.1</b> (47.7-67.9)	<b>80.0</b> (65.1-107)	566
	99-00	<b>37.0</b> (31.9-42.9)	<b>38.7</b> (33.4-44.5)	<b>78.2</b> (58.7-91.8)	<b>118</b> (108-143)	<b>167</b> (143-197)	603
	01-02	<b>29.6</b> (26.6-33.1)	<b>31.5</b> (28.7-34.1)	<b>58.3</b> (51.2-63.4)	<b>93.2</b> (79.5-121)	<b>138</b> (110-184)	703
	03-04	<b>30.1</b> (28.4-31.9)	<b>31.5</b> (29.7-34.1)	<b>64.1</b> (58.3-67.1)	<b>106</b> (94.8-119)	<b>144</b> (115-168)	699
	05-06	<b>27.1</b> (23.1-31.8)	<b>28.5</b> (25.0-31.2)	<b>53.1</b> (39.9-65.8)	<b>105</b> (77.3-135)	<b>143</b> (118-183)	678
Non-Hispanic whites	07-08	<b>25.0</b> (21.9-28.4)	<b>25.8</b> (22.0-30.4)	<b>52.4</b> (43.9-59.5)	<b>91.2</b> (75.6-106)	<b>114</b> (96.8-148)	597
	09-10	<b>21.9</b> (19.2-25.0)	<b>23.2</b> (20.0-26.3)	<b>42.4</b> (37.1-47.5)	<b>69.1</b> (59.4-84.2)	<b>103</b> (74.8-134)	516
	99-00	<b>21.8</b> (19.3-24.6)	<b>23.2</b> (19.5-27.5)	<b>46.3</b> (37.5-53.3)	<b>90.2</b> (74.7-106)	<b>142</b> (111-161)	912
	01-02	<b>17.6</b> (16.0-19.3)	<b>19.2</b> (17.0-21.0)	<b>36.6</b> (32.4-42.6)	<b>69.2</b> (59.2-87.6)	<b>107</b> (89.8-123)	1216
	03-04	<b>18.9</b> (17.6-20.3)	<b>20.7</b> (18.9-22.8)	<b>38.4</b> (35.5-42.7)	<b>71.3</b> (60.1-80.0)	<b>101</b> (90.7-124)	1088
	05-06	<b>17.8</b> (16.2-19.5)	<b>18.6</b> (16.9-20.7)	<b>37.8</b> (33.1-42.1)	<b>65.4</b> (55.4-73.9)	<b>95.9</b> (79.5-113)	1038
	07-08	<b>17.8</b> (16.2-19.5)	<b>18.9</b> (17.2-20.9)	<b>36.7</b> (32.3-41.4)	<b>68.0</b> (58.9-77.2)	<b>110</b> (86.5-120)	1077
	09-10	<b>13.0</b> (11.6-14.5)	<b>14.1</b> (12.7-15.8)	<b>26.6</b> (23.4-31.0)	<b>48.8</b> (42.2-54.3)	<b>67.5</b> (57.6-76.5)	1206

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.9, 1.1, 0.4, 0.6, 0.6, and 0.4 respectively.

\*In the 1999-2000 survey period, concentrations of mono-isobutyl and mono-*n*-butyl phthalates were measured together and expressed as the combined value, monobutyl phthalate (MBP)

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DBP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DBP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-*n*-butyl phthalate (MnBP) (2011 - 2012)

Metabolite of Dibutyl phthalate (DBP) and Benzylbutyl phthalate (BzBP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>7.61</b> (6.64-8.72)	<b>9.20</b> (8.10-10.1)	<b>20.0</b> (17.8-22.1)	<b>35.5</b> (31.3-41.8)	<b>55.0</b> (44.3-68.5)	2489
<b>Age group</b>							
6-11 years	11-12	<b>11.1</b> (8.73-14.2)	<b>14.9</b> (10.8-17.1)	<b>25.7</b> (23.2-32.1)	<b>58.6</b> (39.6-71.4)	<b>97.0</b> (59.3-163)	396
12-19 years	11-12	<b>9.69</b> (7.91-11.9)	<b>12.2</b> (10.0-14.7)	<b>24.7</b> (21.0-30.7)	<b>44.2</b> (36.1-56.9)	<b>60.7</b> (51.3-83.4)	388
20 years and older	11-12	<b>7.04</b> (6.04-8.21)	<b>8.20</b> (7.20-9.60)	<b>18.2</b> (15.7-20.7)	<b>31.8</b> (27.3-38.3)	<b>46.4</b> (37.7-64.3)	1705
<b>Gender</b>							
Males	11-12	<b>8.14</b> (7.03-9.43)	<b>9.20</b> (8.50-10.1)	<b>20.1</b> (17.6-23.2)	<b>34.0</b> (29.7-43.1)	<b>56.9</b> (38.5-75.1)	1259
Females	11-12	<b>7.14</b> (6.05-8.41)	<b>9.00</b> (7.10-10.6)	<b>19.7</b> (17.5-21.9)	<b>36.1</b> (30.3-43.1)	<b>51.8</b> (44.3-68.0)	1230
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>8.96</b> (7.58-10.6)	<b>10.1</b> (7.70-13.1)	<b>20.6</b> (15.2-26.4)	<b>35.8</b> (29.1-45.4)	<b>50.3</b> (38.9-83.4)	316
Non-Hispanic blacks	11-12	<b>13.2</b> (11.2-15.6)	<b>15.3</b> (13.3-17.9)	<b>29.7</b> (26.4-32.8)	<b>53.1</b> (43.6-67.3)	<b>76.4</b> (60.3-100)	665
Non-Hispanic whites	11-12	<b>6.47</b> (5.66-7.39)	<b>7.60</b> (6.70-8.50)	<b>17.1</b> (15.2-18.4)	<b>30.3</b> (25.9-33.4)	<b>43.1</b> (32.3-59.3)	813
All Hispanics	11-12	<b>9.78</b> (8.15-11.7)	<b>11.0</b> (8.80-14.4)	<b>23.3</b> (20.0-27.0)	<b>38.9</b> (31.8-50.6)	<b>60.5</b> (45.4-93.3)	571
Asians	11-12	<b>6.77</b> (5.05-9.06)	<b>8.20</b> (5.80-10.8)	<b>18.9</b> (13.5-29.1)	<b>40.5</b> (29.1-58.6)	<b>64.3</b> (45.9-104)	352

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 0.4.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DBP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DBP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-*n*-butyl phthalate (MnBP) (creatinine corrected) (1999 – 2010)

Metabolite of Dibutyl phthalate (DBP) and Benzylbutyl phthalate (BzBP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.\*

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	22.4 (20.6-24.4)	21.9 (19.8-24.3)	38.9 (35.0-41.8)	68.3 (60.3-78.3)	97.7 (81.4-131)	2541
	01-02	17.8 (16.7-19.0)	17.4 (16.3-18.4)	30.3 (28.1-32.3)	52.4 (47.4-61.0)	81.3 (71.0-92.5)	2782
	03-04	19.8 (18.5-21.2)	19.3 (17.7-20.8)	33.9 (30.9-38.5)	59.0 (52.9-68.1)	91.6 (74.1-115)	2605
	05-06	19.2 (18.0-20.4)	18.3 (16.8-19.8)	30.8 (29.0-33.0)	50.8 (47.8-56.6)	77.8 (67.2-94.8)	2548
	07-08	19.0 (17.7-20.5)	18.8 (17.2-20.0)	31.4 (28.7-34.1)	52.0 (46.4-59.5)	77.1 (64.2-88.6)	2604
	09-10	15.3 (14.0-16.6)	14.4 (13.4-15.8)	23.6 (21.7-25.2)	38.7 (34.1-45.8)	57.4 (49.8-69.9)	2749
	Age group 6-11 years	99-00	41.9 (37.4-47.1)	39.1 (34.3-49.0)	65.9 (56.7-80.0)	108 (71.2-179)	159 (102-263)
01-02		35.4 (31.7-39.6)	35.1 (29.3-38.9)	55.4 (50.1-62.3)	84.0 (69.0-113)	147 (93.8-235)	393
03-04		38.4 (33.8-43.6)	39.0 (34.7-42.6)	59.3 (52.9-68.1)	104 (83.6-119)	137 (108-198)	342
05-06		33.6 (30.8-36.6)	33.9 (30.6-37.4)	50.6 (45.0-58.3)	78.5 (66.8-111)	128 (73.4-172)	356
07-08		33.1 (27.6-39.7)	34.2 (27.5-41.3)	51.9 (42.6-63.8)	81.8 (61.3-101)	109 (83.1-159)	389
09-10		28.3 (25.0-32.0)	26.7 (24.0-31.1)	47.8 (39.4-53.9)	78.6 (59.8-101)	130 (98.9-156)	415
12-19 years		99-00	24.3 (21.2-27.8)	23.7 (20.6-27.4)	37.6 (31.6-43.8)	63.3 (52.4-76.4)	88.1 (61.5-142)
	01-02	19.4 (17.3-21.7)	20.3 (17.5-22.3)	34.9 (30.5-37.9)	53.4 (45.2-73.9)	89.7 (60.3-106)	742
	03-04	20.0 (18.7-21.3)	19.8 (18.2-21.7)	30.7 (27.9-34.8)	52.7 (43.4-65.4)	74.4 (56.0-90.9)	729
	05-06	20.5 (19.0-22.2)	21.2 (18.8-22.9)	31.9 (29.6-33.8)	49.3 (42.1-56.4)	70.2 (52.0-108)	702
	07-08	20.4 (18.4-22.6)	21.9 (18.7-25.7)	33.8 (30.0-38.5)	50.7 (42.4-64.0)	72.4 (50.7-84.5)	401
	09-10	15.2 (13.8-16.8)	15.3 (13.8-18.4)	22.5 (21.1-24.8)	31.8 (28.2-34.6)	42.3 (33.8-51.2)	420
	20 years and older	99-00	20.4 (18.6-22.4)	19.5 (18.1-21.4)	34.9 (30.3-40.0)	62.4 (53.4-72.1)	91.0 (70.4-135)
01-02		16.1 (15.0-17.3)	15.5 (14.2-16.5)	26.3 (24.2-28.6)	44.2 (38.7-51.1)	71.6 (61.2-85.6)	1647
03-04		18.3 (17.0-19.6)	17.7 (16.6-19.2)	31.0 (27.4-34.0)	53.3 (46.5-64.2)	83.8 (65.3-114)	1534
05-06		17.8 (16.4-19.2)	16.8 (15.6-18.4)	28.1 (25.3-30.9)	46.1 (41.5-53.0)	74.3 (55.4-94.8)	1490
07-08		17.7 (16.3-19.2)	17.2 (15.7-18.8)	28.2 (25.8-30.5)	46.7 (42.0-53.3)	71.8 (57.8-89.5)	1814
09-10		14.3 (13.0-15.7)	13.5 (12.5-14.8)	21.6 (20.0-23.8)	34.5 (30.1-40.2)	50.9 (42.2-67.7)	1914
Gender Males		99-00	17.3 (16.1-18.6)	17.0 (15.5-18.8)	28.6 (25.8-32.1)	49.3 (42.6-53.5)	64.7 (57.3-71.5)
	01-02	14.4 (13.5-15.4)	13.7 (12.9-14.9)	22.9 (20.8-24.6)	39.9 (35.6-44.0)	60.0 (50.5-76.2)	1371
	03-04	15.7 (14.5-16.9)	14.8 (13.6-16.0)	25.4 (23.6-28.1)	41.4 (37.0-47.5)	59.4 (50.3-81.5)	1250
	05-06	15.9 (15.1-16.8)	15.4 (14.2-16.4)	24.9 (23.1-27.0)	38.6 (35.7-42.3)	51.2 (46.1-63.5)	1270
	07-08	15.5 (14.4-16.8)	14.7 (13.4-16.3)	24.9 (22.6-27.6)	40.8 (35.2-44.9)	55.2 (46.1-65.2)	1294
	09-10	13.0 (12.0-14.2)	12.8 (11.7-13.6)	19.9 (18.1-21.2)	30.3 (28.4-33.2)	45.3 (39.7-53.8)	1399
	Females	99-00	28.6 (25.3-32.3)	28.8 (25.5-30.5)	50.6 (41.9-56.3)	84.3 (69.2-106)	134 (93.6-155)
01-02		21.7 (19.6-23.9)	21.6 (19.7-23.6)	35.8 (33.0-38.7)	64.9 (58.9-70.2)	91.5 (81.4-103)	1411
03-04		24.8 (22.9-26.8)	24.1 (21.6-26.8)	42.9 (39.2-48.9)	74.9 (64.2-86.6)	117 (83.6-139)	1355
05-06		22.9 (20.9-25.1)	21.5 (19.4-24.6)	37.1 (33.3-41.9)	67.2 (56.8-74.4)	99.6 (77.8-128)	1278
07-08		23.1 (21.0-25.5)	22.8 (20.9-25.2)	38.0 (32.7-43.1)	62.7 (52.1-78.5)	89.8 (76.2-126)	1310
09-10		17.8 (16.0-19.7)	17.6 (15.1-19.4)	27.1 (24.4-30.3)	47.8 (37.9-53.8)	70.6 (53.8-91.5)	1350

\*In the 1999-2000 survey period, concentrations of mono-isobutyl and mono-*n*-butyl phthalates were measured together and expressed as the combined value, monobutyl phthalate (MBP)

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DBP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DBP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)



## Urinary Mono-*n*-butyl phthalate (MnBP) (creatinine corrected) (1999 – 2010)

Metabolite of Dibutyl phthalate (DBP) and Benzylbutyl phthalate (BzBP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.\*

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00	21.2 (19.3-23.3)	20.0 (18.2-22.9)	40.1 (32.6-44.3)	63.6 (57.5-70.1)	82.9 (73.9-100)	814
	01-02	19.0 (16.2-22.2)	19.2 (16.3-21.9)	33.7 (28.3-39.6)	61.0 (43.9-84.0)	86.7 (60.6-128)	677
	03-04	21.8 (17.7-26.8)	20.4 (17.4-24.0)	37.6 (29.6-50.1)	75.3 (55.6-92.0)	96.3 (76.4-164)	652
	05-06	20.1 (17.8-22.8)	19.1 (16.4-23.0)	34.3 (29.2-42.6)	64.8 (54.6-75.9)	98.1 (70.2-154)	637
	07-08	21.7 (17.7-26.5)	20.9 (16.4-27.1)	36.9 (29.1-46.7)	59.5 (47.1-88.9)	102 (63.4-161)	531
Non-Hispanic blacks	09-10	17.1 (15.5-18.8)	15.0 (14.0-16.3)	27.4 (23.6-31.6)	51.0 (42.9-69.6)	88.1 (59.8-100)	566
	99-00	23.9 (21.3-26.8)	25.0 (20.7-28.1)	42.2 (35.9-49.6)	70.0 (61.1-83.9)	96.2 (83.9-105)	603
	01-02	20.8 (18.8-23.1)	20.2 (19.2-22.8)	34.5 (30.9-36.8)	62.8 (50.6-74.6)	85.6 (72.1-99.0)	703
	03-04	21.4 (19.5-23.4)	22.0 (19.6-24.8)	35.4 (31.6-42.7)	65.7 (54.0-75.3)	94.0 (71.1-128)	699
	05-06	19.1 (16.4-22.1)	18.5 (16.2-20.7)	30.1 (24.9-39.5)	54.6 (42.0-81.3)	84.7 (51.3-125)	678
Non-Hispanic whites	07-08	19.4 (17.3-21.7)	19.2 (16.8-22.0)	30.5 (27.0-36.5)	50.7 (42.8-60.4)	78.3 (59.3-125)	597
	09-10	15.9 (14.5-17.4)	15.3 (13.5-18.6)	24.9 (22.6-27.2)	37.6 (33.8-45.4)	51.2 (44.7-70.6)	516
	99-00	21.3 (19.1-23.8)	20.5 (18.6-23.2)	36.4 (31.5-41.0)	67.1 (56.7-78.4)	97.7 (73.5-142)	912
	01-02	17.4 (16.2-18.6)	16.5 (15.3-17.8)	29.0 (26.6-32.2)	51.1 (46.0-60.0)	81.4 (68.1-99.0)	1216
	03-04	18.6 (17.3-20.1)	17.9 (16.7-19.8)	31.6 (27.7-37.8)	53.3 (48.2-61.5)	81.5 (64.2-108)	1088
	05-06	18.7 (17.5-19.9)	17.9 (16.3-19.5)	29.7 (27.5-32.0)	48.7 (42.2-55.4)	74.3 (58.3-94.5)	1038
	07-08	18.5 (17.3-19.9)	18.1 (16.6-19.6)	30.4 (27.3-33.3)	50.9 (43.6-61.0)	75.8 (62.6-88.0)	1077
	09-10	14.6 (13.5-15.7)	13.9 (13.2-15.0)	22.1 (20.3-24.2)	35.3 (30.9-40.6)	52.5 (45.8-63.0)	1206

\*In the 1999-2000 survey period, concentrations of mono-isobutyl and mono-*n*-butyl phthalates were measured together and expressed as the combined value, monobutyl phthalate (MBP)

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DBP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DBP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)



## Urinary Mono-*n*-butyl phthalate (MnBP) (creatinine corrected) (2011 - 2012)

Metabolite of Dibutyl phthalate (DBP) and Benzylbutyl phthalate (BzBP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>8.66</b> (7.79-9.62)	<b>9.04</b> (8.30-9.92)	<b>15.8</b> (15.0-17.3)	<b>27.9</b> (24.2-30.9)	<b>41.2</b> (33.0-51.8)	2487
<b>Age group</b>							
6-11 years	11-12	<b>15.9</b> (13.0-19.5)	<b>17.7</b> (15.0-20.6)	<b>29.8</b> (24.8-34.4)	<b>51.2</b> (38.4-66.4)	<b>73.3</b> (47.3-114)	395
12-19 years	11-12	<b>9.44</b> (8.71-10.2)	<b>10.5</b> (8.61-12.7)	<b>15.7</b> (14.9-17.8)	<b>28.1</b> (22.0-30.0)	<b>37.0</b> (29.2-46.7)	388
20 years and older	11-12	<b>8.00</b> (7.09-9.01)	<b>8.32</b> (7.64-9.12)	<b>14.6</b> (13.0-16.0)	<b>23.4</b> (21.4-27.9)	<b>36.2</b> (29.4-47.3)	1704
<b>Gender</b>							
Males	11-12	<b>7.61</b> (6.65-8.69)	<b>8.07</b> (7.54-8.85)	<b>13.7</b> (11.9-15.5)	<b>22.7</b> (19.3-26.3)	<b>34.6</b> (24.1-53.0)	1258
Females	11-12	<b>9.81</b> (8.86-10.9)	<b>10.3</b> (9.18-11.5)	<b>18.1</b> (16.8-19.7)	<b>31.8</b> (28.1-34.6)	<b>44.8</b> (38.4-54.6)	1229
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>10.1</b> (8.62-11.8)	<b>10.7</b> (8.62-12.9)	<b>17.6</b> (14.2-19.7)	<b>32.6</b> (24.7-46.4)	<b>55.9</b> (35.1-76.6)	316
Non-Hispanic blacks	11-12	<b>10.3</b> (8.80-12.0)	<b>11.1</b> (9.27-12.6)	<b>19.1</b> (17.0-21.5)	<b>31.7</b> (25.7-37.0)	<b>43.5</b> (34.0-56.0)	665
Non-Hispanic whites	11-12	<b>7.85</b> (6.92-8.91)	<b>8.13</b> (7.43-8.99)	<b>14.5</b> (13.0-15.9)	<b>22.9</b> (21.4-27.9)	<b>34.6</b> (27.9-46.4)	811
All Hispanics	11-12	<b>11.0</b> (9.71-12.3)	<b>11.2</b> (10.3-12.5)	<b>19.3</b> (15.8-24.9)	<b>36.1</b> (28.8-47.4)	<b>55.6</b> (42.1-65.6)	571
Asians	11-12	<b>9.07</b> (7.35-11.2)	<b>9.84</b> (7.57-11.9)	<b>19.0</b> (14.0-24.5)	<b>35.6</b> (25.9-45.0)	<b>46.2</b> (41.5-73.3)	352

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DBP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DBP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-isobutyl phthalate (MiBP) (2001 – 2010)

Metabolite of Di-isobutyl phthalate (DiBP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	2.71 (2.49-2.94)	2.70 (2.40-3.00)	5.70 (5.30-6.10)	12.0 (11.4-12.7)	17.9 (16.3-19.8)	2782
	03-04	3.80 (3.40-4.25)	4.20 (3.70-4.80)	8.40 (7.40-9.50)	15.0 (13.1-17.3)	21.3 (18.6-26.0)	2605
	05-06	5.20 (4.64-5.83)	5.80 (5.40-6.60)	11.9 (10.6-13.3)	21.3 (18.7-23.7)	31.6 (27.1-37.2)	2548
	07-08	7.15 (6.59-7.77)	8.00 (7.50-8.60)	15.3 (13.9-16.9)	27.2 (24.6-30.4)	39.1 (35.4-43.8)	2604
	09-10	7.64 (6.88-8.49)	8.30 (7.24-9.27)	15.8 (14.5-17.4)	27.6 (24.7-31.7)	41.3 (35.6-47.5)	2749
Age group 6-11 years	01-02	4.22 (3.28-5.43)	4.40 (3.20-6.20)	10.7 (7.30-13.4)	18.6 (14.2-22.0)	23.4 (20.4-27.8)	393
	03-04	6.56 (5.24-8.22)	7.00 (5.10-9.10)	12.8 (9.40-17.7)	24.3 (19.6-34.5)	40.6 (29.3-48.5)	342
	05-06	8.53 (7.67-9.48)	9.00 (8.20-10.3)	15.8 (13.7-19.2)	33.2 (27.5-38.4)	49.1 (33.2-54.4)	356
	07-08	10.7 (8.94-12.8)	11.4 (8.90-13.2)	21.1 (16.6-27.2)	35.9 (30.2-44.7)	55.4 (36.4-75.5)	389
	09-10	10.2 (9.10-11.4)	10.9 (9.45-12.2)	20.8 (18.8-23.6)	35.7 (28.8-46.9)	55.4 (41.2-75.4)	415
12-19 years	01-02	3.48 (2.90-4.17)	3.80 (2.90-4.40)	7.40 (6.00-9.00)	14.5 (11.7-18.6)	22.3 (16.2-33.4)	742
	03-04	4.55 (3.73-5.55)	5.60 (4.50-6.30)	10.1 (8.00-11.4)	17.1 (13.3-20.9)	22.7 (18.5-29.1)	729
	05-06	7.46 (6.53-8.51)	7.90 (6.90-9.80)	16.2 (13.6-19.3)	29.2 (23.6-31.3)	34.1 (30.1-49.9)	702
	07-08	10.2 (8.53-12.3)	10.5 (8.40-12.9)	22.3 (17.0-26.9)	41.6 (32.9-48.1)	56.2 (44.6-82.7)	401
	09-10	10.7 (9.54-12.1)	12.3 (10.7-13.6)	20.2 (17.3-22.2)	36.1 (28.3-46.0)	49.8 (42.3-60.2)	420
20 years and older	01-02	2.46 (2.30-2.63)	2.40 (2.20-2.70)	5.10 (4.80-5.50)	10.6 (9.40-12.0)	16.3 (13.6-18.5)	1647
	03-04	3.46 (3.11-3.84)	3.90 (3.40-4.30)	7.50 (6.70-8.50)	13.3 (11.5-16.5)	19.9 (16.0-25.0)	1534
	05-06	4.65 (4.07-5.30)	5.40 (4.70-6.00)	10.6 (9.50-12.0)	18.7 (16.0-21.9)	29.0 (22.1-34.4)	1490
	07-08	6.47 (5.91-7.09)	7.50 (6.70-8.00)	14.1 (12.5-16.1)	24.5 (21.3-27.7)	34.2 (27.9-39.5)	1814
	09-10	7.03 (6.26-7.90)	7.55 (6.66-8.57)	14.6 (12.8-16.6)	25.7 (23.2-28.5)	38.6 (31.4-43.6)	1914
Gender Males	01-02	2.73 (2.50-2.97)	2.80 (2.40-3.20)	5.60 (5.00-6.10)	11.6 (10.1-12.6)	16.6 (13.6-20.1)	1371
	03-04	4.07 (3.56-4.66)	4.30 (3.80-5.10)	9.20 (7.50-10.2)	16.0 (13.3-18.5)	22.7 (17.3-30.3)	1250
	05-06	5.65 (5.08-6.29)	6.20 (5.60-6.90)	11.9 (10.7-13.3)	22.1 (18.7-26.5)	32.3 (25.5-39.8)	1270
	07-08	7.52 (6.84-8.26)	8.30 (7.70-9.40)	15.2 (13.6-17.2)	25.0 (21.7-28.4)	38.3 (27.3-44.2)	1294
	09-10	7.80 (6.96-8.74)	8.48 (7.44-9.16)	15.3 (14.0-17.0)	26.2 (23.2-30.9)	39.1 (31.1-46.4)	1399
Females	01-02	2.68 (2.44-2.96)	2.60 (2.30-3.00)	5.80 (5.30-6.50)	12.6 (11.0-14.7)	18.7 (16.3-24.0)	1411
	03-04	3.56 (3.19-3.97)	4.10 (3.50-4.50)	8.00 (7.10-9.10)	14.2 (12.5-16.6)	20.5 (17.9-23.0)	1355
	05-06	4.80 (4.15-5.55)	5.50 (4.70-6.60)	11.9 (10.1-13.6)	19.6 (17.0-24.1)	29.8 (24.6-35.9)	1278
	07-08	6.82 (6.21-7.49)	7.40 (6.50-8.30)	15.5 (14.5-16.9)	29.1 (27.0-32.9)	39.8 (36.2-46.7)	1310
	09-10	7.50 (6.68-8.43)	8.07 (6.94-9.62)	16.4 (14.0-18.9)	29.1 (25.3-33.5)	45.0 (36.0-52.7)	1350

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, 07-08, and 09-10 are 1.0, 0.3, 0.3, 0.3, and 0.2 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DBP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DBP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-isobutyl phthalate (MiBP) (2001 – 2010)

Metabolite of Di-isobutyl phthalate (DiBP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	01-02	<b>3.26</b> (2.72-3.91)	<b>3.40</b> (2.70-4.30)	<b>7.20</b> (6.20-9.30)	<b>12.2</b> (11.2-14.7)	<b>18.4</b> (14.1-25.6)	677
	03-04	<b>4.81</b> (3.85-6.02)	<b>5.10</b> (4.00-6.70)	<b>10.2</b> (8.20-12.6)	<b>18.3</b> (13.5-24.5)	<b>26.0</b> (19.0-38.5)	652
	05-06	<b>6.88</b> (5.58-8.48)	<b>7.30</b> (6.00-8.90)	<b>14.5</b> (11.5-17.5)	<b>26.3</b> (20.7-34.1)	<b>40.4</b> (33.8-46.8)	637
	07-08	<b>9.30</b> (8.12-10.6)	<b>10.2</b> (9.40-11.1)	<b>17.4</b> (15.9-18.8)	<b>31.9</b> (24.0-39.2)	<b>47.6</b> (34.2-58.2)	531
	09-10	<b>9.34</b> (8.22-10.6)	<b>9.97</b> (8.31-11.6)	<b>18.8</b> (16.0-21.8)	<b>31.7</b> (25.6-37.2)	<b>46.4</b> (37.3-54.0)	566
Non-Hispanic blacks	01-02	<b>4.90</b> (4.46-5.37)	<b>5.30</b> (4.60-6.00)	<b>10.7</b> (9.20-12.0)	<b>18.3</b> (16.1-20.1)	<b>25.5</b> (20.7-31.3)	703
	03-04	<b>6.67</b> (5.97-7.46)	<b>6.90</b> (6.30-7.50)	<b>12.6</b> (10.9-14.7)	<b>25.7</b> (17.7-31.0)	<b>33.5</b> (27.3-43.9)	699
	05-06	<b>8.37</b> (7.06-9.91)	<b>8.70</b> (7.50-10.2)	<b>16.1</b> (13.8-19.7)	<b>30.1</b> (22.1-37.2)	<b>41.4</b> (30.1-67.7)	678
	07-08	<b>10.7</b> (9.08-12.5)	<b>12.5</b> (10.5-14.8)	<b>23.1</b> (21.7-25.0)	<b>38.9</b> (32.4-43.5)	<b>47.6</b> (44.5-57.0)	597
	09-10	<b>14.0</b> (11.9-16.4)	<b>15.4</b> (12.9-17.8)	<b>27.5</b> (22.4-34.1)	<b>47.6</b> (34.4-65.6)	<b>66.0</b> (46.3-85.2)	516
Non-Hispanic whites	01-02	<b>2.33</b> (2.10-2.59)	<b>2.30</b> (1.90-2.60)	<b>4.90</b> (4.40-5.30)	<b>9.60</b> (8.30-11.6)	<b>15.6</b> (13.0-18.6)	1216
	03-04	<b>3.17</b> (2.82-3.56)	<b>3.50</b> (3.00-4.00)	<b>6.80</b> (5.90-7.90)	<b>12.5</b> (10.6-14.5)	<b>17.6</b> (14.7-20.8)	1088
	05-06	<b>4.41</b> (3.86-5.04)	<b>5.00</b> (4.20-5.70)	<b>10.3</b> (9.10-11.5)	<b>18.7</b> (16.3-21.1)	<b>28.8</b> (22.1-32.2)	1038
	07-08	<b>6.32</b> (5.78-6.93)	<b>7.20</b> (6.40-7.90)	<b>13.6</b> (12.4-14.9)	<b>24.3</b> (20.1-27.3)	<b>33.8</b> (27.0-39.5)	1077
	09-10	<b>6.34</b> (5.65-7.10)	<b>6.92</b> (6.08-7.90)	<b>12.9</b> (11.7-14.5)	<b>21.6</b> (19.1-24.2)	<b>29.6</b> (26.0-34.3)	1206

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, 07-08, and 09-10 are 1.0, 0.3, 0.3, 0.3, and 0.2 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DBP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DBP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-isobutyl phthalate (MiBP) (2011 - 2012)

*Metabolite of Di-isobutyl phthalate (DiBP)*

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>6.00</b> (5.41-6.65)	<b>6.30</b> (5.80-6.90)	<b>13.0</b> (11.9-14.5)	<b>25.4</b> (22.3-29.7)	<b>36.5</b> (33.4-41.0)	2489
<b>Age group</b>							
6-11 years	11-12	<b>8.28</b> (6.93-9.91)	<b>9.40</b> (6.90-11.6)	<b>18.6</b> (14.1-23.6)	<b>31.8</b> (26.0-38.2)	<b>43.1</b> (33.6-66.5)	396
12-19 years	11-12	<b>7.73</b> (6.74-8.86)	<b>8.10</b> (6.90-9.60)	<b>19.0</b> (14.5-23.0)	<b>34.2</b> (25.3-38.5)	<b>43.3</b> (36.5-45.4)	388
20 years and older	11-12	<b>5.57</b> (4.92-6.31)	<b>6.00</b> (5.40-6.60)	<b>12.2</b> (10.6-13.6)	<b>23.6</b> (19.4-27.8)	<b>34.4</b> (31.1-39.2)	1705
<b>Gender</b>							
Males	11-12	<b>6.54</b> (5.70-7.51)	<b>6.60</b> (5.70-7.50)	<b>13.6</b> (11.7-15.8)	<b>27.6</b> (21.8-35.1)	<b>39.3</b> (33.6-46.9)	1259
Females	11-12	<b>5.52</b> (4.95-6.15)	<b>6.10</b> (5.60-6.80)	<b>12.7</b> (11.3-14.5)	<b>24.1</b> (21.2-26.3)	<b>32.7</b> (30.2-36.5)	1230
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>6.71</b> (5.77-7.82)	<b>6.60</b> (5.30-8.40)	<b>12.4</b> (10.5-15.2)	<b>23.7</b> (15.5-31.2)	<b>33.4</b> (23.7-54.7)	316
Non-Hispanic blacks	11-12	<b>9.88</b> (8.55-11.4)	<b>10.4</b> (8.90-12.5)	<b>19.7</b> (16.5-23.6)	<b>36.5</b> (30.8-41.2)	<b>49.9</b> (41.2-67.8)	665
Non-Hispanic whites	11-12	<b>5.23</b> (4.71-5.82)	<b>5.50</b> (4.90-6.00)	<b>11.7</b> (9.40-13.3)	<b>23.7</b> (17.6-28.8)	<b>34.2</b> (28.6-37.7)	813
All Hispanics	11-12	<b>7.22</b> (5.89-8.87)	<b>7.70</b> (5.70-10.0)	<b>13.7</b> (11.4-18.2)	<b>24.8</b> (18.8-32.4)	<b>33.4</b> (23.9-64.8)	571
Asians	11-12	<b>5.70</b> (4.35-7.46)	<b>6.20</b> (4.30-8.70)	<b>13.8</b> (9.80-21.2)	<b>27.8</b> (19.9-39.3)	<b>40.1</b> (27.8-65.3)	352

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 0.2.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DBP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DBP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-isobutyl phthalate (MiBP) (creatinine corrected) (2001 – 2010)

Metabolite of Di-isobutyl phthalate (DiBP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	<b>2.54</b> (2.36-2.73)	<b>2.46</b> (2.26-2.68)	<b>4.54</b> (4.20-4.86)	<b>8.02</b> (7.78-8.66)	<b>12.0</b> (10.8-13.5)	2782
	03-04	<b>3.57</b> (3.18-4.00)	<b>3.57</b> (3.15-4.08)	<b>6.21</b> (5.36-7.17)	<b>10.9</b> (9.47-12.7)	<b>15.4</b> (12.8-18.6)	2605
	05-06	<b>5.07</b> (4.68-5.50)	<b>5.07</b> (4.74-5.45)	<b>8.81</b> (8.08-9.55)	<b>15.2</b> (13.4-16.5)	<b>21.3</b> (18.3-24.3)	2548
	07-08	<b>7.21</b> (6.76-7.70)	<b>7.25</b> (6.77-7.81)	<b>12.1</b> (11.2-13.3)	<b>19.5</b> (17.2-21.5)	<b>27.8</b> (24.9-31.3)	2604
	09-10	<b>7.98</b> (7.34-8.68)	<b>7.86</b> (7.12-8.52)	<b>12.4</b> (11.2-14.1)	<b>20.1</b> (17.3-23.0)	<b>26.8</b> (23.7-32.8)	2749
Age group 6-11 years	01-02	<b>4.81</b> (3.89-5.94)	<b>5.18</b> (4.13-6.32)	<b>9.20</b> (7.03-11.7)	<b>15.2</b> (11.1-24.3)	<b>24.3</b> (13.9-40.3)	393
	03-04	<b>6.94</b> (5.79-8.31)	<b>7.03</b> (5.29-8.95)	<b>11.8</b> (9.56-15.1)	<b>18.6</b> (15.1-25.1)	<b>28.7</b> (21.8-36.9)	342
	05-06	<b>9.39</b> (8.56-10.3)	<b>9.46</b> (8.50-10.3)	<b>15.3</b> (13.0-18.1)	<b>25.2</b> (21.6-30.1)	<b>37.9</b> (28.0-65.5)	356
	07-08	<b>13.2</b> (11.1-15.5)	<b>12.9</b> (10.5-15.7)	<b>21.9</b> (17.8-26.0)	<b>35.5</b> (28.3-43.5)	<b>52.6</b> (41.4-58.3)	389
	09-10	<b>13.2</b> (11.8-14.9)	<b>12.6</b> (11.0-14.7)	<b>20.9</b> (18.7-24.9)	<b>35.3</b> (28.6-46.1)	<b>53.0</b> (39.1-95.1)	415
12-19 years	01-02	<b>2.68</b> (2.29-3.15)	<b>2.83</b> (2.39-3.33)	<b>4.79</b> (4.04-5.51)	<b>7.62</b> (6.18-10.2)	<b>12.8</b> (8.76-15.6)	742
	03-04	<b>3.41</b> (2.86-4.05)	<b>3.69</b> (2.99-4.31)	<b>5.75</b> (4.69-7.04)	<b>9.32</b> (7.17-12.0)	<b>13.5</b> (9.52-20.1)	729
	05-06	<b>5.56</b> (5.05-6.11)	<b>5.82</b> (5.20-6.53)	<b>9.05</b> (8.06-10.4)	<b>14.3</b> (13.4-16.5)	<b>20.3</b> (17.7-26.8)	702
	07-08	<b>7.95</b> (6.96-9.09)	<b>8.30</b> (6.89-9.76)	<b>13.7</b> (11.3-15.7)	<b>21.3</b> (16.3-28.4)	<b>28.7</b> (20.5-62.6)	401
	09-10	<b>8.63</b> (7.97-9.34)	<b>8.94</b> (7.87-9.78)	<b>12.7</b> (11.7-14.9)	<b>19.5</b> (16.5-25.3)	<b>28.8</b> (20.6-53.4)	420
20 years and older	01-02	<b>2.33</b> (2.20-2.46)	<b>2.26</b> (2.08-2.43)	<b>3.89</b> (3.65-4.25)	<b>7.31</b> (7.00-7.78)	<b>10.6</b> (9.46-11.3)	1647
	03-04	<b>3.32</b> (3.00-3.68)	<b>3.33</b> (3.00-3.81)	<b>5.59</b> (4.93-6.51)	<b>9.84</b> (8.65-11.2)	<b>13.5</b> (11.4-16.0)	1534
	05-06	<b>4.66</b> (4.23-5.13)	<b>4.62</b> (4.36-5.03)	<b>8.00</b> (7.23-8.78)	<b>13.5</b> (11.6-15.7)	<b>18.2</b> (16.1-23.0)	1490
	07-08	<b>6.65</b> (6.21-7.12)	<b>6.73</b> (6.29-7.20)	<b>11.1</b> (10.2-12.1)	<b>17.1</b> (15.6-18.6)	<b>23.8</b> (21.0-26.7)	1814
	09-10	<b>7.45</b> (6.81-8.15)	<b>7.24</b> (6.69-7.89)	<b>11.6</b> (10.4-12.6)	<b>17.7</b> (15.1-21.9)	<b>23.8</b> (20.7-28.8)	1914
Gender Males	01-02	<b>2.22</b> (2.09-2.35)	<b>2.18</b> (1.97-2.37)	<b>3.76</b> (3.58-4.11)	<b>7.38</b> (6.64-7.95)	<b>11.1</b> (10.1-12.5)	1371
	03-04	<b>3.20</b> (2.80-3.66)	<b>3.19</b> (2.74-3.56)	<b>5.84</b> (4.79-6.56)	<b>10.0</b> (8.27-12.2)	<b>13.9</b> (11.5-19.1)	1250
	05-06	<b>4.54</b> (4.19-4.92)	<b>4.45</b> (4.21-4.81)	<b>7.95</b> (6.95-8.73)	<b>13.4</b> (11.6-15.8)	<b>18.5</b> (16.7-19.8)	1270
	07-08	<b>6.33</b> (5.91-6.79)	<b>6.36</b> (5.93-6.77)	<b>10.4</b> (9.43-11.3)	<b>16.4</b> (15.0-19.7)	<b>24.1</b> (21.1-27.7)	1294
	09-10	<b>6.99</b> (6.44-7.59)	<b>6.70</b> (6.26-7.21)	<b>10.6</b> (9.80-11.5)	<b>17.5</b> (15.4-19.8)	<b>23.4</b> (20.9-27.3)	1399
Females	01-02	<b>2.88</b> (2.61-3.18)	<b>2.85</b> (2.52-3.18)	<b>5.14</b> (4.67-5.89)	<b>8.66</b> (8.02-10.1)	<b>13.7</b> (11.1-15.0)	1411
	03-04	<b>3.96</b> (3.56-4.42)	<b>4.00</b> (3.57-4.45)	<b>6.73</b> (5.64-7.80)	<b>11.6</b> (10.2-13.0)	<b>15.7</b> (13.0-18.7)	1355
	05-06	<b>5.64</b> (5.04-6.32)	<b>5.86</b> (5.39-6.39)	<b>9.61</b> (8.85-10.6)	<b>15.8</b> (14.3-18.1)	<b>24.3</b> (18.7-32.5)	1278
	07-08	<b>8.18</b> (7.46-8.96)	<b>8.70</b> (7.78-9.47)	<b>13.9</b> (12.2-15.2)	<b>21.3</b> (18.3-25.3)	<b>31.6</b> (26.4-34.7)	1310
	09-10	<b>9.05</b> (8.22-9.97)	<b>9.13</b> (8.19-9.90)	<b>14.4</b> (12.2-16.2)	<b>22.0</b> (18.1-26.3)	<b>29.8</b> (25.8-36.4)	1350

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DBP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DBP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-isobutyl phthalate (MiBP) (creatinine corrected) (2001 – 2010)

*Metabolite of Di-isobutyl phthalate (DiBP)*

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Race/ethnicity</b>							
Mexican Americans	01-02	<b>3.07</b> (2.58-3.66)	<b>2.98</b> (2.53-3.82)	<b>5.82</b> (4.91-6.99)	<b>10.6</b> (8.28-13.3)	<b>16.0</b> (12.6-19.4)	677
	03-04	<b>4.34</b> (3.47-5.43)	<b>4.47</b> (3.53-5.24)	<b>7.75</b> (6.33-9.69)	<b>13.1</b> (11.9-16.8)	<b>23.3</b> (17.9-26.1)	652
	05-06	<b>6.19</b> (5.24-7.31)	<b>6.17</b> (5.59-7.02)	<b>10.9</b> (9.61-12.3)	<b>18.6</b> (17.1-21.5)	<b>28.3</b> (23.7-36.2)	637
	07-08	<b>9.07</b> (7.87-10.5)	<b>8.94</b> (8.07-10.3)	<b>14.6</b> (12.4-18.0)	<b>25.9</b> (21.1-32.4)	<b>36.1</b> (28.0-42.3)	531
	09-10	<b>9.27</b> (8.37-10.3)	<b>8.95</b> (8.00-10.0)	<b>14.6</b> (12.8-17.3)	<b>25.6</b> (23.1-28.2)	<b>40.6</b> (28.7-47.4)	566
Non-Hispanic blacks	01-02	<b>3.44</b> (3.20-3.69)	<b>3.52</b> (2.95-3.81)	<b>6.11</b> (5.03-7.04)	<b>10.6</b> (8.94-12.4)	<b>15.6</b> (12.6-19.7)	703
	03-04	<b>4.74</b> (4.07-5.51)	<b>4.65</b> (4.10-5.30)	<b>7.81</b> (6.38-10.0)	<b>15.2</b> (10.8-18.4)	<b>19.9</b> (15.7-28.7)	699
	05-06	<b>5.88</b> (5.12-6.76)	<b>5.86</b> (5.03-7.03)	<b>9.74</b> (8.21-11.3)	<b>14.9</b> (12.0-19.9)	<b>21.4</b> (14.9-29.7)	678
	07-08	<b>8.28</b> (7.20-9.52)	<b>8.96</b> (8.33-9.71)	<b>14.4</b> (12.9-15.7)	<b>21.6</b> (20.3-24.3)	<b>29.6</b> (24.3-37.7)	597
	09-10	<b>10.1</b> (8.76-11.7)	<b>10.5</b> (9.41-11.6)	<b>15.2</b> (12.9-19.2)	<b>24.1</b> (19.3-32.2)	<b>33.2</b> (26.3-42.0)	516
Non-Hispanic whites	01-02	<b>2.31</b> (2.11-2.52)	<b>2.20</b> (2.01-2.43)	<b>3.80</b> (3.53-4.39)	<b>7.30</b> (6.72-7.78)	<b>10.7</b> (9.62-12.6)	1216
	03-04	<b>3.13</b> (2.76-3.54)	<b>3.17</b> (2.76-3.72)	<b>5.28</b> (4.55-6.21)	<b>8.92</b> (7.64-10.3)	<b>11.8</b> (10.2-15.1)	1088
	05-06	<b>4.64</b> (4.25-5.07)	<b>4.58</b> (4.35-4.91)	<b>8.28</b> (7.45-9.01)	<b>13.7</b> (12.2-15.6)	<b>18.8</b> (16.9-22.2)	1038
	07-08	<b>6.60</b> (6.14-7.10)	<b>6.70</b> (6.26-7.08)	<b>10.9</b> (10.0-12.1)	<b>17.0</b> (15.2-20.5)	<b>24.9</b> (20.5-29.1)	1077
	09-10	<b>7.12</b> (6.62-7.66)	<b>6.95</b> (6.51-7.40)	<b>10.7</b> (10.1-11.8)	<b>17.0</b> (14.6-20.3)	<b>22.0</b> (19.1-26.2)	1206

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DBP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DBP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-isobutyl phthalate (MiBP) (creatinine corrected) (2011 - 2012)

*Metabolite of Di-isobutyl phthalate (DiBP)*

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Total</b>	11-12	<b>6.83</b> (6.30-7.40)	<b>6.77</b> (6.19-7.27)	<b>11.6</b> (10.9-12.6)	<b>19.4</b> (17.5-22.6)	<b>27.5</b> (24.5-31.6)	2487
<b>Age group</b>							
6-11 years	11-12	<b>11.8</b> (10.2-13.6)	<b>12.2</b> (10.4-14.2)	<b>18.5</b> (16.2-22.4)	<b>31.1</b> (24.5-46.3)	<b>46.4</b> (30.8-70.0)	395
12-19 years	11-12	<b>7.53</b> (6.81-8.32)	<b>7.61</b> (6.84-8.26)	<b>11.7</b> (10.9-13.8)	<b>19.9</b> (14.9-24.8)	<b>25.6</b> (20.6-33.5)	388
20 years and older	11-12	<b>6.34</b> (5.83-6.89)	<b>6.19</b> (5.56-6.85)	<b>10.8</b> (9.54-11.6)	<b>18.1</b> (15.5-20.1)	<b>25.2</b> (23.3-29.9)	1704
<b>Gender</b>							
Males	11-12	<b>6.13</b> (5.47-6.86)	<b>5.91</b> (5.12-6.88)	<b>10.7</b> (8.81-12.2)	<b>17.6</b> (14.6-22.4)	<b>25.8</b> (22.2-33.3)	1258
Females	11-12	<b>7.58</b> (7.03-8.17)	<b>7.57</b> (6.94-7.90)	<b>12.8</b> (11.6-13.8)	<b>21.2</b> (18.5-24.5)	<b>28.5</b> (25.2-31.6)	1229
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>7.57</b> (6.49-8.81)	<b>7.00</b> (5.61-8.77)	<b>12.3</b> (9.74-15.2)	<b>18.4</b> (15.2-30.8)	<b>33.1</b> (18.0-61.6)	316
Non-Hispanic blacks	11-12	<b>7.69</b> (6.69-8.83)	<b>7.83</b> (6.73-8.89)	<b>13.2</b> (10.6-15.4)	<b>20.6</b> (17.1-26.9)	<b>30.9</b> (24.5-35.8)	665
Non-Hispanic whites	11-12	<b>6.36</b> (5.68-7.12)	<b>6.12</b> (5.43-6.93)	<b>11.0</b> (9.52-11.8)	<b>18.5</b> (14.8-22.9)	<b>25.8</b> (21.2-33.8)	811
All Hispanics	11-12	<b>8.09</b> (6.94-9.43)	<b>8.02</b> (6.80-9.43)	<b>13.0</b> (10.6-15.9)	<b>21.0</b> (15.6-30.5)	<b>30.5</b> (20.5-45.0)	571
Asians	11-12	<b>7.64</b> (6.21-9.39)	<b>7.84</b> (6.10-9.68)	<b>14.3</b> (10.5-17.7)	<b>25.0</b> (18.2-30.6)	<b>33.2</b> (22.5-55.5)	352

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DBP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DBP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)



## Urinary Mono-cyclohexyl phthalate (MCHP) (1999 – 2010) ‡

Metabolite of Dicyclohexyl phthalate (DCHP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.\*\*

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	< LOD	< LOD	2.21 (<LOD-3.42)	2541
	01-02	*	< LOD	< LOD	.804 (.603-1.01)	1.01 (.804-1.21)	2782
	03-04	*	< LOD	< LOD	< LOD	.603 (.402-.804)	2605
	05-06	*	< LOD	< LOD	< LOD	< LOD	2548
	07-08	*	< LOD	< LOD	< LOD	< LOD	2604
	09-10	*	< LOD	< LOD	< LOD	< LOD	2749
Age group 6-11 years	99-00	*	< LOD	< LOD	2.01 (<LOD-2.21)	3.42 (2.01-7.64)	328
	01-02	*	< LOD	< LOD	.804 (.603-1.01)	1.21 (1.01-1.41)	393
	03-04	*	< LOD	< LOD	.603 (<LOD-.804)	1.01 (.603-1.01)	342
	05-06	*	< LOD	< LOD	< LOD	< LOD	356
	07-08	*	< LOD	< LOD	< LOD	< LOD	389
	09-10	*	< LOD	< LOD	< LOD	.960 (.640-1.57)	415
12-19 years	99-00	*	< LOD	< LOD	2.01 (<LOD-3.02)	3.42 (2.01-5.03)	752
	01-02	*	< LOD	< LOD	.804 (.603-1.01)	1.01 (.804-1.21)	742
	03-04	*	< LOD	< LOD	.402 (<LOD-.603)	.804 (.603-1.21)	729
	05-06	*	< LOD	< LOD	< LOD	< LOD	702
	07-08	*	< LOD	< LOD	< LOD	< LOD	401
	09-10	*	< LOD	< LOD	< LOD	< LOD	420
20 years and older	99-00	*	< LOD	< LOD	< LOD	< LOD	1461
	01-02	*	< LOD	< LOD	.804 (<LOD-1.01)	1.01 (.804-1.21)	1647
	03-04	*	< LOD	< LOD	< LOD	.603 (.402-.603)	1534
	05-06	*	< LOD	< LOD	< LOD	< LOD	1490
	07-08	*	< LOD	< LOD	< LOD	< LOD	1814
	09-10	*	< LOD	< LOD	< LOD	< LOD	1914
Gender Males	99-00	*	< LOD	< LOD	< LOD	2.21 (<LOD-4.02)	1215
	01-02	*	< LOD	< LOD	.804 (.603-1.01)	1.01 (.804-1.21)	1371
	03-04	*	< LOD	< LOD	< LOD	.603 (.603-.804)	1250
	05-06	*	< LOD	< LOD	< LOD	< LOD	1270
	07-08	*	< LOD	< LOD	< LOD	< LOD	1294
	09-10	*	< LOD	< LOD	< LOD	< LOD	1399
Females	99-00	*	< LOD	< LOD	< LOD	2.21 (<LOD-3.82)	1326
	01-02	*	< LOD	< LOD	.804 (<LOD-.804)	1.01 (.804-1.01)	1411
	03-04	*	< LOD	< LOD	< LOD	.603 (.402-1.01)	1355
	05-06	*	< LOD	< LOD	< LOD	< LOD	1278
	07-08	*	< LOD	< LOD	< LOD	< LOD	1310
	09-10	*	< LOD	< LOD	< LOD	< LOD	1350

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 1.81, 0.603, 0.402, 0.603, 0.603 and 0.402 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

\*\*To correct for inadequate purity in the analytical standards, all results and LODs have been adjusted by a factor of 2.01 for survey periods 1999-2008 compared with results previously released.

‡Not measured after Survey years 2009-2010.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DCHP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DCHP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-cyclohexyl phthalate (MCHP) (1999 – 2010) ‡

Metabolite of Dicyclohexyl phthalate (DCHP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.\*\*

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b> Mexican Americans	99-00	*	< LOD	< LOD	< LOD	< LOD	814
	01-02	*	< LOD	< LOD	.804 (<LOD-1.01)	1.01 (.603-1.41)	677
	03-04	*	< LOD	< LOD	< LOD	.603 (.402-1.01)	652
	05-06	*	< LOD	< LOD	< LOD	< LOD	637
	07-08	*	< LOD	< LOD	< LOD	< LOD	531
	09-10	*	< LOD	< LOD	< LOD	.440 (<LOD-.640)	566
Non-Hispanic blacks	99-00	*	< LOD	< LOD	< LOD	2.21 (1.81-2.41)	603
	01-02	*	< LOD	< LOD	.804 (.603-1.01)	1.01 (.804-1.41)	703
	03-04	*	< LOD	< LOD	.603 (.402-.603)	.804 (.603-1.01)	699
	05-06	*	< LOD	< LOD	< LOD	< LOD	678
	07-08	*	< LOD	< LOD	< LOD	< LOD	597
	09-10	*	< LOD	< LOD	< LOD	.480 (<LOD-.620)	516
Non-Hispanic whites	99-00	*	< LOD	< LOD	< LOD	2.01 (<LOD-3.42)	912
	01-02	*	< LOD	< LOD	.804 (<LOD-.804)	1.01 (.804-1.21)	1216
	03-04	*	< LOD	< LOD	< LOD	.603 (.402-.804)	1088
	05-06	*	< LOD	< LOD	< LOD	< LOD	1038
	07-08	*	< LOD	< LOD	< LOD	< LOD	1077
	09-10	*	< LOD	< LOD	< LOD	< LOD	1206

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 1.81, 0.603, 0.402, 0.603, 0.603 and 0.402 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

\*\*To correct for inadequate purity in the analytical standards, all results and LODs have been adjusted by a factor of 2.01 for survey periods 1999-2008 compared with results previously released.

‡Not measured after Survey years 2009-2010.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DCHP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DCHP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-cyclohexyl phthalate (MCHP) (creatinine corrected) (1999 – 2010) ‡

Metabolite of Dicyclohexyl phthalate (DCHP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.\*\*

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	< LOD	< LOD	6.03 (<LOD-6.69)	2541
	01-02	*	< LOD	< LOD	1.23 (1.07-1.39)	1.83 (1.55-2.01)	2782
	03-04	*	< LOD	< LOD	< LOD	.905 (.804-1.01)	2605
	05-06	*	< LOD	< LOD	< LOD	< LOD	2548
	07-08	*	< LOD	< LOD	< LOD	< LOD	2604
	09-10	*	< LOD	< LOD	< LOD	< LOD	2749
Age group 6-11 years	99-00	*	< LOD	< LOD	3.10 (<LOD-4.70)	5.67 (3.10-12.9)	328
	01-02	*	< LOD	< LOD	1.39 (1.03-1.49)	1.89 (1.39-2.35)	393
	03-04	*	< LOD	< LOD	.744 (<LOD-1.07)	1.07 (.704-1.67)	342
	05-06	*	< LOD	< LOD	< LOD	< LOD	356
	07-08	*	< LOD	< LOD	< LOD	< LOD	389
	09-10	*	< LOD	< LOD	< LOD	1.80 (1.34-2.55)	415
12-19 years	99-00	*	< LOD	< LOD	2.45 (<LOD-3.10)	3.36 (2.73-3.66)	752
	01-02	*	< LOD	< LOD	.945 (.764-1.33)	1.55 (1.07-2.37)	742
	03-04	*	< LOD	< LOD	.442 (<LOD-.543)	.764 (.482-1.25)	729
	05-06	*	< LOD	< LOD	< LOD	< LOD	702
	07-08	*	< LOD	< LOD	< LOD	< LOD	401
	09-10	*	< LOD	< LOD	< LOD	< LOD	420
20 years and older	99-00	*	< LOD	< LOD	< LOD	< LOD	1461
	01-02	*	< LOD	< LOD	1.27 (<LOD-1.39)	1.83 (1.55-2.11)	1647
	03-04	*	< LOD	< LOD	< LOD	.905 (.804-1.01)	1534
	05-06	*	< LOD	< LOD	< LOD	< LOD	1490
	07-08	*	< LOD	< LOD	< LOD	< LOD	1814
	09-10	*	< LOD	< LOD	< LOD	< LOD	1914
Gender							
	Males						
Males	99-00	*	< LOD	< LOD	< LOD	4.30 (<LOD-6.35)	1215
	01-02	*	< LOD	< LOD	1.03 (.844-1.33)	1.77 (1.35-2.13)	1371
	03-04	*	< LOD	< LOD	< LOD	.663 (.583-1.01)	1250
	05-06	*	< LOD	< LOD	< LOD	< LOD	1270
	07-08	*	< LOD	< LOD	< LOD	< LOD	1294
	09-10	*	< LOD	< LOD	< LOD	< LOD	1399
Females	99-00	*	< LOD	< LOD	< LOD	6.69 (<LOD-7.10)	1326
	01-02	*	< LOD	< LOD	1.35 (<LOD-1.55)	1.83 (1.61-2.21)	1411
	03-04	*	< LOD	< LOD	< LOD	1.01 (.844-1.19)	1355
	05-06	*	< LOD	< LOD	< LOD	< LOD	1278
	07-08	*	< LOD	< LOD	< LOD	< LOD	1310
	09-10	*	< LOD	< LOD	< LOD	< LOD	1350

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

\*\*To correct for inadequate purity in the analytical standards, all results and LODs have been adjusted by a factor of 2.01 for survey periods 1999-2008 compared with results previously released.

‡Not measured after Survey years 2009-2010.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DCHP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DCHP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-cyclohexyl phthalate (MCHP) (creatinine corrected) (1999 – 2010) ‡

Metabolite of Dicyclohexyl phthalate (DCHP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.\*\*

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b> Mexican Americans	99-00	*	< LOD	< LOD	< LOD	< LOD	814
	01-02	*	< LOD	< LOD	1.19 (<LOD-1.39)	1.91 (1.59-2.23)	677
	03-04	*	< LOD	< LOD	< LOD	.784 (.623-1.13)	652
	05-06	*	< LOD	< LOD	< LOD	< LOD	637
	07-08	*	< LOD	< LOD	< LOD	< LOD	531
	09-10	*	< LOD	< LOD	< LOD	1.20 (<LOD-1.56)	566
Non-Hispanic blacks	99-00	*	< LOD	< LOD	< LOD	2.87 (2.25-3.50)	603
	01-02	*	< LOD	< LOD	.824 (.724-.985)	1.19 (1.01-1.43)	703
	03-04	*	< LOD	< LOD	.503 (.342-.623)	.663 (.523-.945)	699
	05-06	*	< LOD	< LOD	< LOD	< LOD	678
	07-08	*	< LOD	< LOD	< LOD	< LOD	597
Non-Hispanic whites	99-00	*	< LOD	< LOD	< LOD	.880 (<LOD-1.08)	516
	01-02	*	< LOD	< LOD	< LOD	6.35 (<LOD-7.10)	912
	03-04	*	< LOD	< LOD	1.27 (<LOD-1.49)	1.83 (1.55-2.13)	1216
	05-06	*	< LOD	< LOD	< LOD	.965 (.844-1.07)	1088
	07-08	*	< LOD	< LOD	< LOD	< LOD	1038
	09-10	*	< LOD	< LOD	< LOD	< LOD	1077
	09-10	*	< LOD	< LOD	< LOD	< LOD	1206

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

\*\*To correct for inadequate purity in the analytical standards, all results and LODs have been adjusted by a factor of 2.01 for survey periods 1999-2008 compared with results previously released.

‡Not measured after Survey years 2009-2010.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DCHP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DCHP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-ethyl phthalate (MEP) (1999 – 2010)

Metabolite of Diethyl phthalate (DEP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.\*\*

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	118 (103-135)	108 (90.0-132)	300 (244-355)	830 (664-977)	1870 (1420-2490)	2536
	01-02	117 (105-131)	112 (93.0-128)	307 (274-348)	813 (688-947)	1650 (1230-2130)	2782
	03-04	127 (112-145)	115 (99.9-137)	332 (302-366)	909 (769-1150)	1780 (1420-2180)	2605
	05-06	108 (95.5-123)	102 (83.4-121)	284 (257-323)	750 (707-825)	1410 (1140-1830)	2548
	07-08	90.4 (80.3-102)	81.1 (70.8-93.5)	239 (205-272)	605 (493-713)	1180 (821-1760)	2604
	09-10	64.4 (58.3-71.2)	54.9 (50.5-62.7)	163 (145-187)	485 (374-604)	988 (805-1180)	2749
	Age group 6-11 years	99-00	60.3 (49.4-73.6)	49.8 (41.0-61.8)	130 (85.2-164)	249 (192-481)	499 (250-703)
01-02		56.2 (47.0-67.2)	47.5 (40.9-61.1)	121 (93.7-143)	297 (208-420)	533 (377-717)	393
03-04		62.9 (54.3-72.9)	53.9 (46.4-67.9)	130 (112-159)	344 (195-377)	546 (358-949)	342
05-06		55.7 (45.7-67.9)	47.9 (38.3-61.6)	111 (73.9-147)	289 (173-368)	522 (326-719)	356
07-08		49.0 (42.4-56.6)	45.2 (38.5-53.3)	108 (80.5-135)	193 (155-227)	296 (214-359)	389
09-10		35.2 (31.2-39.8)	33.0 (29.8-37.8)	68.7 (54.3-80.9)	151 (114-207)	288 (205-530)	415
12-19 years		99-00	139 (105-183)	127 (92.8-169)	372 (276-540)	994 (694-1420)	2150 (1020-2920)
	01-02	130 (105-161)	121 (97.9-150)	316 (256-429)	835 (649-974)	1360 (969-2020)	742
	03-04	148 (123-178)	146 (109-194)	367 (285-459)	828 (642-1030)	1520 (900-2180)	729
	05-06	126 (108-146)	114 (96.4-134)	315 (256-390)	765 (636-1060)	1360 (1030-1680)	702
	07-08	98.6 (79.1-123)	97.4 (68.3-130)	214 (173-330)	477 (356-705)	821 (511-1270)	401
	09-10	64.0 (50.1-81.8)	53.9 (39.0-75.4)	151 (101-228)	354 (260-497)	662 (371-1190)	420
	20 years and older	99-00	125 (108-145)	119 (92.6-146)	318 (257-389)	882 (666-1100)	2300 (1470-3060)
01-02		126 (113-141)	120 (101-140)	329 (291-374)	888 (702-1100)	1800 (1420-2420)	1647
03-04		135 (116-157)	124 (104-145)	351 (311-415)	1050 (807-1370)	1970 (1480-2510)	1534
05-06		114 (99.0-132)	111 (87.1-131)	299 (268-346)	782 (724-901)	1480 (1140-2080)	1490
07-08		95.3 (85.4-106)	84.7 (75.6-97.8)	264 (235-299)	673 (539-823)	1470 (913-1920)	1814
09-10		69.0 (61.8-76.9)	60.5 (54.0-68.7)	183 (159-207)	557 (445-712)	1110 (875-1350)	1914
Gender							
Males	99-00	118 (98.5-142)	102 (78.3-130)	345 (246-429)	948 (672-1500)	2310 (1400-3010)	1214
	01-02	120 (103-139)	113 (91.8-131)	331 (276-398)	957 (703-1390)	2040 (1390-2900)	1371
	03-04	130 (114-148)	113 (97.8-133)	354 (296-432)	1000 (801-1370)	1920 (1460-2300)	1250
	05-06	107 (92.1-124)	95.9 (75.8-120)	279 (227-340)	757 (651-855)	1470 (923-1930)	1270
	07-08	92.8 (80.1-107)	81.0 (70.4-93.3)	245 (194-298)	659 (481-867)	1450 (851-1900)	1294
	09-10	61.0 (54.2-68.6)	52.8 (45.4-58.3)	157 (126-202)	436 (342-586)	965 (768-1170)	1399
	Females	99-00	118 (102-136)	115 (91.3-139)	280 (231-335)	652 (581-813)	1470 (903-2560)
01-02		115 (101-131)	110 (91.5-128)	282 (255-329)	692 (580-867)	1230 (982-1650)	1411
03-04		125 (106-148)	120 (90.9-145)	316 (258-372)	830 (639-1080)	1710 (1190-2260)	1355
05-06		110 (92.8-130)	109 (86.8-130)	291 (252-346)	734 (671-871)	1310 (1140-1900)	1278
07-08		88.2 (77.8-99.9)	82.4 (67.6-101)	233 (202-264)	553 (462-703)	1050 (713-1680)	1310
09-10		67.8 (60.3-76.4)	59.6 (52.4-73.7)	164 (148-192)	548 (392-675)	988 (777-1340)	1350

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.792, 0.594, 0.264, 0.528, 0.462, and 0.396 respectively.

\*\*To correct for inadequate purity in the analytical standards, all results and LODs have been adjusted by a factor of 0.66 for survey periods 1999-2008 compared with results previously released.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DEP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DEP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-ethyl phthalate (MEP) (1999 – 2010)

Metabolite of Diethyl phthalate (DEP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.\*\*

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00	119 (103-138)	115 (96.5-138)	291 (257-357)	842 (561-996)	1130 (966-1410)	813
	01-02	149 (129-173)	145 (125-174)	349 (293-435)	984 (690-1390)	1730 (1010-2940)	677
	03-04	176 (158-196)	164 (140-202)	394 (345-454)	1080 (873-1440)	2010 (1470-2840)	652
	05-06	163 (130-203)	161 (124-186)	384 (310-466)	1030 (682-1830)	1930 (1170-3330)	637
	07-08	122 (105-141)	111 (82.0-144)	314 (270-372)	850 (604-971)	1180 (971-1520)	531
	09-10	82.2 (70.0-96.5)	72.6 (59.6-84.0)	199 (142-254)	586 (415-869)	1300 (818-1760)	566
Non-Hispanic blacks	99-00	213 (182-249)	202 (169-231)	521 (419-626)	1250 (932-1500)	2380 (1410-3060)	603
	01-02	233 (214-253)	235 (191-269)	563 (468-718)	1430 (1070-1630)	2340 (1860-3350)	703
	03-04	236 (205-272)	202 (167-273)	626 (507-760)	1650 (1220-1970)	2880 (1840-3900)	699
	05-06	219 (189-254)	199 (163-253)	522 (440-700)	1450 (1070-1900)	2610 (1900-3600)	678
	07-08	168 (145-195)	165 (132-202)	415 (343-493)	994 (711-1260)	1920 (1090-3370)	597
	09-10	156 (130-188)	137 (113-159)	405 (276-543)	1190 (841-1570)	1930 (1430-3380)	516
Non-Hispanic whites	99-00	101 (87.6-116)	88.4 (71.0-104)	242 (189-318)	651 (527-882)	1630 (1050-2560)	908
	01-02	104 (92.8-117)	96.8 (78.8-117)	273 (241-297)	672 (598-813)	1530 (1030-1800)	1216
	03-04	110 (95.4-128)	97.8 (82.4-115)	276 (242-315)	801 (630-975)	1480 (1050-2170)	1088
	05-06	91.3 (80.3-104)	84.2 (69.4-111)	232 (196-278)	600 (500-715)	1140 (757-1550)	1038
	07-08	78.9 (70.4-88.5)	68.9 (59.8-80.1)	199 (175-233)	506 (429-650)	880 (670-1500)	1077
	09-10	52.1 (48.1-56.5)	45.1 (40.0-51.6)	127 (106-140)	309 (259-394)	768 (468-988)	1206

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.792, 0.594, 0.264, 0.528, 0.462, and 0.396 respectively.

\*\*To correct for inadequate purity in the analytical standards, all results and LODs have been adjusted by a factor of 0.66 for survey periods 1999-2008 compared with results previously released.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DEP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DEP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-ethyl phthalate (MEP) (2011 - 2012)

*Metabolite of Diethyl phthalate (DEP)*

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Total</b>	11-12	<b>37.9</b> (33.0-43.5)	<b>31.1</b> (27.3-37.9)	<b>96.4</b> (83.7-114)	<b>277</b> (227-367)	<b>570</b> (419-738)	2489
<b>Age group</b>							
6-11 years	11-12	<b>23.4</b> (18.7-29.2)	<b>24.5</b> (18.9-28.7)	<b>49.8</b> (38.4-70.6)	<b>112</b> (85.0-165)	<b>199</b> (139-277)	396
12-19 years	11-12	<b>36.2</b> (27.9-47.0)	<b>30.6</b> (24.0-40.4)	<b>86.7</b> (59.0-129)	<b>216</b> (155-256)	<b>378</b> (254-642)	388
20 years and older	11-12	<b>40.2</b> (34.9-46.5)	<b>32.0</b> (27.6-40.9)	<b>105</b> (93.7-119)	<b>315</b> (253-406)	<b>688</b> (460-801)	1705
<b>Gender</b>							
Males	11-12	<b>38.1</b> (33.3-43.7)	<b>29.6</b> (26.1-35.9)	<b>93.8</b> (75.3-118)	<b>262</b> (227-369)	<b>566</b> (371-875)	1259
Females	11-12	<b>37.7</b> (30.6-46.4)	<b>32.5</b> (25.2-45.3)	<b>101</b> (82.8-118)	<b>295</b> (207-406)	<b>596</b> (447-727)	1230
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>49.5</b> (39.3-62.3)	<b>39.3</b> (34.0-47.0)	<b>120</b> (69.8-163)	<b>375</b> (259-561)	<b>874</b> (394-1420)	316
Non-Hispanic blacks	11-12	<b>89.2</b> (77.9-102)	<b>82.1</b> (71.0-93.2)	<b>196</b> (166-229)	<b>524</b> (381-669)	<b>942</b> (653-1790)	665
Non-Hispanic whites	11-12	<b>30.4</b> (26.0-35.6)	<b>25.4</b> (20.1-29.2)	<b>77.6</b> (64.2-92.9)	<b>221</b> (166-290)	<b>460</b> (290-697)	813
All Hispanics	11-12	<b>55.5</b> (44.2-69.6)	<b>47.6</b> (38.0-59.6)	<b>132</b> (99.9-180)	<b>406</b> (334-537)	<b>809</b> (461-1240)	571
Asians	11-12	<b>23.3</b> (17.9-30.3)	<b>18.8</b> (13.9-28.3)	<b>60.7</b> (38.6-89.5)	<b>166</b> (109-289)	<b>405</b> (175-1080)	352

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 0.6.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DEP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DEP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)



## Urinary Mono-ethyl phthalate (MEP) (creatinine corrected) (1999 – 2010)

Metabolite of Diethyl phthalate (DEP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.\*\*

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	107 (98.0-118)	93.0 (85.4-104)	237 (203-278)	598 (497-781)	1290 (1100-1530)	2536
	01-02	110 (99.3-122)	97.4 (87.9-107)	256 (218-287)	640 (532-778)	1220 (959-1450)	2782
	03-04	120 (107-133)	101 (90.1-117)	298 (254-332)	733 (587-853)	1350 (1080-1680)	2605
	05-06	106 (95.3-117)	92.3 (80.9-104)	242 (211-286)	625 (528-711)	1140 (942-1310)	2548
	07-08	91.1 (82.6-101)	75.3 (68.6-83.5)	204 (185-231)	547 (433-680)	987 (821-1190)	2604
	09-10	67.2 (60.5-74.7)	56.1 (48.9-66.8)	150 (128-172)	433 (373-524)	850 (709-999)	2749
	Age group 6-11 years	99-00	61.1 (51.4-72.7)	52.5 (43.3-72.4)	109 (83.6-137)	225 (145-365)	412 (264-517)
01-02		64.0 (54.4-75.2)	53.6 (43.7-69.4)	117 (88.8-148)	338 (191-529)	556 (338-874)	393
03-04		66.6 (57.5-77.1)	57.4 (43.9-74.7)	119 (95.6-134)	310 (205-394)	474 (310-877)	342
05-06		61.3 (49.6-75.8)	50.1 (42.7-61.0)	107 (76.2-145)	279 (167-441)	512 (366-1210)	356
07-08		60.4 (53.9-67.7)	52.8 (42.4-64.2)	108 (96.3-134)	205 (166-237)	278 (228-386)	389
09-10		45.9 (41.0-51.3)	39.0 (34.7-41.8)	73.0 (63.2-87.2)	168 (125-234)	296 (182-590)	415
12-19 years		99-00	93.7 (78.6-112)	80.7 (61.4-103)	240 (181-326)	580 (446-834)	1160 (661-1320)
	01-02	100 (83.0-121)	92.4 (73.1-119)	218 (164-270)	533 (389-729)	878 (573-1220)	742
	03-04	111 (93.1-132)	99.1 (81.2-121)	240 (193-320)	522 (389-714)	969 (651-1470)	729
	05-06	93.6 (80.5-109)	85.3 (69.0-104)	201 (174-238)	500 (389-635)	813 (590-1110)	702
	07-08	76.7 (61.8-95.1)	72.8 (53.3-91.3)	161 (108-218)	334 (213-491)	547 (334-866)	401
	09-10	51.4 (40.8-64.9)	46.6 (31.2-68.8)	108 (84.2-137)	236 (150-393)	419 (268-524)	420
	20 years and older	99-00	118 (107-131)	102 (89.5-117)	257 (222-298)	669 (530-965)	1430 (1180-2210)
01-02		119 (108-132)	105 (96.3-120)	277 (240-321)	702 (583-871)	1400 (1010-1840)	1647
03-04		130 (115-147)	117 (96.8-133)	338 (279-417)	815 (652-1060)	1510 (1170-2110)	1534
05-06		115 (103-128)	100 (87.6-117)	278 (233-309)	700 (574-803)	1220 (972-1530)	1490
07-08		97.9 (89.6-107)	78.7 (73.2-87.7)	236 (208-266)	624 (518-759)	1100 (875-1380)	1814
09-10		73.0 (65.1-81.9)	62.5 (52.4-72.8)	173 (149-195)	523 (407-662)	989 (810-1120)	1914
Gender Males		99-00	92.8 (82.0-105)	79.0 (70.8-88.2)	214 (165-274)	661 (457-978)	1290 (965-1920)
	01-02	97.6 (85.8-111)	83.2 (72.6-96.8)	232 (186-280)	729 (554-974)	1400 (980-2000)	1371
	03-04	102 (91.9-113)	83.7 (71.0-99.0)	258 (225-307)	704 (562-896)	1320 (1060-1590)	1250
	05-06	85.7 (75.4-97.4)	73.0 (61.0-90.2)	204 (172-231)	504 (368-673)	898 (607-1240)	1270
	07-08	78.1 (68.5-89.1)	65.5 (57.0-73.8)	181 (162-216)	490 (390-625)	936 (662-1190)	1294
	09-10	54.7 (48.3-62.0)	43.3 (38.2-54.2)	125 (97.7-153)	314 (262-436)	792 (570-935)	1399
	Females	99-00	123 (109-139)	104 (93.7-118)	249 (203-326)	543 (460-770)	1270 (770-2250)
01-02		123 (110-139)	113 (97.4-124)	269 (235-312)	568 (470-725)	944 (784-1330)	1411
03-04		139 (119-163)	120 (97.8-143)	335 (250-418)	741 (587-923)	1490 (951-2200)	1355
05-06		129 (116-144)	106 (97.4-121)	293 (247-333)	759 (629-920)	1370 (1150-1730)	1278
07-08		106 (95.5-117)	88.5 (77.6-98.6)	227 (188-278)	610 (491-727)	1040 (759-1520)	1310
09-10		81.9 (72.7-92.2)	69.9 (57.2-80.9)	178 (151-214)	523 (407-661)	987 (716-1220)	1350

\*\*To correct for inadequate purity in the analytical standards, all results and LODs have been adjusted by a factor of 0.66 for survey periods 1999-2008 compared with results previously released.

### Biomonitoring Summary

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### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-ethyl phthalate (MEP) (creatinine corrected) (1999 2010)

Metabolite of Diethyl phthalate (DEP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.\*\*

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00	<b>108</b> (93.9-125)	<b>102</b> (89.8-115)	<b>252</b> (207-312)	<b>538</b> (444-643)	<b>875</b> (643-1270)	813
	01-02	<b>141</b> (120-165)	<b>131</b> (108-160)	<b>304</b> (261-378)	<b>714</b> (568-1090)	<b>1280</b> (928-1740)	677
	03-04	<b>159</b> (141-179)	<b>154</b> (133-178)	<b>352</b> (275-439)	<b>815</b> (631-1060)	<b>1500</b> (1190-2070)	652
	05-06	<b>146</b> (123-173)	<b>125</b> (107-157)	<b>324</b> (235-425)	<b>767</b> (600-1020)	<b>1410</b> (926-2510)	637
	07-08	<b>119</b> (100-140)	<b>105</b> (81.9-142)	<b>260</b> (224-306)	<b>616</b> (502-750)	<b>1230</b> (628-2160)	531
	09-10	<b>81.6</b> (70.9-93.8)	<b>64.9</b> (56.3-72.7)	<b>170</b> (131-254)	<b>523</b> (324-792)	<b>945</b> (685-1510)	566
Non-Hispanic blacks	99-00	<b>137</b> (121-156)	<b>130</b> (109-151)	<b>292</b> (257-333)	<b>682</b> (503-1120)	<b>1270</b> (810-1710)	603
	01-02	<b>163</b> (149-179)	<b>150</b> (122-178)	<b>367</b> (316-408)	<b>818</b> (634-979)	<b>1380</b> (1020-1850)	703
	03-04	<b>167</b> (148-189)	<b>140</b> (124-162)	<b>409</b> (314-522)	<b>1010</b> (793-1300)	<b>1710</b> (1420-2310)	699
	05-06	<b>154</b> (131-181)	<b>134</b> (113-160)	<b>360</b> (311-412)	<b>919</b> (590-1290)	<b>1700</b> (1070-2030)	678
	07-08	<b>131</b> (115-148)	<b>121</b> (105-132)	<b>280</b> (224-334)	<b>614</b> (489-843)	<b>1100</b> (836-1780)	597
	09-10	<b>113</b> (89.0-143)	<b>92.7</b> (77.5-121)	<b>236</b> (180-338)	<b>722</b> (443-1210)	<b>1300</b> (890-2240)	516
Non-Hispanic whites	99-00	<b>98.3</b> (88.9-109)	<b>84.5</b> (72.9-93.7)	<b>206</b> (158-255)	<b>565</b> (432-916)	<b>1290</b> (975-1810)	908
	01-02	<b>103</b> (93.5-114)	<b>89.6</b> (82.1-98.9)	<b>223</b> (190-265)	<b>607</b> (470-765)	<b>1050</b> (874-1440)	1216
	03-04	<b>109</b> (95.3-125)	<b>88.9</b> (79.2-105)	<b>254</b> (223-320)	<b>652</b> (548-876)	<b>1270</b> (922-1830)	1088
	05-06	<b>96.1</b> (86.5-107)	<b>84.5</b> (71.2-97.6)	<b>211</b> (189-242)	<b>532</b> (450-686)	<b>993</b> (828-1240)	1038
	07-08	<b>82.4</b> (74.7-90.9)	<b>66.4</b> (58.5-73.8)	<b>185</b> (158-219)	<b>523</b> (397-640)	<b>871</b> (708-1040)	1077
	09-10	<b>58.6</b> (53.2-64.4)	<b>49.1</b> (41.4-56.8)	<b>125</b> (110-146)	<b>366</b> (278-437)	<b>706</b> (515-965)	1206

\*\*To correct for inadequate purity in the analytical standards, all results and LODs have been adjusted by a factor of 0.66 for survey periods 1999-2008 compared with results previously released.

### Biomonitoring Summary

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### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-ethyl phthalate (MEP) (creatinine corrected) (2011 - 2012)

*Metabolite of Diethyl phthalate (DEP)*

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Total</b>	11-12	<b>43.2</b> (38.5-48.5)	<b>34.4</b> (30.5-39.2)	<b>94.2</b> (79.5-111)	<b>263</b> (198-368)	<b>541</b> (398-777)	2487
<b>Age group</b>							
6-11 years	11-12	<b>33.4</b> (26.7-41.6)	<b>29.2</b> (23.0-36.7)	<b>59.7</b> (39.8-99.6)	<b>123</b> (90.0-172)	<b>177</b> (144-353)	395
12-19 years	11-12	<b>35.3</b> (30.5-40.9)	<b>29.4</b> (22.8-37.3)	<b>61.1</b> (46.7-94.5)	<b>157</b> (122-223)	<b>262</b> (163-549)	388
20 years and older	11-12	<b>45.8</b> (40.4-52.0)	<b>35.4</b> (32.2-42.3)	<b>101</b> (86.9-124)	<b>328</b> (235-405)	<b>634</b> (432-1010)	1704
<b>Gender</b>							
Males	11-12	<b>35.8</b> (31.7-40.4)	<b>29.3</b> (25.0-33.6)	<b>77.3</b> (60.9-92.4)	<b>203</b> (156-293)	<b>455</b> (271-703)	1258
Females	11-12	<b>51.8</b> (44.5-60.4)	<b>40.7</b> (34.0-49.9)	<b>111</b> (89.2-132)	<b>339</b> (249-415)	<b>646</b> (436-1020)	1229
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>55.7</b> (47.0-66.1)	<b>41.6</b> (34.5-52.5)	<b>122</b> (85.3-164)	<b>335</b> (223-549)	<b>736</b> (398-1080)	316
Non-Hispanic blacks	11-12	<b>69.4</b> (59.9-80.4)	<b>57.7</b> (49.7-67.4)	<b>141</b> (124-168)	<b>404</b> (274-571)	<b>973</b> (609-1220)	665
Non-Hispanic whites	11-12	<b>37.0</b> (31.9-43.0)	<b>29.1</b> (25.0-33.0)	<b>80.4</b> (62.3-98.6)	<b>230</b> (152-346)	<b>481</b> (314-704)	811
All Hispanics	11-12	<b>62.1</b> (52.3-73.8)	<b>51.2</b> (42.6-57.4)	<b>138</b> (101-187)	<b>393</b> (257-484)	<b>739</b> (398-1400)	571
Asians	11-12	<b>31.2</b> (24.6-39.7)	<b>24.7</b> (18.6-32.4)	<b>71.3</b> (49.0-101)	<b>186</b> (94.0-527)	<b>405</b> (200-886)	352

### Biomonitoring Summary

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### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-2-ethylhexyl phthalate (MEHP) (1999 – 2010)

Metabolite of Di-2-ethylhexyl phthalate (DEHP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	<b>3.43</b> (3.19-3.69)	<b>3.20</b> (3.00-3.60)	<b>7.60</b> (6.80-8.40)	<b>14.9</b> (13.5-17.4)	<b>23.8</b> (19.2-28.6)	2541
	01-02	<b>4.27</b> (3.80-4.79)	<b>4.20</b> (3.70-4.90)	<b>9.80</b> (8.40-11.6)	<b>23.0</b> (19.1-27.9)	<b>39.2</b> (31.8-50.0)	2782
	03-04	<b>2.34</b> (2.10-2.62)	<b>1.90</b> (1.70-2.40)	<b>5.30</b> (4.50-6.60)	<b>15.1</b> (11.4-20.6)	<b>31.0</b> (21.4-42.0)	2605
	05-06	<b>3.04</b> (2.78-3.32)	<b>2.50</b> (2.10-2.80)	<b>6.30</b> (5.70-7.10)	<b>17.7</b> (14.0-22.5)	<b>39.7</b> (28.6-52.1)	2548
	07-08	<b>2.64</b> (2.29-3.05)	<b>2.20</b> (1.80-2.50)	<b>5.40</b> (4.30-6.90)	<b>14.1</b> (11.2-20.2)	<b>27.6</b> (19.8-39.8)	2604
	09-10	<b>1.59</b> (1.41-1.79)	<b>1.51</b> (1.33-1.71)	<b>3.52</b> (2.99-4.00)	<b>7.54</b> (5.96-9.54)	<b>14.1</b> (9.91-21.1)	2749
	Age group 6-11 years	99-00	<b>5.12</b> (4.42-5.92)	<b>4.90</b> (3.70-6.40)	<b>11.1</b> (8.30-13.6)	<b>19.0</b> (13.8-36.1)	<b>35.3</b> (15.6-130)
01-02		<b>4.41</b> (3.90-5.00)	<b>4.40</b> (4.10-5.30)	<b>9.30</b> (7.90-11.7)	<b>19.7</b> (14.6-25.9)	<b>31.4</b> (21.8-47.9)	393
03-04		<b>2.84</b> (2.10-3.84)	<b>2.70</b> (1.80-4.10)	<b>6.40</b> (4.40-9.60)	<b>13.9</b> (7.80-27.6)	<b>27.6</b> (11.3-64.7)	342
05-06		<b>3.10</b> (2.78-3.47)	<b>3.00</b> (2.60-3.30)	<b>6.20</b> (5.10-7.10)	<b>14.1</b> (9.40-19.3)	<b>19.7</b> (14.7-36.6)	356
07-08		<b>2.39</b> (2.05-2.80)	<b>2.20</b> (1.70-2.90)	<b>4.50</b> (3.70-6.20)	<b>8.70</b> (6.40-13.9)	<b>15.1</b> (10.6-24.1)	389
09-10		<b>1.64</b> (1.45-1.85)	<b>1.71</b> (1.26-2.02)	<b>3.50</b> (3.09-3.94)	<b>5.95</b> (4.56-7.56)	<b>8.92</b> (6.94-12.9)	415
12-19 years		99-00	<b>3.75</b> (3.24-4.35)	<b>3.70</b> (2.90-4.60)	<b>8.10</b> (6.40-9.40)	<b>15.3</b> (11.4-20.5)	<b>22.8</b> (19.1-29.2)
	01-02	<b>4.57</b> (3.96-5.27)	<b>4.50</b> (3.70-5.10)	<b>11.0</b> (9.50-14.4)	<b>23.0</b> (17.7-32.7)	<b>42.5</b> (25.9-57.5)	742
	03-04	<b>2.77</b> (2.25-3.41)	<b>2.50</b> (2.00-3.00)	<b>6.40</b> (4.50-8.60)	<b>18.6</b> (10.2-35.6)	<b>40.6</b> (20.7-58.4)	729
	05-06	<b>3.72</b> (3.04-4.56)	<b>3.20</b> (2.40-4.10)	<b>8.80</b> (6.20-13.3)	<b>22.6</b> (13.8-43.4)	<b>48.7</b> (23.1-62.9)	702
	07-08	<b>2.99</b> (2.39-3.75)	<b>2.30</b> (1.80-2.70)	<b>6.00</b> (4.40-9.90)	<b>21.1</b> (11.8-32.8)	<b>37.6</b> (24.8-74.1)	401
	09-10	<b>1.82</b> (1.52-2.16)	<b>1.66</b> (1.42-1.94)	<b>3.98</b> (3.35-4.73)	<b>9.53</b> (6.27-14.0)	<b>17.6</b> (9.54-27.4)	420
	20 years and older	99-00	<b>3.21</b> (2.94-3.51)	<b>3.00</b> (2.70-3.40)	<b>7.30</b> (6.40-8.00)	<b>14.5</b> (12.1-17.0)	<b>22.7</b> (17.5-27.0)
01-02		<b>4.20</b> (3.63-4.86)	<b>4.10</b> (3.50-5.00)	<b>9.50</b> (8.10-11.9)	<b>23.5</b> (18.0-29.8)	<b>39.5</b> (30.3-57.1)	1647
03-04		<b>2.23</b> (2.03-2.44)	<b>1.70</b> (1.50-2.00)	<b>5.10</b> (4.50-6.00)	<b>15.1</b> (10.9-19.7)	<b>29.5</b> (20.4-40.0)	1534
05-06		<b>2.94</b> (2.68-3.21)	<b>2.30</b> (1.90-2.70)	<b>6.20</b> (5.60-6.70)	<b>17.7</b> (13.6-24.5)	<b>41.5</b> (28.6-54.1)	1490
07-08		<b>2.62</b> (2.27-3.02)	<b>2.10</b> (1.80-2.50)	<b>5.40</b> (4.20-7.10)	<b>14.4</b> (11.2-20.2)	<b>27.3</b> (19.2-40.6)	1814
09-10		<b>1.55</b> (1.36-1.78)	<b>1.44</b> (1.25-1.68)	<b>3.40</b> (2.88-4.03)	<b>7.39</b> (5.94-9.58)	<b>14.6</b> (9.91-21.1)	1914
Gender Males		99-00	<b>3.68</b> (3.31-4.10)	<b>3.40</b> (2.90-3.90)	<b>8.00</b> (7.40-8.80)	<b>16.0</b> (14.0-19.0)	<b>25.3</b> (19.5-36.7)
	01-02	<b>4.31</b> (3.84-4.83)	<b>4.30</b> (3.70-5.10)	<b>9.70</b> (8.30-11.2)	<b>23.0</b> (16.9-29.8)	<b>37.9</b> (29.9-48.4)	1371
	03-04	<b>2.56</b> (2.26-2.90)	<b>2.20</b> (1.70-2.60)	<b>6.00</b> (4.60-7.70)	<b>17.2</b> (11.3-26.3)	<b>33.3</b> (24.9-55.5)	1250
	05-06	<b>3.40</b> (3.01-3.85)	<b>2.80</b> (2.40-3.30)	<b>7.00</b> (5.70-9.00)	<b>22.6</b> (15.0-35.8)	<b>49.8</b> (35.2-67.4)	1270
	07-08	<b>2.77</b> (2.35-3.27)	<b>2.30</b> (1.90-2.80)	<b>5.50</b> (4.20-7.60)	<b>14.4</b> (11.2-20.5)	<b>28.9</b> (19.2-40.0)	1294
	09-10	<b>1.83</b> (1.63-2.05)	<b>1.77</b> (1.63-1.91)	<b>3.97</b> (3.49-4.51)	<b>8.63</b> (6.94-11.9)	<b>18.0</b> (12.6-29.0)	1399
	Females	99-00	<b>3.21</b> (2.91-3.54)	<b>3.10</b> (2.80-3.50)	<b>7.10</b> (5.90-8.50)	<b>13.6</b> (12.1-17.2)	<b>21.9</b> (15.6-28.5)
01-02		<b>4.23</b> (3.67-4.86)	<b>4.10</b> (3.50-5.00)	<b>9.80</b> (8.40-12.2)	<b>23.0</b> (19.5-28.4)	<b>43.5</b> (31.4-53.7)	1411
03-04		<b>2.15</b> (1.92-2.42)	<b>1.80</b> (1.50-2.10)	<b>4.90</b> (4.10-5.70)	<b>13.2</b> (10.0-18.1)	<b>27.8</b> (17.5-40.7)	1355
05-06		<b>2.72</b> (2.49-2.98)	<b>2.10</b> (1.90-2.40)	<b>6.00</b> (5.20-6.80)	<b>13.9</b> (11.7-17.5)	<b>30.8</b> (21.9-36.2)	1278
07-08		<b>2.52</b> (2.18-2.92)	<b>2.00</b> (1.70-2.40)	<b>5.10</b> (4.20-6.30)	<b>14.1</b> (9.50-21.4)	<b>26.4</b> (19.2-42.1)	1310
09-10		<b>1.39</b> (1.21-1.60)	<b>1.30</b> (1.12-1.53)	<b>3.00</b> (2.51-3.62)	<b>6.48</b> (5.45-8.09)	<b>10.3</b> (8.33-14.9)	1350

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 1.2, 1.0, 0.9, 1.2, 1.1, and 0.5 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DEHP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DEHP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-2-ethylhexyl phthalate (MEHP) (1999 – 2010)

Metabolite of Di-2-ethylhexyl phthalate (DEHP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00	<b>3.49</b> (3.16-3.85)	<b>3.50</b> (3.10-3.90)	<b>7.00</b> (5.70-8.60)	<b>13.3</b> (10.7-18.7)	<b>23.9</b> (17.4-27.3)	814
	01-02	<b>4.32</b> (3.75-4.98)	<b>4.70</b> (3.80-5.70)	<b>10.1</b> (8.50-11.4)	<b>19.6</b> (16.6-23.0)	<b>28.5</b> (24.2-39.9)	677
	03-04	<b>2.35</b> (1.87-2.96)	<b>2.20</b> (1.50-3.00)	<b>5.10</b> (4.30-6.60)	<b>11.2</b> (7.50-16.5)	<b>18.5</b> (11.6-38.2)	652
	05-06	<b>2.99</b> (2.50-3.57)	<b>2.30</b> (1.70-3.30)	<b>5.70</b> (4.70-7.60)	<b>18.4</b> (12.1-30.6)	<b>36.4</b> (26.2-63.8)	637
	07-08	<b>2.89</b> (2.38-3.50)	<b>2.60</b> (2.00-3.10)	<b>5.30</b> (4.40-8.20)	<b>16.9</b> (10.3-27.3)	<b>30.2</b> (22.9-34.3)	531
Non-Hispanic blacks	09-10	<b>2.08</b> (1.84-2.36)	<b>2.10</b> (1.86-2.40)	<b>4.44</b> (3.73-5.63)	<b>9.67</b> (6.89-16.0)	<b>17.9</b> (13.1-24.3)	566
	99-00	<b>4.82</b> (3.92-5.93)	<b>5.20</b> (4.10-5.80)	<b>9.50</b> (7.60-11.4)	<b>19.5</b> (12.9-26.5)	<b>29.5</b> (18.6-60.3)	603
	01-02	<b>6.60</b> (5.57-7.82)	<b>6.70</b> (5.40-8.10)	<b>15.4</b> (13.0-18.7)	<b>32.9</b> (26.5-41.4)	<b>52.6</b> (41.0-84.0)	703
	03-04	<b>3.61</b> (3.07-4.23)	<b>3.50</b> (3.00-4.00)	<b>8.50</b> (7.10-11.4)	<b>22.9</b> (16.5-28.6)	<b>35.2</b> (29.3-49.1)	699
	05-06	<b>4.09</b> (3.51-4.75)	<b>3.70</b> (3.10-4.10)	<b>9.10</b> (6.90-11.9)	<b>22.5</b> (17.4-40.7)	<b>59.3</b> (34.5-86.7)	678
Non-Hispanic whites	07-08	<b>3.30</b> (2.98-3.64)	<b>3.20</b> (2.70-3.60)	<b>7.20</b> (6.30-8.90)	<b>15.3</b> (13.3-20.2)	<b>25.5</b> (19.2-38.1)	597
	09-10	<b>2.08</b> (1.79-2.41)	<b>2.05</b> (1.70-2.42)	<b>4.79</b> (3.80-5.95)	<b>10.1</b> (7.50-14.4)	<b>16.4</b> (9.60-38.4)	516
	99-00	<b>3.16</b> (2.89-3.46)	<b>2.80</b> (2.50-3.10)	<b>7.40</b> (6.30-8.40)	<b>14.5</b> (12.2-17.4)	<b>22.4</b> (16.9-28.5)	912
	01-02	<b>3.85</b> (3.37-4.40)	<b>3.70</b> (3.10-4.40)	<b>8.70</b> (7.80-9.90)	<b>20.9</b> (17.3-25.9)	<b>37.9</b> (29.9-49.5)	1216
	03-04	<b>2.14</b> (1.92-2.39)	<b>1.70</b> (1.40-1.90)	<b>4.80</b> (4.00-5.80)	<b>13.6</b> (9.50-20.0)	<b>31.0</b> (18.1-48.9)	1088
	05-06	<b>2.83</b> (2.59-3.10)	<b>2.20</b> (1.80-2.60)	<b>5.90</b> (5.30-6.90)	<b>17.0</b> (13.3-21.6)	<b>36.3</b> (26.6-51.0)	1038
	07-08	<b>2.44</b> (2.07-2.88)	<b>2.00</b> (1.70-2.30)	<b>4.90</b> (3.70-6.20)	<b>13.1</b> (8.70-20.1)	<b>25.0</b> (15.8-42.1)	1077
	09-10	<b>1.41</b> (1.22-1.62)	<b>1.30</b> (1.12-1.57)	<b>3.04</b> (2.53-3.60)	<b>6.12</b> (5.23-7.65)	<b>11.8</b> (7.63-21.1)	1206

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 1.2, 1.0, 0.9, 1.2, 1.1, and 0.5 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DEHP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DEHP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-2-ethylhexyl phthalate (MEHP) (2011 - 2012)

Metabolite of Di-2-ethylhexyl phthalate (DEHP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>1.36</b> (1.25-1.49)	<b>1.40</b> (1.20-1.50)	<b>3.00</b> (2.70-3.30)	<b>6.00</b> (5.30-6.40)	<b>8.70</b> (7.60-9.70)	2489
<b>Age group</b>							
6-11 years	11-12	<b>1.41</b> (1.23-1.61)	<b>1.50</b> (1.20-1.80)	<b>2.90</b> (2.50-3.40)	<b>5.30</b> (4.10-7.10)	<b>7.60</b> (6.30-8.80)	396
12-19 years	11-12	<b>1.58</b> (1.33-1.87)	<b>1.50</b> (1.00-2.30)	<b>3.90</b> (3.10-4.40)	<b>6.80</b> (5.20-10.3)	<b>12.5</b> (8.90-14.3)	388
20 years and older	11-12	<b>1.33</b> (1.19-1.48)	<b>1.30</b> (1.10-1.50)	<b>2.90</b> (2.50-3.20)	<b>5.90</b> (5.10-6.40)	<b>8.30</b> (7.10-9.60)	1705
<b>Gender</b>							
Males	11-12	<b>1.51</b> (1.33-1.70)	<b>1.50</b> (1.20-1.80)	<b>3.10</b> (2.60-3.90)	<b>6.10</b> (5.50-7.00)	<b>9.20</b> (7.70-11.3)	1259
Females	11-12	<b>1.24</b> (1.14-1.34)	<b>1.20</b> (1.00-1.40)	<b>2.90</b> (2.50-3.10)	<b>5.60</b> (4.90-6.30)	<b>8.10</b> (6.80-9.20)	1230
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>1.49</b> (1.16-1.91)	<b>1.50</b> (1.00-1.90)	<b>3.40</b> (2.50-4.30)	<b>6.60</b> (5.10-8.90)	<b>9.60</b> (6.60-12.9)	316
Non-Hispanic blacks	11-12	<b>1.89</b> (1.67-2.13)	<b>2.00</b> (1.60-2.40)	<b>4.00</b> (3.40-4.90)	<b>8.00</b> (6.20-9.70)	<b>11.3</b> (9.60-14.9)	665
Non-Hispanic whites	11-12	<b>1.21</b> (1.07-1.37)	<b>1.10</b> (.900-1.50)	<b>2.70</b> (2.20-3.10)	<b>4.90</b> (4.20-6.10)	<b>6.70</b> (6.00-8.30)	813
All Hispanics	11-12	<b>1.61</b> (1.40-1.83)	<b>1.70</b> (1.30-2.00)	<b>3.90</b> (3.10-4.70)	<b>7.30</b> (6.30-8.70)	<b>11.6</b> (9.20-12.9)	571
Asians	11-12	<b>1.69</b> (1.44-1.98)	<b>1.70</b> (1.30-1.90)	<b>3.60</b> (2.80-4.40)	<b>7.80</b> (6.60-11.4)	<b>13.8</b> (10.0-17.8)	352

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 0.5.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DEHP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DEHP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)



## Urinary Mono-2-ethylhexyl phthalate (MEHP) (creatinine corrected) (1999 – 2010)

Metabolite of Di-2-ethylhexyl phthalate (DEHP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	<b>3.12</b> (2.95-3.31)	<b>3.08</b> (2.82-3.27)	<b>5.88</b> (5.38-6.25)	<b>10.8</b> (9.62-12.5)	<b>18.9</b> (15.0-21.8)	2541
	01-02	<b>4.00</b> (3.58-4.48)	<b>3.90</b> (3.44-4.47)	<b>7.94</b> (7.22-9.02)	<b>18.0</b> (15.3-21.5)	<b>32.8</b> (25.2-42.9)	2782
	03-04	<b>2.20</b> (2.01-2.41)	<b>1.89</b> (1.68-2.19)	<b>4.31</b> (3.84-4.74)	<b>10.8</b> (8.72-13.8)	<b>25.4</b> (16.7-34.7)	2605
	05-06	<b>2.96</b> (2.72-3.23)	<b>2.61</b> (2.37-2.86)	<b>5.69</b> (5.00-6.47)	<b>13.7</b> (11.4-17.8)	<b>30.1</b> (21.2-35.2)	2548
	07-08	<b>2.66</b> (2.37-2.99)	<b>2.36</b> (2.11-2.67)	<b>5.15</b> (4.35-6.00)	<b>11.8</b> (8.89-15.6)	<b>21.9</b> (14.6-33.4)	2604
	09-10	<b>1.66</b> (1.45-1.90)	<b>1.52</b> (1.36-1.77)	<b>3.09</b> (2.69-3.60)	<b>6.28</b> (4.98-8.48)	<b>11.2</b> (8.33-19.1)	2749
	Age group 6-11 years	99-00	<b>5.19</b> (4.55-5.93)	<b>5.37</b> (4.52-5.95)	<b>9.11</b> (8.06-11.4)	<b>21.6</b> (11.5-41.9)	<b>41.9</b> (13.5-86.2)
01-02		<b>5.03</b> (4.47-5.65)	<b>5.38</b> (4.51-6.21)	<b>9.90</b> (7.87-11.5)	<b>21.1</b> (13.8-28.8)	<b>31.4</b> (24.3-40.7)	393
03-04		<b>3.00</b> (2.30-3.93)	<b>2.80</b> (1.93-4.09)	<b>5.86</b> (4.69-7.70)	<b>14.3</b> (8.54-24.4)	<b>28.7</b> (14.1-45.3)	342
05-06		<b>3.42</b> (3.08-3.79)	<b>3.26</b> (2.63-3.92)	<b>6.18</b> (5.40-6.85)	<b>11.3</b> (8.96-17.4)	<b>20.7</b> (11.3-31.8)	356
07-08		<b>2.95</b> (2.49-3.49)	<b>2.80</b> (2.17-3.33)	<b>5.42</b> (3.95-6.51)	<b>10.6</b> (7.47-14.0)	<b>15.6</b> (10.6-23.7)	389
09-10		<b>2.13</b> (1.90-2.40)	<b>2.08</b> (1.88-2.33)	<b>3.69</b> (3.13-4.20)	<b>5.83</b> (4.80-7.95)	<b>8.89</b> (5.88-20.1)	415
12-19 years		99-00	<b>2.53</b> (2.14-2.99)	<b>2.35</b> (2.05-2.76)	<b>5.83</b> (4.38-6.29)	<b>9.66</b> (7.41-11.5)	<b>12.1</b> (10.5-17.3)
	01-02	<b>3.53</b> (3.09-4.03)	<b>3.67</b> (2.89-4.48)	<b>7.47</b> (6.51-8.67)	<b>15.2</b> (11.7-21.9)	<b>25.2</b> (17.7-32.8)	742
	03-04	<b>2.07</b> (1.74-2.48)	<b>1.88</b> (1.60-2.23)	<b>4.25</b> (3.19-5.62)	<b>11.6</b> (6.83-23.2)	<b>24.8</b> (11.6-37.9)	729
	05-06	<b>2.77</b> (2.27-3.38)	<b>2.43</b> (2.03-2.87)	<b>5.24</b> (4.06-7.75)	<b>15.2</b> (9.86-23.2)	<b>27.1</b> (16.0-43.7)	702
	07-08	<b>2.33</b> (1.90-2.86)	<b>2.00</b> (1.67-2.57)	<b>4.33</b> (3.55-6.23)	<b>12.6</b> (8.31-16.3)	<b>21.9</b> (12.0-45.7)	401
	09-10	<b>1.46</b> (1.20-1.77)	<b>1.33</b> (1.09-1.61)	<b>2.85</b> (2.24-3.63)	<b>7.47</b> (4.31-11.6)	<b>13.2</b> (8.11-20.9)	420
	20 years and older	99-00	<b>3.03</b> (2.83-3.25)	<b>2.98</b> (2.73-3.23)	<b>5.55</b> (4.90-6.06)	<b>10.0</b> (8.60-12.9)	<b>17.5</b> (13.8-22.1)
01-02		<b>3.97</b> (3.49-4.52)	<b>3.82</b> (3.26-4.38)	<b>7.79</b> (7.00-9.00)	<b>18.3</b> (15.3-21.8)	<b>34.5</b> (23.1-47.9)	1647
03-04		<b>2.14</b> (1.98-2.31)	<b>1.84</b> (1.63-2.08)	<b>4.14</b> (3.78-4.40)	<b>10.5</b> (8.38-12.9)	<b>25.6</b> (15.9-36.3)	1534
05-06		<b>2.94</b> (2.69-3.23)	<b>2.60</b> (2.36-2.83)	<b>5.67</b> (4.77-6.52)	<b>13.8</b> (11.3-18.1)	<b>33.1</b> (21.9-47.4)	1490
07-08		<b>2.69</b> (2.39-3.02)	<b>2.36</b> (2.14-2.66)	<b>5.20</b> (4.38-6.04)	<b>11.8</b> (8.94-16.6)	<b>22.1</b> (13.5-37.1)	1814
09-10		<b>1.65</b> (1.43-1.90)	<b>1.51</b> (1.34-1.75)	<b>3.04</b> (2.63-3.60)	<b>6.24</b> (4.98-8.61)	<b>11.1</b> (8.03-19.4)	1914
Gender Males		99-00	<b>2.89</b> (2.60-3.22)	<b>2.76</b> (2.52-2.96)	<b>5.58</b> (4.71-6.08)	<b>10.3</b> (9.35-12.4)	<b>21.6</b> (14.1-27.7)
	01-02	<b>3.50</b> (3.08-3.99)	<b>3.33</b> (2.83-3.90)	<b>7.00</b> (6.49-7.77)	<b>16.2</b> (12.8-20.9)	<b>31.6</b> (20.5-49.4)	1371
	03-04	<b>2.01</b> (1.82-2.21)	<b>1.71</b> (1.46-1.89)	<b>4.14</b> (3.49-4.81)	<b>10.4</b> (7.68-16.2)	<b>23.3</b> (15.1-41.1)	1250
	05-06	<b>2.73</b> (2.43-3.07)	<b>2.30</b> (2.12-2.61)	<b>5.08</b> (4.29-6.14)	<b>14.3</b> (11.2-20.5)	<b>31.0</b> (21.5-50.9)	1270
	07-08	<b>2.33</b> (2.03-2.68)	<b>2.00</b> (1.71-2.34)	<b>4.36</b> (3.71-5.41)	<b>11.6</b> (8.33-14.2)	<b>20.2</b> (14.6-26.3)	1294
	09-10	<b>1.64</b> (1.45-1.85)	<b>1.52</b> (1.39-1.74)	<b>3.06</b> (2.70-3.60)	<b>6.53</b> (5.18-9.49)	<b>13.0</b> (8.65-22.2)	1399
	Females	99-00	<b>3.36</b> (3.11-3.63)	<b>3.33</b> (2.91-3.80)	<b>6.15</b> (5.55-6.77)	<b>11.1</b> (9.11-14.0)	<b>17.3</b> (12.4-24.6)
01-02		<b>4.54</b> (4.02-5.13)	<b>4.47</b> (3.85-5.14)	<b>9.28</b> (7.94-10.3)	<b>20.3</b> (16.6-24.4)	<b>34.7</b> (27.1-42.0)	1411
03-04		<b>2.40</b> (2.15-2.69)	<b>2.16</b> (1.84-2.40)	<b>4.40</b> (3.97-4.89)	<b>10.9</b> (8.27-16.0)	<b>27.0</b> (17.5-34.6)	1355
05-06		<b>3.20</b> (2.89-3.55)	<b>2.89</b> (2.58-3.17)	<b>6.07</b> (5.00-7.00)	<b>13.3</b> (10.4-16.3)	<b>28.2</b> (18.2-37.4)	1278
07-08		<b>3.02</b> (2.70-3.38)	<b>2.76</b> (2.36-3.02)	<b>5.57</b> (4.90-6.50)	<b>12.1</b> (8.64-18.2)	<b>24.7</b> (14.8-44.4)	1310
09-10		<b>1.68</b> (1.44-1.96)	<b>1.53</b> (1.35-1.89)	<b>3.10</b> (2.68-3.69)	<b>5.75</b> (4.58-8.03)	<b>10.5</b> (7.36-17.5)	1350

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DEHP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DEHP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)



## Urinary Mono-2-ethylhexyl phthalate (MEHP) (creatinine corrected) (1999 – 2010)

Metabolite of Di-2-ethylhexyl phthalate (DEHP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00	<b>3.16</b> (2.72-3.68)	<b>3.15</b> (2.52-3.81)	<b>5.88</b> (4.86-7.24)	<b>11.6</b> (9.63-13.1)	<b>15.7</b> (12.6-23.1)	814
	01-02	<b>4.07</b> (3.60-4.61)	<b>4.18</b> (3.82-4.90)	<b>7.80</b> (6.64-9.49)	<b>16.4</b> (13.6-18.9)	<b>24.9</b> (19.8-28.7)	677
	03-04	<b>2.12</b> (1.74-2.59)	<b>1.94</b> (1.50-2.42)	<b>4.06</b> (3.29-4.93)	<b>9.38</b> (5.72-15.4)	<b>16.8</b> (9.86-38.6)	652
	05-06	<b>2.69</b> (2.36-3.07)	<b>2.41</b> (2.04-2.73)	<b>4.82</b> (4.09-6.05)	<b>14.3</b> (10.0-16.9)	<b>27.2</b> (16.3-40.1)	637
	07-08	<b>2.82</b> (2.38-3.34)	<b>2.45</b> (2.08-2.89)	<b>5.00</b> (4.14-6.86)	<b>12.3</b> (9.58-20.7)	<b>29.0</b> (17.0-50.3)	531
	09-10	<b>2.07</b> (1.83-2.34)	<b>1.89</b> (1.69-2.31)	<b>4.06</b> (3.50-4.98)	<b>8.38</b> (6.08-11.3)	<b>13.9</b> (9.70-20.0)	566
Non-Hispanic blacks	99-00	<b>3.11</b> (2.59-3.73)	<b>3.13</b> (2.50-3.61)	<b>5.84</b> (4.43-7.32)	<b>10.2</b> (8.05-15.6)	<b>18.4</b> (11.6-35.2)	603
	01-02	<b>4.63</b> (3.96-5.42)	<b>4.59</b> (3.97-5.02)	<b>9.93</b> (7.95-12.4)	<b>21.2</b> (16.0-33.2)	<b>39.9</b> (27.7-48.1)	703
	03-04	<b>2.56</b> (2.24-2.92)	<b>2.28</b> (2.02-2.78)	<b>5.17</b> (4.48-6.83)	<b>13.2</b> (10.5-16.2)	<b>27.5</b> (18.4-36.0)	699
	05-06	<b>2.87</b> (2.45-3.38)	<b>2.41</b> (2.09-2.78)	<b>5.72</b> (4.40-7.29)	<b>15.0</b> (12.0-20.6)	<b>54.4</b> (18.4-84.0)	678
	07-08	<b>2.56</b> (2.26-2.90)	<b>2.40</b> (2.17-2.73)	<b>4.77</b> (4.07-5.76)	<b>11.4</b> (8.75-15.4)	<b>18.0</b> (16.1-26.3)	597
	09-10	<b>1.51</b> (1.22-1.86)	<b>1.48</b> (1.14-1.93)	<b>2.87</b> (2.26-3.69)	<b>5.73</b> (3.69-10.7)	<b>10.7</b> (5.61-19.1)	516
Non-Hispanic whites	99-00	<b>3.09</b> (2.84-3.36)	<b>3.08</b> (2.73-3.47)	<b>5.87</b> (5.11-6.67)	<b>10.6</b> (8.95-13.5)	<b>20.0</b> (14.0-24.6)	912
	01-02	<b>3.81</b> (3.34-4.35)	<b>3.67</b> (3.11-4.33)	<b>7.78</b> (6.74-9.35)	<b>17.0</b> (14.1-21.8)	<b>32.8</b> (21.5-46.9)	1216
	03-04	<b>2.12</b> (1.91-2.35)	<b>1.82</b> (1.60-2.13)	<b>4.11</b> (3.49-4.42)	<b>10.7</b> (7.42-15.1)	<b>27.0</b> (15.1-37.4)	1088
	05-06	<b>2.98</b> (2.77-3.21)	<b>2.66</b> (2.43-2.93)	<b>5.73</b> (5.00-6.47)	<b>13.4</b> (11.3-17.8)	<b>27.7</b> (19.5-37.4)	1038
	07-08	<b>2.55</b> (2.20-2.94)	<b>2.26</b> (1.97-2.67)	<b>4.90</b> (3.99-5.92)	<b>11.0</b> (7.80-14.8)	<b>20.5</b> (11.9-30.2)	1077
	09-10	<b>1.58</b> (1.36-1.84)	<b>1.49</b> (1.27-1.76)	<b>2.94</b> (2.50-3.49)	<b>5.64</b> (4.53-7.96)	<b>10.3</b> (6.85-18.3)	1206

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DEHP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DEHP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-2-ethylhexyl phthalate (MEHP) (creatinine corrected) (2011 - 2012)

*Metabolite of Di-2-ethylhexyl phthalate (DEHP)*

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>1.55</b> (1.43-1.68)	<b>1.46</b> (1.33-1.67)	<b>2.73</b> (2.50-2.92)	<b>4.91</b> (4.55-5.52)	<b>8.47</b> (6.72-9.86)	2487
<b>Age group</b>							
6-11 years	11-12	<b>2.02</b> (1.81-2.25)	<b>2.07</b> (1.75-2.44)	<b>3.45</b> (2.82-4.06)	<b>5.26</b> (4.60-5.89)	<b>7.15</b> (5.89-8.17)	395
12-19 years	11-12	<b>1.53</b> (1.33-1.78)	<b>1.40</b> (1.12-1.88)	<b>2.79</b> (2.20-3.88)	<b>5.00</b> (4.11-6.94)	<b>9.86</b> (5.00-11.1)	388
20 years and older	11-12	<b>1.51</b> (1.39-1.64)	<b>1.46</b> (1.28-1.58)	<b>2.59</b> (2.38-2.84)	<b>4.81</b> (4.35-5.51)	<b>8.49</b> (6.18-11.2)	1704
<b>Gender</b>							
Males	11-12	<b>1.41</b> (1.28-1.56)	<b>1.36</b> (1.19-1.58)	<b>2.52</b> (2.21-2.83)	<b>4.58</b> (3.77-5.46)	<b>7.19</b> (6.16-8.79)	1258
Females	11-12	<b>1.70</b> (1.56-1.85)	<b>1.58</b> (1.43-1.75)	<b>2.86</b> (2.63-3.18)	<b>5.36</b> (4.64-5.89)	<b>8.89</b> (6.67-13.2)	1229
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>1.68</b> (1.36-2.06)	<b>1.67</b> (1.21-2.06)	<b>2.91</b> (2.46-3.50)	<b>6.23</b> (4.32-9.05)	<b>11.3</b> (5.67-18.3)	316
Non-Hispanic blacks	11-12	<b>1.47</b> (1.29-1.67)	<b>1.44</b> (1.26-1.75)	<b>2.75</b> (2.37-3.14)	<b>5.16</b> (4.17-7.05)	<b>8.69</b> (6.07-12.1)	665
Non-Hispanic whites	11-12	<b>1.47</b> (1.29-1.68)	<b>1.45</b> (1.25-1.65)	<b>2.51</b> (2.17-2.84)	<b>4.43</b> (3.77-5.00)	<b>6.77</b> (5.00-9.54)	811
All Hispanics	11-12	<b>1.80</b> (1.63-1.98)	<b>1.79</b> (1.59-2.00)	<b>3.32</b> (2.86-3.76)	<b>6.37</b> (5.67-8.07)	<b>11.3</b> (7.79-14.4)	571
Asians	11-12	<b>2.26</b> (1.98-2.58)	<b>1.98</b> (1.71-2.33)	<b>4.18</b> (3.26-5.00)	<b>8.89</b> (6.40-12.6)	<b>14.0</b> (10.0-20.1)	352

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DEHP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DEHP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-(2-ethyl-5-hydroxyhexyl) phthalate (MEHHP) (2001 – 2010)

Metabolite of Di-2-ethylhexyl phthalate (DEHP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	20.0 (17.8-22.5)	20.1 (17.8-22.4)	43.6 (38.0-49.7)	92.3 (77.0-108)	192 (131-256)	2782
	03-04	21.7 (19.3-24.4)	21.2 (18.7-24.1)	49.1 (40.5-56.9)	121 (91.3-164)	266 (165-383)	2605
	05-06	25.5 (23.0-28.2)	23.8 (21.5-26.8)	55.1 (50.2-61.0)	153 (132-180)	306 (240-421)	2548
	07-08	22.1 (18.7-26.0)	20.7 (17.6-23.7)	48.2 (39.8-61.8)	123 (83.7-181)	238 (171-336)	2604
	09-10	12.9 (11.3-14.7)	12.9 (11.4-14.8)	25.8 (22.1-30.3)	53.2 (41.7-75.2)	103 (74.2-149)	2749
Age group 6-11 years	01-02	33.6 (29.7-37.9)	32.9 (26.9-39.1)	66.9 (49.7-74.0)	127 (103-148)	216 (137-280)	393
	03-04	36.9 (28.4-47.9)	36.5 (26.5-47.0)	77.4 (49.1-103)	164 (79.9-350)	318 (164-400)	342
	05-06	34.9 (30.8-39.6)	35.7 (31.3-40.7)	68.9 (56.5-76.0)	140 (101-169)	206 (133-401)	356
	07-08	28.6 (23.4-34.8)	27.0 (20.1-36.4)	56.1 (45.4-67.8)	113 (76.5-218)	242 (109-351)	389
	09-10	15.0 (13.2-17.1)	17.0 (14.1-19.8)	28.9 (24.4-37.4)	49.3 (41.2-70.2)	75.1 (55.2-117)	415
12-19 years	01-02	24.9 (21.3-29.1)	25.3 (22.9-31.3)	50.6 (40.7-64.5)	107 (78.5-148)	216 (117-330)	742
	03-04	28.3 (23.0-34.8)	29.8 (25.9-33.9)	56.9 (45.4-73.7)	157 (84.1-299)	317 (176-553)	729
	05-06	34.8 (28.0-43.3)	32.5 (27.1-42.2)	79.5 (66.9-103)	213 (131-384)	424 (232-836)	702
	07-08	29.8 (22.5-39.3)	26.6 (20.0-35.4)	66.7 (43.7-96.6)	224 (101-417)	417 (209-615)	401
	09-10	15.3 (12.4-18.8)	14.9 (12.0-18.0)	28.8 (22.7-41.0)	70.2 (41.0-110)	117 (61.0-215)	420
20 years and older	01-02	18.1 (15.7-20.9)	17.8 (14.7-20.7)	39.8 (32.7-48.0)	86.2 (65.7-107)	175 (110-279)	1647
	03-04	19.5 (17.7-21.5)	18.4 (16.6-21.0)	41.9 (36.9-51.2)	107 (88.2-136)	225 (148-384)	1534
	05-06	23.4 (21.1-25.9)	21.4 (19.5-23.7)	48.6 (43.7-55.1)	148 (121-172)	306 (238-421)	1490
	07-08	20.5 (17.4-24.1)	19.6 (17.1-22.2)	46.3 (37.2-59.9)	110 (75.0-169)	214 (157-303)	1814
	09-10	12.4 (10.7-14.3)	12.5 (10.8-14.3)	24.5 (21.1-29.3)	52.5 (40.1-72.6)	104 (72.6-151)	1914
Gender Males	01-02	22.0 (19.5-24.7)	21.2 (19.4-24.2)	48.0 (41.4-54.4)	94.2 (80.8-110)	212 (130-256)	1371
	03-04	24.1 (20.9-27.9)	22.9 (19.2-27.9)	51.0 (40.5-59.8)	133 (94.8-220)	317 (162-470)	1250
	05-06	29.6 (26.0-33.8)	27.2 (22.9-31.0)	63.1 (54.3-71.9)	180 (143-263)	494 (285-626)	1270
	07-08	23.2 (19.4-27.8)	20.8 (18.1-24.5)	46.0 (39.2-57.3)	132 (85.4-190)	277 (162-349)	1294
	09-10	15.2 (13.1-17.6)	14.6 (12.9-16.4)	29.5 (24.6-36.2)	71.0 (50.3-93.5)	128 (90.6-181)	1399
Females	01-02	18.3 (15.7-21.4)	18.2 (14.9-22.1)	39.8 (34.3-46.0)	86.0 (69.4-115)	170 (119-273)	1411
	03-04	19.7 (17.4-22.2)	19.4 (16.7-22.8)	46.4 (37.5-54.4)	103 (84.1-148)	214 (140-318)	1355
	05-06	22.0 (19.2-25.2)	21.4 (19.5-23.4)	47.1 (42.6-54.3)	135 (113-156)	232 (186-300)	1278
	07-08	21.0 (17.8-24.8)	19.9 (16.8-23.3)	51.0 (39.9-64.6)	121 (76.9-183)	223 (171-336)	1310
	09-10	11.0 (9.58-12.8)	11.6 (9.73-13.5)	22.5 (19.2-27.2)	42.8 (33.2-59.1)	82.2 (53.1-116)	1350

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, 07-08, and 09-10 are 1.0, 0.3, 0.7, 0.7, and 0.2 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DEHP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DEHP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-(2-ethyl-5-hydroxyhexyl) phthalate (MEHHP) (2001 – 2010)

Metabolite of Di-2-ethylhexyl phthalate (DEHP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	01-02	<b>18.5</b> (16.2-21.1)	<b>19.1</b> (16.3-21.6)	<b>36.3</b> (31.6-44.0)	<b>79.9</b> (66.4-93.9)	<b>123</b> (100-161)	677
	03-04	<b>18.9</b> (15.4-23.4)	<b>19.8</b> (17.6-22.3)	<b>37.5</b> (30.0-45.6)	<b>72.2</b> (52.4-115)	<b>116</b> (71.6-327)	652
	05-06	<b>23.0</b> (18.0-29.3)	<b>19.9</b> (15.7-23.9)	<b>47.8</b> (34.8-65.3)	<b>136</b> (84.6-223)	<b>244</b> (157-520)	637
	07-08	<b>22.7</b> (18.5-27.7)	<b>19.8</b> (17.5-23.8)	<b>43.6</b> (33.5-66.6)	<b>104</b> (82.8-157)	<b>238</b> (158-282)	531
	09-10	<b>15.3</b> (12.9-18.2)	<b>15.8</b> (13.3-18.3)	<b>31.5</b> (26.6-39.2)	<b>64.5</b> (46.4-94.9)	<b>108</b> (70.7-153)	566
Non-Hispanic blacks	01-02	<b>29.8</b> (26.1-34.1)	<b>30.9</b> (27.2-34.3)	<b>61.9</b> (52.6-69.4)	<b>126</b> (108-157)	<b>276</b> (157-339)	703
	03-04	<b>30.8</b> (26.8-35.5)	<b>29.1</b> (25.3-32.3)	<b>65.6</b> (53.7-76.3)	<b>154</b> (113-178)	<b>275</b> (174-401)	699
	05-06	<b>34.8</b> (30.3-39.9)	<b>30.2</b> (27.6-33.2)	<b>73.8</b> (61.0-96.7)	<b>206</b> (156-275)	<b>395</b> (274-547)	678
	07-08	<b>25.7</b> (23.1-28.6)	<b>25.8</b> (22.4-28.9)	<b>55.9</b> (47.1-64.7)	<b>121</b> (99.1-150)	<b>184</b> (137-255)	597
	09-10	<b>15.5</b> (12.8-18.8)	<b>15.7</b> (13.4-17.7)	<b>30.4</b> (24.4-35.7)	<b>54.5</b> (37.7-84.1)	<b>94.6</b> (51.5-229)	516
Non-Hispanic whites	01-02	<b>19.1</b> (16.7-21.9)	<b>19.2</b> (16.9-21.4)	<b>41.7</b> (35.3-50.7)	<b>91.1</b> (75.6-110)	<b>212</b> (130-275)	1216
	03-04	<b>20.8</b> (18.6-23.3)	<b>19.7</b> (17.2-22.5)	<b>47.5</b> (39.4-56.1)	<b>120</b> (91.3-165)	<b>270</b> (155-403)	1088
	05-06	<b>24.3</b> (21.9-26.9)	<b>23.0</b> (21.1-26.0)	<b>54.6</b> (48.4-61.0)	<b>148</b> (121-172)	<b>302</b> (221-421)	1038
	07-08	<b>21.3</b> (17.6-25.8)	<b>20.2</b> (16.5-24.1)	<b>46.7</b> (36.1-65.2)	<b>123</b> (75.1-203)	<b>277</b> (161-373)	1077
	09-10	<b>12.2</b> (10.5-14.1)	<b>12.3</b> (10.5-14.2)	<b>24.4</b> (20.7-29.1)	<b>51.7</b> (37.7-77.1)	<b>104</b> (72.6-151)	1206

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, 07-08, and 09-10 are 1.0, 0.3, 0.7, 0.7, and 0.2 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DEHP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DEHP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-(2-ethyl-5-hydroxyhexyl) phthalate (MEHHP) (2011 - 2012)

Metabolite of Di-2-ethylhexyl phthalate (DEHP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>7.91</b> (7.47-8.36)	<b>8.30</b> (7.50-9.00)	<b>16.0</b> (14.4-17.4)	<b>29.0</b> (25.8-32.5)	<b>43.1</b> (40.6-47.2)	2489
<b>Age group</b>							
6-11 years	11-12	<b>10.5</b> (8.82-12.4)	<b>11.8</b> (10.4-14.2)	<b>23.3</b> (19.9-26.1)	<b>39.5</b> (30.6-50.3)	<b>55.4</b> (41.8-68.5)	396
12-19 years	11-12	<b>8.55</b> (6.93-10.6)	<b>8.80</b> (6.80-10.6)	<b>18.3</b> (14.3-23.2)	<b>36.0</b> (27.4-46.6)	<b>56.7</b> (38.1-99.8)	388
20 years and older	11-12	<b>7.58</b> (7.03-8.16)	<b>8.00</b> (7.20-8.90)	<b>15.0</b> (13.5-16.9)	<b>26.7</b> (23.8-30.6)	<b>41.5</b> (34.7-46.2)	1705
<b>Gender</b>							
Males	11-12	<b>8.71</b> (7.98-9.51)	<b>9.40</b> (7.80-10.6)	<b>16.4</b> (14.2-19.5)	<b>31.1</b> (26.7-35.8)	<b>46.2</b> (41.5-55.4)	1259
Females	11-12	<b>7.20</b> (6.77-7.66)	<b>7.60</b> (6.90-8.20)	<b>15.5</b> (14.4-17.1)	<b>27.6</b> (25.0-30.5)	<b>40.7</b> (35.1-46.4)	1230
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>9.13</b> (7.22-11.5)	<b>9.60</b> (7.30-11.7)	<b>17.7</b> (12.7-24.7)	<b>32.1</b> (24.8-37.7)	<b>50.2</b> (36.4-56.3)	316
Non-Hispanic blacks	11-12	<b>11.3</b> (10.1-12.7)	<b>11.2</b> (10.2-12.7)	<b>22.1</b> (17.4-26.8)	<b>38.8</b> (34.9-47.9)	<b>56.2</b> (46.8-65.1)	665
Non-Hispanic whites	11-12	<b>7.20</b> (6.73-7.70)	<b>7.40</b> (6.80-8.30)	<b>14.6</b> (12.9-17.2)	<b>25.0</b> (23.4-27.9)	<b>36.6</b> (30.6-42.9)	813
All Hispanics	11-12	<b>9.28</b> (8.07-10.7)	<b>9.40</b> (7.70-10.8)	<b>18.8</b> (15.3-22.9)	<b>37.5</b> (32.1-43.9)	<b>53.8</b> (46.3-70.6)	571
Asians	11-12	<b>6.85</b> (5.53-8.48)	<b>6.70</b> (5.40-7.90)	<b>15.1</b> (11.5-18.6)	<b>31.8</b> (22.5-41.9)	<b>64.2</b> (35.7-82.8)	352

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 0.2.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DEHP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DEHP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-(2-ethyl-5-hydroxyhexyl) phthalate (MEHHP) (creatinine corrected) (2001 – 2010)

Metabolite of Di-2-ethylhexyl phthalate (DEHP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	18.8 (17.0-20.7)	16.6 (14.9-18.5)	32.2 (27.8-37.1)	71.1 (58.7-88.3)	143 (101-200)	2782
	03-04	20.4 (18.7-22.3)	17.7 (16.3-19.6)	35.8 (30.5-43.3)	93.5 (74.0-128)	182 (134-262)	2605
	05-06	24.8 (22.4-27.5)	21.4 (19.1-23.4)	46.1 (40.0-52.1)	117 (97.8-148)	235 (197-272)	2548
	07-08	22.2 (19.4-25.5)	19.3 (17.4-22.1)	40.5 (34.1-50.3)	99.3 (69.7-134)	179 (135-252)	2604
	09-10	13.5 (11.6-15.6)	11.9 (10.5-13.9)	22.3 (18.6-26.4)	44.0 (35.3-61.0)	86.3 (59.2-131)	2749
Age group 6-11 years	01-02	38.2 (34.3-42.6)	34.3 (29.9-38.9)	60.6 (51.9-76.4)	107 (96.3-147)	211 (122-313)	393
	03-04	39.0 (31.1-48.9)	36.6 (25.3-49.3)	65.6 (49.8-91.3)	129 (77.1-253)	211 (123-708)	342
	05-06	38.5 (34.2-43.3)	37.0 (32.9-40.3)	65.5 (55.4-71.9)	115 (85.1-165)	213 (119-333)	356
	07-08	35.2 (29.1-42.5)	31.4 (25.6-37.8)	53.5 (44.8-72.3)	139 (79.9-230)	258 (141-303)	389
	09-10	19.6 (17.3-22.2)	18.6 (16.5-21.5)	34.2 (27.3-40.4)	55.4 (44.0-64.8)	72.1 (56.3-140)	415
12-19 years	01-02	19.2 (17.0-21.8)	17.8 (15.6-20.0)	34.9 (29.2-42.7)	73.4 (58.4-80.7)	102 (86.6-160)	742
	03-04	21.2 (18.1-24.7)	18.6 (16.9-21.7)	38.7 (29.7-53.4)	103 (62.7-209)	212 (100-358)	729
	05-06	26.0 (21.2-31.7)	23.7 (18.8-28.4)	49.4 (37.4-74.0)	131 (79.0-228)	278 (132-375)	702
	07-08	23.2 (18.1-29.6)	20.0 (14.6-23.9)	46.1 (31.5-66.3)	148 (66.6-234)	234 (146-373)	401
	09-10	12.3 (9.73-15.5)	10.5 (8.95-13.3)	20.9 (14.2-31.0)	45.3 (28.9-91.9)	110 (44.6-200)	420
20 years and older	01-02	17.1 (15.2-19.3)	15.0 (13.3-16.7)	27.7 (23.2-34.0)	63.7 (48.3-86.9)	137 (84.4-203)	1647
	03-04	18.8 (17.5-20.2)	16.3 (15.4-17.5)	31.6 (28.1-35.3)	83.8 (67.2-106)	171 (129-246)	1534
	05-06	23.4 (21.1-26.0)	19.4 (17.6-21.8)	42.5 (37.6-49.2)	115 (93.1-153)	235 (184-298)	1490
	07-08	21.0 (18.5-24.0)	18.5 (16.3-20.2)	38.1 (30.9-49.2)	94.3 (62.6-126)	164 (120-235)	1814
	09-10	13.1 (11.3-15.2)	11.5 (10.1-13.4)	20.9 (17.7-25.1)	40.6 (32.4-64.9)	86.3 (59.2-131)	1914
Gender Males	01-02	17.9 (16.2-19.7)	15.4 (13.8-17.9)	32.2 (27.8-36.8)	73.4 (55.3-91.8)	137 (97.7-224)	1371
	03-04	18.9 (17.1-20.9)	17.1 (15.2-18.6)	32.7 (26.6-41.6)	93.4 (68.8-123)	193 (108-291)	1250
	05-06	23.8 (21.0-26.9)	20.2 (17.5-23.3)	44.8 (38.5-54.1)	129 (92.5-166)	251 (202-352)	1270
	07-08	19.6 (16.8-22.7)	16.8 (14.6-20.0)	34.8 (28.7-41.8)	90.3 (65.2-119)	164 (111-258)	1294
	09-10	13.6 (11.7-15.9)	11.6 (10.5-13.1)	22.9 (17.8-27.4)	52.8 (39.1-74.3)	103 (73.3-173)	1399
Females	01-02	19.7 (17.3-22.4)	17.6 (15.4-19.5)	32.1 (26.8-38.6)	70.5 (57.8-93.7)	156 (93.7-201)	1411
	03-04	21.9 (19.7-24.5)	18.7 (16.8-20.9)	39.3 (33.8-46.9)	94.3 (72.8-136)	171 (146-261)	1355
	05-06	25.9 (23.2-28.8)	22.5 (19.6-25.5)	47.3 (40.5-52.3)	108 (88.8-131)	202 (157-278)	1278
	07-08	25.2 (22.1-28.6)	22.1 (19.6-24.4)	47.4 (38.5-56.1)	112 (84.6-150)	190 (162-268)	1310
	09-10	13.3 (11.4-15.6)	12.4 (10.4-14.6)	21.9 (18.3-26.7)	38.8 (30.9-52.2)	74.0 (46.9-115)	1350

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DEHP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DEHP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-(2-ethyl-5-hydroxyhexyl) phthalate (MEHHP) (creatinine corrected) (2001 – 2010)

Metabolite of Di-2-ethylhexyl phthalate (DEHP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	01-02	17.4 (15.9-19.1)	15.7 (14.4-17.5)	30.6 (26.0-34.7)	65.9 (50.6-83.9)	103 (75.5-128)	677
	03-04	17.1 (14.3-20.4)	15.4 (13.2-17.7)	29.3 (23.8-36.8)	57.3 (45.7-97.6)	105 (70.1-195)	652
	05-06	20.7 (17.2-25.0)	17.5 (15.3-21.3)	37.3 (30.9-45.7)	99.9 (67.6-159)	181 (110-357)	637
	07-08	22.1 (17.7-27.7)	18.8 (15.2-23.4)	38.6 (28.3-54.9)	91.4 (61.0-170)	197 (141-282)	531
	09-10	15.2 (12.9-17.8)	14.6 (12.8-16.2)	27.0 (21.3-33.3)	60.0 (42.3-77.7)	94.8 (66.4-142)	566
Non-Hispanic blacks	01-02	20.9 (18.8-23.8)	19.7 (17.5-21.8)	38.3 (32.1-46.0)	93.5 (69.2-123)	164 (130-183)	703
	03-04	21.9 (20.1-23.8)	19.5 (17.3-22.6)	40.1 (35.8-45.3)	102 (75.5-122)	164 (133-269)	699
	05-06	24.5 (21.2-28.2)	18.9 (17.1-22.8)	46.1 (37.9-59.7)	128 (100-158)	308 (158-399)	678
	07-08	20.0 (18.1-22.0)	18.3 (16.5-19.2)	36.9 (27.9-46.7)	85.5 (65.8-103)	136 (107-227)	597
	09-10	11.2 (8.71-14.5)	10.5 (8.26-13.5)	18.9 (13.6-25.3)	32.9 (22.3-58.4)	47.2 (33.6-153)	516
Non-Hispanic whites	01-02	18.9 (17.0-21.0)	16.3 (14.8-18.4)	32.1 (27.3-37.3)	70.8 (56.9-93.7)	177 (98.0-242)	1216
	03-04	20.5 (18.5-22.8)	17.8 (16.2-19.7)	35.3 (29.7-44.9)	96.2 (75.8-136)	211 (136-283)	1088
	05-06	25.6 (23.1-28.2)	22.4 (19.6-24.5)	47.6 (40.7-54.1)	119 (98.2-148)	231 (181-297)	1038
	07-08	22.2 (18.7-26.3)	19.5 (16.7-23.0)	40.4 (32.1-54.8)	99.1 (68.1-145)	179 (129-258)	1077
	09-10	13.7 (11.7-16.1)	11.9 (10.4-13.9)	22.4 (18.0-27.6)	43.0 (34.2-61.0)	84.1 (54.7-142)	1206

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DEHP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DEHP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)



## Urinary Mono-(2-ethyl-5-hydroxyhexyl) phthalate (MEHHP) (creatinine corrected) (2011 - 2012)

Metabolite of Di-2-ethylhexyl phthalate (DEHP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>8.99</b> (8.55-9.46)	<b>8.46</b> (7.90-9.27)	<b>14.1</b> (13.5-14.9)	<b>25.3</b> (23.1-27.8)	<b>37.7</b> (32.9-45.3)	2487
<b>Age group</b>							
6-11 years	11-12	<b>14.9</b> (12.9-17.2)	<b>14.8</b> (13.0-18.2)	<b>26.5</b> (22.9-28.2)	<b>42.6</b> (30.9-46.5)	<b>58.1</b> (43.2-75.1)	395
12-19 years	11-12	<b>8.33</b> (7.38-9.41)	<b>7.60</b> (6.41-8.29)	<b>12.6</b> (10.4-15.5)	<b>28.7</b> (20.1-37.2)	<b>53.9</b> (31.7-68.8)	388
20 years and older	11-12	<b>8.61</b> (8.17-9.07)	<b>8.20</b> (7.63-8.94)	<b>13.5</b> (12.6-14.1)	<b>22.5</b> (20.1-25.3)	<b>32.0</b> (28.1-39.3)	1704
<b>Gender</b>							
Males	11-12	<b>8.15</b> (7.67-8.66)	<b>7.80</b> (7.18-8.21)	<b>12.2</b> (11.5-13.2)	<b>24.2</b> (20.9-25.9)	<b>37.2</b> (29.5-50.2)	1258
Females	11-12	<b>9.89</b> (9.16-10.7)	<b>9.64</b> (8.33-11.1)	<b>15.6</b> (14.7-17.3)	<b>27.0</b> (23.9-28.8)	<b>37.7</b> (33.2-44.4)	1229
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>10.3</b> (8.35-12.7)	<b>9.10</b> (7.02-12.5)	<b>18.6</b> (14.4-21.1)	<b>30.4</b> (25.1-36.0)	<b>49.6</b> (30.4-114)	316
Non-Hispanic blacks	11-12	<b>8.80</b> (7.84-9.87)	<b>8.12</b> (7.37-8.96)	<b>14.7</b> (12.4-17.8)	<b>28.2</b> (20.7-37.4)	<b>46.2</b> (29.7-57.5)	665
Non-Hispanic whites	11-12	<b>8.74</b> (8.02-9.53)	<b>8.36</b> (7.62-9.58)	<b>13.5</b> (12.5-14.5)	<b>23.1</b> (19.7-25.9)	<b>32.7</b> (27.8-42.9)	811
All Hispanics	11-12	<b>10.4</b> (9.42-11.5)	<b>9.29</b> (8.14-10.5)	<b>18.7</b> (16.7-21.1)	<b>30.5</b> (27.1-35.6)	<b>49.6</b> (33.4-67.9)	571
Asians	11-12	<b>9.18</b> (7.54-11.2)	<b>8.45</b> (7.34-10.0)	<b>16.2</b> (12.7-21.0)	<b>33.0</b> (23.6-42.6)	<b>57.4</b> (35.8-85.4)	352

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DEHP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DEHP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-(2-ethyl-5-oxohexyl) phthalate (MEOHP) (2001 – 2010)

Metabolite of Di-2-ethylhexyl phthalate (DEHP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	13.5 (12.0-15.0)	14.0 (12.5-15.1)	29.6 (25.2-34.0)	59.9 (50.4-70.9)	120 (87.2-156)	2782
	03-04	14.5 (13.0-16.1)	14.4 (12.4-16.7)	31.4 (27.4-36.6)	76.7 (59.4-102)	157 (106-232)	2605
	05-06	16.2 (14.6-18.0)	15.1 (13.5-17.1)	35.5 (32.1-40.3)	94.8 (78.5-112)	183 (147-250)	2548
	07-08	12.2 (10.3-14.3)	11.3 (10.0-13.3)	27.1 (21.8-33.8)	64.2 (47.3-93.6)	130 (93.6-177)	2604
	09-10	8.02 (7.11-9.06)	8.02 (7.27-9.04)	16.1 (13.8-19.0)	32.5 (25.2-41.8)	55.7 (41.8-80.9)	2749
Age group 6-11 years	01-02	23.3 (20.9-26.1)	22.9 (18.5-28.1)	46.5 (38.1-52.0)	81.6 (64.7-109)	142 (93.9-178)	393
	03-04	25.1 (19.6-32.3)	25.8 (19.3-31.4)	51.1 (32.1-76.5)	97.9 (58.8-197)	197 (97.6-261)	342
	05-06	23.0 (20.3-26.1)	24.5 (19.9-27.6)	44.3 (38.1-52.3)	83.8 (63.6-115)	126 (77.3-253)	356
	07-08	16.9 (13.9-20.6)	16.6 (12.4-22.6)	34.5 (26.2-40.9)	64.4 (46.9-129)	137 (63.8-179)	389
	09-10	9.78 (8.72-11.0)	11.1 (8.87-12.7)	20.0 (17.1-21.6)	35.4 (24.8-41.4)	48.4 (36.0-74.0)	415
12-19 years	01-02	17.5 (15.1-20.3)	18.6 (16.2-20.7)	35.0 (27.7-42.1)	70.7 (52.2-104)	118 (74.0-174)	742
	03-04	19.5 (16.0-23.7)	20.3 (18.4-23.5)	37.8 (32.6-44.6)	110 (54.6-168)	212 (103-326)	729
	05-06	23.0 (18.7-28.4)	22.1 (18.0-26.2)	50.7 (42.7-62.2)	134 (82.3-240)	263 (134-511)	702
	07-08	16.9 (12.8-22.3)	15.9 (11.9-19.3)	38.2 (24.0-55.5)	121 (58.1-258)	258 (120-354)	401
	09-10	10.0 (8.32-12.1)	9.82 (7.96-12.3)	19.0 (15.9-23.5)	40.0 (26.7-61.5)	68.4 (32.6-154)	420
20 years and older	01-02	12.0 (10.5-13.9)	12.3 (10.4-14.1)	26.0 (21.6-32.1)	52.3 (41.8-68.3)	116 (74.9-160)	1647
	03-04	12.9 (11.8-14.1)	12.4 (10.9-14.5)	27.0 (25.0-30.9)	68.9 (55.0-86.5)	139 (92.7-216)	1534
	05-06	14.7 (13.2-16.4)	13.4 (12.2-15.1)	31.9 (28.2-36.2)	91.6 (74.6-104)	182 (138-247)	1490
	07-08	11.1 (9.48-13.1)	10.7 (9.30-12.3)	25.5 (20.2-31.4)	59.8 (42.3-88.9)	108 (80.0-155)	1814
	09-10	7.59 (6.64-8.68)	7.55 (6.69-8.58)	15.3 (12.6-18.6)	30.6 (24.1-41.5)	54.9 (41.8-81.0)	1914
Gender Males	01-02	14.5 (13.0-16.2)	14.6 (13.1-16.2)	31.6 (25.6-34.7)	60.4 (52.3-71.4)	129 (84.4-167)	1371
	03-04	15.6 (13.6-17.9)	14.7 (12.7-18.1)	31.8 (27.2-39.5)	83.8 (59.4-134)	185 (96.2-277)	1250
	05-06	18.3 (16.0-20.9)	16.3 (14.7-19.7)	39.3 (33.4-48.1)	104 (80.7-140)	258 (180-337)	1270
	07-08	12.5 (10.5-15.0)	11.3 (9.80-13.4)	26.1 (21.8-32.2)	61.8 (46.8-98.1)	139 (83.7-189)	1294
	09-10	9.14 (8.01-10.4)	8.76 (7.87-9.88)	18.2 (14.8-21.0)	39.3 (27.5-50.9)	69.6 (50.0-109)	1399
Females	01-02	12.5 (10.8-14.6)	13.1 (11.2-15.0)	28.1 (23.7-33.5)	57.5 (45.8-72.7)	115 (81.8-147)	1411
	03-04	13.4 (11.9-15.1)	13.7 (11.4-16.4)	29.5 (26.1-36.6)	68.6 (53.7-88.1)	143 (88.2-210)	1355
	05-06	14.4 (12.6-16.5)	13.8 (12.5-15.7)	32.5 (29.3-36.4)	81.7 (68.6-104)	159 (114-182)	1278
	07-08	11.8 (10.0-14.0)	11.7 (9.80-13.5)	27.9 (21.3-37.5)	64.2 (43.9-93.6)	122 (92.0-191)	1310
	09-10	7.09 (6.17-8.14)	7.35 (6.13-8.67)	15.2 (12.1-17.5)	27.1 (21.6-36.9)	48.2 (31.3-67.1)	1350

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, 07-08, and 09-10 are 1.1, 0.5, 0.7, 0.6, and 0.2 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DEHP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DEHP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-(2-ethyl-5-oxohexyl) phthalate (MEOHP) (2001 – 2010)

Metabolite of Di-2-ethylhexyl phthalate (DEHP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	01-02	<b>13.1</b> (11.6-14.9)	<b>13.4</b> (11.6-15.0)	<b>25.5</b> (21.6-30.8)	<b>56.6</b> (40.6-70.3)	<b>77.3</b> (70.5-101)	677
	03-04	<b>12.8</b> (10.5-15.5)	<b>13.6</b> (11.4-15.6)	<b>25.3</b> (20.4-29.9)	<b>46.6</b> (32.3-70.8)	<b>76.0</b> (51.6-153)	652
	05-06	<b>14.8</b> (11.7-18.8)	<b>12.8</b> (10.5-16.1)	<b>30.9</b> (22.6-42.9)	<b>79.1</b> (51.7-131)	<b>152</b> (92.9-276)	637
	07-08	<b>12.6</b> (10.5-15.1)	<b>11.4</b> (10.4-12.9)	<b>25.1</b> (18.7-37.2)	<b>53.4</b> (43.2-91.7)	<b>118</b> (88.4-147)	531
	09-10	<b>9.57</b> (8.10-11.3)	<b>9.65</b> (8.17-11.3)	<b>19.2</b> (16.3-23.3)	<b>39.0</b> (30.9-54.7)	<b>64.6</b> (43.0-95.3)	566
Non-Hispanic blacks	01-02	<b>19.6</b> (17.1-22.5)	<b>20.1</b> (17.9-22.4)	<b>39.0</b> (34.8-44.2)	<b>80.5</b> (71.4-97.4)	<b>153</b> (102-228)	703
	03-04	<b>20.2</b> (17.7-23.0)	<b>20.1</b> (17.0-22.5)	<b>40.0</b> (33.9-46.9)	<b>92.6</b> (68.8-130)	<b>173</b> (104-247)	699
	05-06	<b>21.8</b> (18.9-25.2)	<b>18.8</b> (16.8-21.0)	<b>46.0</b> (38.0-59.1)	<b>130</b> (104-168)	<b>243</b> (159-304)	678
	07-08	<b>14.2</b> (12.7-15.9)	<b>14.0</b> (12.7-16.3)	<b>30.5</b> (25.8-35.9)	<b>64.2</b> (52.1-76.1)	<b>110</b> (71.9-136)	597
	09-10	<b>9.57</b> (8.17-11.2)	<b>9.64</b> (8.15-11.1)	<b>19.8</b> (16.5-22.1)	<b>31.4</b> (25.5-44.0)	<b>50.9</b> (31.4-129)	516
Non-Hispanic whites	01-02	<b>12.8</b> (11.2-14.6)	<b>13.2</b> (11.6-14.6)	<b>28.5</b> (23.6-34.0)	<b>58.6</b> (48.8-70.9)	<b>126</b> (83.7-172)	1216
	03-04	<b>13.8</b> (12.4-15.4)	<b>13.4</b> (11.3-16.3)	<b>31.0</b> (27.0-36.3)	<b>77.6</b> (59.4-102)	<b>161</b> (98.7-241)	1088
	05-06	<b>15.5</b> (13.9-17.3)	<b>15.0</b> (13.3-16.5)	<b>35.3</b> (30.1-40.8)	<b>92.6</b> (74.6-111)	<b>182</b> (134-247)	1038
	07-08	<b>11.7</b> (9.66-14.2)	<b>11.0</b> (9.20-13.6)	<b>26.9</b> (20.2-35.1)	<b>64.2</b> (43.4-108)	<b>137</b> (90.0-197)	1077
	09-10	<b>7.59</b> (6.60-8.73)	<b>7.55</b> (6.81-8.63)	<b>15.7</b> (12.9-18.6)	<b>29.1</b> (22.9-46.5)	<b>55.7</b> (41.5-83.5)	1206

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, 07-08, and 09-10 are 1.1, 0.5, 0.7, 0.6, and 0.2 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DEHP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DEHP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-(2-ethyl-5-oxohexyl) phthalate (MEOHP) (2011 - 2012)

Metabolite of Di-2-ethylhexyl phthalate (DEHP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>5.08</b> (4.78-5.41)	<b>5.30</b> (4.90-5.80)	<b>10.3</b> (9.40-11.5)	<b>18.4</b> (17.0-19.5)	<b>26.5</b> (23.7-30.2)	2489
<b>Age group</b>							
6-11 years	11-12	<b>6.96</b> (5.86-8.28)	<b>8.10</b> (6.90-9.70)	<b>14.6</b> (12.8-17.1)	<b>26.1</b> (22.6-28.4)	<b>34.7</b> (27.9-42.5)	396
12-19 years	11-12	<b>5.70</b> (4.64-7.01)	<b>5.70</b> (4.60-7.30)	<b>12.2</b> (10.5-13.7)	<b>22.2</b> (19.1-29.5)	<b>35.1</b> (23.0-46.8)	388
20 years and older	11-12	<b>4.83</b> (4.45-5.23)	<b>5.10</b> (4.70-5.60)	<b>9.60</b> (8.50-10.8)	<b>16.7</b> (14.5-18.6)	<b>23.0</b> (20.8-26.5)	1705
<b>Gender</b>							
Males	11-12	<b>5.50</b> (5.07-5.95)	<b>5.70</b> (5.10-6.30)	<b>10.5</b> (8.90-12.2)	<b>18.7</b> (16.9-21.2)	<b>28.1</b> (23.4-34.3)	1259
Females	11-12	<b>4.71</b> (4.39-5.07)	<b>5.00</b> (4.70-5.60)	<b>10.2</b> (9.20-11.1)	<b>18.1</b> (15.8-19.3)	<b>25.4</b> (21.9-29.6)	1230
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>5.86</b> (4.69-7.33)	<b>5.90</b> (4.40-7.50)	<b>11.6</b> (8.40-14.4)	<b>20.5</b> (15.4-25.4)	<b>31.5</b> (22.5-35.1)	316
Non-Hispanic blacks	11-12	<b>7.30</b> (6.48-8.22)	<b>7.40</b> (6.70-8.00)	<b>14.0</b> (11.5-16.0)	<b>26.0</b> (21.1-32.1)	<b>36.9</b> (30.8-48.2)	665
Non-Hispanic whites	11-12	<b>4.62</b> (4.31-4.96)	<b>4.90</b> (4.50-5.50)	<b>9.50</b> (8.40-10.8)	<b>16.1</b> (13.8-18.6)	<b>21.2</b> (19.0-25.9)	813
All Hispanics	11-12	<b>5.94</b> (5.17-6.83)	<b>6.00</b> (4.80-7.30)	<b>11.8</b> (9.70-14.0)	<b>22.5</b> (19.8-25.8)	<b>34.3</b> (26.2-39.8)	571
Asians	11-12	<b>4.39</b> (3.63-5.31)	<b>4.20</b> (3.30-5.20)	<b>9.40</b> (7.20-11.3)	<b>19.0</b> (15.0-27.8)	<b>36.8</b> (25.4-52.4)	352

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 0.2.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DEHP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DEHP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-(2-ethyl-5-oxohexyl) phthalate (MEOHP) (creatinine corrected) (2001 – 2010)

Metabolite of Di-2-ethylhexyl phthalate (DEHP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	12.6 (11.5-13.9)	11.2 (10.2-12.3)	21.3 (18.3-23.8)	45.2 (37.1-58.1)	87.0 (68.0-124)	2782
	03-04	13.6 (12.4-14.8)	12.1 (11.0-12.9)	24.3 (20.9-27.8)	63.0 (47.8-75.8)	118 (94.1-153)	2605
	05-06	15.8 (14.2-17.5)	13.5 (12.4-14.7)	28.9 (26.0-33.8)	77.7 (62.4-91.1)	144 (118-172)	2548
	07-08	12.3 (10.7-14.0)	11.0 (9.72-12.2)	22.3 (18.4-27.9)	52.9 (37.9-74.6)	107 (74.8-136)	2604
	09-10	8.37 (7.31-9.59)	7.44 (6.71-8.42)	13.5 (11.5-15.7)	25.9 (21.4-34.6)	47.7 (34.6-67.8)	2749
Age group 6-11 years	01-02	26.6 (24.0-29.4)	22.8 (20.3-25.0)	43.3 (33.6-47.1)	74.7 (69.0-91.9)	131 (83.0-183)	393
	03-04	26.6 (21.4-33.0)	25.3 (17.8-32.4)	43.6 (34.2-63.2)	77.1 (63.0-118)	121 (76.3-435)	342
	05-06	25.4 (22.5-28.6)	24.4 (21.4-26.4)	42.7 (36.0-46.9)	70.4 (52.8-117)	136 (77.2-195)	356
	07-08	20.8 (17.1-25.4)	18.5 (15.6-21.5)	35.0 (26.4-46.0)	84.1 (47.2-137)	145 (84.8-187)	389
	09-10	12.7 (11.4-14.2)	12.6 (11.5-14.1)	20.8 (16.5-25.1)	33.3 (29.5-44.1)	45.5 (33.7-74.5)	415
12-19 years	01-02	13.5 (12.0-15.2)	12.0 (10.8-14.3)	23.4 (20.0-28.5)	48.4 (39.2-54.9)	70.5 (55.0-97.2)	742
	03-04	14.6 (12.6-16.9)	12.7 (11.6-14.4)	25.5 (20.7-33.8)	67.9 (42.3-143)	153 (61.8-209)	729
	05-06	17.2 (14.1-20.9)	15.3 (12.5-18.6)	32.5 (25.7-41.3)	84.2 (49.1-147)	163 (93.1-250)	702
	07-08	13.2 (10.3-16.7)	11.1 (9.08-13.5)	25.9 (18.9-35.6)	86.3 (39.4-128)	132 (84.3-203)	401
	09-10	8.06 (6.57-9.88)	7.05 (6.16-8.25)	13.3 (9.53-18.3)	24.8 (17.8-47.9)	55.2 (23.6-110)	420
20 years and older	01-02	11.4 (10.2-12.8)	10.1 (8.89-11.4)	17.5 (15.2-21.8)	38.4 (30.5-52.5)	84.3 (53.3-128)	1647
	03-04	12.4 (11.5-13.3)	11.0 (10.0-12.0)	20.9 (18.6-22.8)	53.9 (40.7-70.2)	109 (88.6-130)	1534
	05-06	14.8 (13.3-16.4)	12.4 (11.2-13.5)	26.7 (23.8-31.3)	76.3 (61.0-89.9)	144 (106-170)	1490
	07-08	11.4 (10.0-13.0)	10.0 (9.15-11.2)	20.8 (16.7-25.6)	47.3 (33.2-65.3)	87.4 (62.7-136)	1814
	09-10	8.04 (6.99-9.24)	7.19 (6.36-8.00)	12.7 (10.7-14.7)	24.3 (19.7-34.6)	47.4 (33.7-67.3)	1914
Gender Males	01-02	11.8 (10.7-13.0)	10.2 (8.93-11.7)	21.2 (18.5-23.3)	46.1 (35.3-58.7)	84.2 (69.6-104)	1371
	03-04	12.3 (11.1-13.5)	11.1 (10.0-12.0)	21.6 (17.6-26.9)	59.1 (45.4-72.0)	120 (72.0-162)	1250
	05-06	14.7 (12.9-16.7)	12.6 (10.9-14.3)	27.1 (23.3-35.6)	79.5 (59.6-96.9)	147 (120-190)	1270
	07-08	10.5 (9.08-12.2)	9.25 (8.08-10.6)	18.9 (15.9-23.1)	46.7 (32.6-62.4)	86.4 (56.5-144)	1294
	09-10	8.19 (7.15-9.38)	7.07 (6.59-7.55)	13.4 (10.8-15.8)	30.2 (21.7-41.2)	52.1 (41.2-82.3)	1399
Females	01-02	13.5 (11.9-15.2)	12.0 (10.8-13.7)	21.5 (18.0-25.6)	44.8 (36.8-61.6)	92.3 (61.0-139)	1411
	03-04	14.9 (13.4-16.7)	12.7 (11.4-14.2)	26.6 (21.8-30.6)	65.6 (48.0-90.1)	118 (97.0-157)	1355
	05-06	16.9 (15.1-19.0)	14.7 (13.2-16.5)	30.3 (26.6-34.7)	76.4 (57.6-97.2)	137 (106-170)	1278
	07-08	14.2 (12.5-16.0)	12.5 (11.5-13.8)	25.9 (21.2-31.0)	61.1 (40.9-84.1)	114 (84.3-142)	1310
	09-10	8.55 (7.37-9.93)	8.06 (6.76-9.33)	13.6 (11.6-16.2)	24.1 (20.0-32.7)	43.2 (27.7-64.5)	1350

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DEHP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DEHP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-(2-ethyl-5-oxohexyl) phthalate (MEOHP) (creatinine corrected) (2001 – 2010)

Metabolite of Di-2-ethylhexyl phthalate (DEHP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	01-02	<b>12.4</b> (11.4-13.5)	<b>11.0</b> (10.5-12.3)	<b>20.9</b> (18.5-24.4)	<b>44.6</b> (33.4-56.2)	<b>65.9</b> (53.1-83.1)	677
	03-04	<b>11.5</b> (9.81-13.6)	<b>10.7</b> (9.04-12.3)	<b>18.8</b> (15.6-24.6)	<b>39.1</b> (31.8-53.9)	<b>63.0</b> (47.2-121)	652
	05-06	<b>13.3</b> (11.1-16.1)	<b>11.4</b> (9.58-13.6)	<b>24.0</b> (19.4-30.4)	<b>61.2</b> (45.6-85.9)	<b>102</b> (69.9-200)	637
	07-08	<b>12.3</b> (10.0-15.0)	<b>10.6</b> (8.57-14.1)	<b>21.7</b> (16.1-28.7)	<b>53.1</b> (32.7-85.2)	<b>113</b> (79.7-149)	531
	09-10	<b>9.50</b> (8.16-11.1)	<b>8.72</b> (8.13-9.61)	<b>16.6</b> (12.9-20.5)	<b>35.4</b> (24.4-46.6)	<b>56.7</b> (40.9-82.3)	566
Non-Hispanic blacks	01-02	<b>13.8</b> (12.3-15.4)	<b>13.1</b> (12.0-14.2)	<b>23.9</b> (20.0-29.3)	<b>58.3</b> (45.3-79.7)	<b>101</b> (81.3-124)	703
	03-04	<b>14.3</b> (13.1-15.6)	<b>13.3</b> (11.3-15.5)	<b>24.8</b> (21.7-27.7)	<b>61.2</b> (46.8-76.6)	<b>105</b> (79.7-152)	699
	05-06	<b>15.3</b> (13.2-17.8)	<b>11.6</b> (9.87-14.6)	<b>29.1</b> (24.7-38.5)	<b>77.1</b> (61.9-113)	<b>172</b> (99.8-251)	678
	07-08	<b>11.0</b> (9.94-12.2)	<b>9.90</b> (9.16-11.1)	<b>20.6</b> (16.6-23.5)	<b>42.2</b> (33.8-58.6)	<b>75.8</b> (57.2-124)	597
	09-10	<b>6.92</b> (5.60-8.57)	<b>6.49</b> (5.12-8.24)	<b>11.4</b> (9.09-14.1)	<b>19.2</b> (14.9-27.3)	<b>28.1</b> (19.8-61.1)	516
Non-Hispanic whites	01-02	<b>12.7</b> (11.4-14.0)	<b>11.1</b> (9.90-12.3)	<b>20.8</b> (18.0-23.9)	<b>45.7</b> (35.9-64.9)	<b>96.0</b> (68.5-161)	1216
	03-04	<b>13.7</b> (12.2-15.3)	<b>12.0</b> (10.5-12.9)	<b>24.9</b> (20.7-28.6)	<b>69.5</b> (51.4-95.3)	<b>124</b> (90.3-182)	1088
	05-06	<b>16.3</b> (14.8-18.0)	<b>14.0</b> (12.9-15.7)	<b>30.8</b> (27.3-34.8)	<b>79.3</b> (66.0-93.8)	<b>139</b> (117-163)	1038
	07-08	<b>12.2</b> (10.3-14.5)	<b>11.0</b> (9.38-13.1)	<b>22.3</b> (17.4-30.4)	<b>51.4</b> (35.7-77.7)	<b>107</b> (74.6-139)	1077
	09-10	<b>8.53</b> (7.35-9.90)	<b>7.62</b> (6.76-8.54)	<b>13.7</b> (11.2-16.2)	<b>24.9</b> (20.3-35.7)	<b>47.8</b> (32.8-76.4)	1206

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DEHP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DEHP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-(2-ethyl-5-oxohexyl) phthalate (MEOHP) (creatinine corrected) (2011 - 2012)

Metabolite of Di-2-ethylhexyl phthalate (DEHP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>5.78</b> (5.51-6.06)	<b>5.51</b> (5.12-5.83)	<b>8.99</b> (8.41-9.83)	<b>15.6</b> (14.3-16.8)	<b>23.4</b> (19.6-28.0)	2487
<b>Age group</b>							
6-11 years	11-12	<b>9.93</b> (8.63-11.4)	<b>9.89</b> (8.25-11.4)	<b>16.5</b> (14.3-18.9)	<b>25.6</b> (22.9-30.2)	<b>34.5</b> (27.9-41.9)	395
12-19 years	11-12	<b>5.55</b> (4.95-6.23)	<b>5.21</b> (4.81-5.61)	<b>8.54</b> (7.09-11.1)	<b>16.3</b> (12.9-21.3)	<b>31.6</b> (16.8-35.3)	388
20 years and older	11-12	<b>5.48</b> (5.23-5.74)	<b>5.19</b> (4.89-5.56)	<b>8.39</b> (7.95-8.98)	<b>13.9</b> (12.8-15.3)	<b>19.3</b> (16.6-25.4)	1704
<b>Gender</b>							
Males	11-12	<b>5.14</b> (4.86-5.43)	<b>4.86</b> (4.55-5.12)	<b>7.83</b> (7.29-8.24)	<b>14.7</b> (12.7-16.1)	<b>22.6</b> (18.1-29.7)	1258
Females	11-12	<b>6.48</b> (6.07-6.91)	<b>6.34</b> (5.71-6.91)	<b>10.0</b> (9.34-11.0)	<b>16.5</b> (14.7-18.6)	<b>23.5</b> (19.5-27.9)	1229
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>6.61</b> (5.43-8.05)	<b>6.00</b> (4.83-7.45)	<b>11.3</b> (8.87-13.9)	<b>18.9</b> (15.8-22.8)	<b>28.1</b> (18.2-60.8)	316
Non-Hispanic blacks	11-12	<b>5.68</b> (5.11-6.32)	<b>5.31</b> (4.71-5.70)	<b>9.33</b> (7.79-10.8)	<b>16.9</b> (13.6-23.4)	<b>29.4</b> (18.8-39.2)	665
Non-Hispanic whites	11-12	<b>5.61</b> (5.17-6.08)	<b>5.41</b> (4.90-5.99)	<b>8.42</b> (7.84-9.61)	<b>14.3</b> (12.5-15.8)	<b>20.5</b> (16.6-25.4)	811
All Hispanics	11-12	<b>6.66</b> (6.05-7.33)	<b>6.04</b> (5.49-6.74)	<b>11.3</b> (10.0-13.5)	<b>18.9</b> (16.9-21.0)	<b>30.2</b> (20.8-41.9)	571
Asians	11-12	<b>5.88</b> (4.96-6.97)	<b>5.30</b> (4.59-6.36)	<b>10.0</b> (8.11-12.2)	<b>20.2</b> (14.7-26.3)	<b>39.3</b> (23.5-50.1)	352

### Biomonitoring Summary

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### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)



## Urinary Mono-(2-ethyl-5-carboxypentyl) phthalate (MECPP) (2003 – 2010)

Metabolite of Di-2-ethylhexyl phthalate (DEHP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	34.7 (31.0-38.9)	33.0 (29.1-37.4)	71.8 (61.7-84.8)	168 (133-240)	339 (235-506)	2605
	05-06	38.6 (34.7-42.9)	35.6 (31.1-40.3)	79.7 (70.9-92.9)	211 (180-246)	386 (311-484)	2548
	07-08	33.3 (28.7-38.6)	31.2 (27.1-36.0)	69.5 (55.8-86.3)	153 (120-216)	308 (220-397)	2604
	09-10	20.7 (18.5-23.3)	20.4 (18.1-23.5)	39.9 (34.9-45.5)	78.4 (67.2-95.5)	127 (99.5-199)	2749
<b>Age group</b>							
6-11 years	03-04	58.2 (44.7-75.6)	51.6 (39.2-67.6)	112 (71.4-182)	314 (124-524)	391 (238-781)	342
	05-06	57.4 (50.2-65.7)	53.5 (42.7-67.2)	94.7 (83.2-108)	200 (154-247)	297 (196-548)	356
	07-08	46.6 (39.2-55.3)	44.1 (34.9-54.7)	92.7 (64.7-112)	156 (117-278)	357 (176-441)	389
	09-10	27.7 (24.7-31.2)	29.4 (25.4-33.2)	48.5 (39.0-60.2)	87.1 (64.4-102)	118 (87.1-202)	415
12-19 years	03-04	44.6 (36.8-54.0)	42.7 (38.4-47.6)	86.5 (67.3-108)	220 (120-397)	448 (235-808)	729
	05-06	52.9 (43.0-65.2)	46.7 (39.4-61.6)	114 (85.6-173)	314 (195-515)	560 (324-1180)	702
	07-08	44.3 (35.2-55.9)	38.9 (28.9-49.3)	97.3 (64.3-127)	247 (140-456)	476 (231-977)	401
	09-10	26.2 (22.4-30.6)	25.7 (21.2-30.0)	50.1 (38.3-57.7)	90.3 (58.2-162)	147 (83.9-349)	420
20 years and older	03-04	31.3 (28.6-34.4)	29.2 (26.2-33.0)	63.5 (56.5-73.9)	157 (130-187)	312 (199-457)	1534
	05-06	35.1 (31.5-39.0)	31.3 (28.1-35.7)	72.7 (65.4-82.4)	193 (163-237)	377 (285-460)	1490
	07-08	30.7 (26.4-35.8)	29.2 (24.3-34.4)	63.2 (51.6-80.0)	145 (109-206)	286 (182-378)	1814
	09-10	19.4 (17.0-22.0)	18.8 (15.7-22.3)	37.7 (32.8-44.0)	76.9 (63.1-92.8)	126 (96.1-197)	1914
<b>Gender</b>							
Males	03-04	37.9 (33.1-43.5)	34.7 (30.0-39.5)	73.7 (60.8-91.9)	187 (133-300)	388 (222-660)	1250
	05-06	43.6 (38.1-49.8)	39.7 (31.9-46.2)	87.0 (76.8-103)	260 (188-308)	460 (347-670)	1270
	07-08	34.4 (29.3-40.5)	31.5 (27.3-35.7)	65.1 (52.1-87.4)	161 (120-217)	321 (213-422)	1294
	09-10	23.4 (20.7-26.4)	23.0 (20.2-25.6)	44.9 (40.1-51.0)	87.1 (70.3-110)	162 (107-288)	1399
Females	03-04	31.9 (28.1-36.2)	31.3 (27.5-35.8)	69.3 (58.9-81.9)	154 (128-199)	312 (182-441)	1355
	05-06	34.3 (30.4-38.6)	31.7 (28.0-36.6)	71.0 (63.0-85.3)	192 (156-217)	309 (251-386)	1278
	07-08	32.3 (27.8-37.5)	31.0 (26.4-38.3)	73.0 (56.9-90.2)	147 (112-220)	297 (185-420)	1310
	09-10	18.5 (16.2-21.0)	18.8 (15.8-22.4)	34.7 (29.3-41.5)	72.9 (56.3-93.2)	111 (90.3-146)	1350
<b>Race/ethnicity</b>							
Mexican Americans	03-04	31.9 (27.1-37.6)	31.5 (26.8-37.4)	57.4 (45.9-71.8)	116 (86.0-162)	175 (133-355)	652
	05-06	39.4 (30.3-51.2)	34.2 (24.1-47.1)	74.6 (54.0-111)	220 (124-338)	394 (222-673)	637
	07-08	36.7 (30.6-44.0)	31.3 (27.0-35.7)	71.9 (54.9-91.7)	162 (123-241)	321 (209-477)	531
	09-10	26.2 (22.5-30.4)	25.8 (22.3-29.8)	51.0 (41.3-57.4)	92.6 (74.5-122)	160 (113-245)	566
Non-Hispanic blacks	03-04	42.6 (37.0-49.2)	38.3 (33.8-46.9)	82.5 (68.7-103)	191 (146-246)	339 (244-468)	699
	05-06	46.6 (41.3-52.5)	40.3 (35.6-46.1)	96.3 (76.6-132)	256 (208-347)	455 (328-528)	678
	07-08	35.0 (31.1-39.4)	35.6 (30.7-38.8)	71.6 (59.1-84.5)	151 (113-192)	235 (184-338)	597
	09-10	21.9 (18.6-25.7)	22.3 (18.2-25.6)	40.5 (35.7-47.1)	77.0 (61.1-97.1)	127 (76.0-268)	516
Non-Hispanic whites	03-04	33.8 (30.1-37.9)	32.1 (27.6-37.5)	72.4 (62.0-87.7)	167 (133-240)	354 (220-560)	1088
	05-06	37.0 (33.4-41.0)	35.4 (30.4-40.9)	79.7 (70.0-93.3)	203 (174-237)	380 (284-484)	1038
	07-08	32.0 (26.7-38.3)	30.4 (24.5-38.0)	67.6 (52.5-90.9)	145 (105-244)	316 (197-476)	1077
	09-10	19.6 (17.2-22.2)	19.3 (16.4-23.1)	39.3 (33.0-45.3)	75.0 (61.9-95.7)	120 (95.5-197)	1206

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08 and 09-10 are 0.3, 0.6, 0.5, and 0.2 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DEHP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DEHP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-(2-ethyl-5-carboxypentyl) phthalate (MECPP) (2011 - 2012)

Metabolite of Di-2-ethylhexyl phthalate (DEHP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>12.9</b> (12.0-13.9)	<b>13.5</b> (12.4-14.8)	<b>25.3</b> (23.6-26.7)	<b>43.9</b> (40.0-51.1)	<b>68.9</b> (60.4-75.2)	2489
<b>Age group</b>							
6-11 years	11-12	<b>18.8</b> (16.1-21.9)	<b>21.6</b> (17.3-24.1)	<b>36.8</b> (31.5-41.4)	<b>63.5</b> (51.5-71.5)	<b>81.5</b> (68.1-95.1)	396
12-19 years	11-12	<b>14.3</b> (11.3-18.0)	<b>14.0</b> (11.6-17.5)	<b>28.4</b> (23.5-36.8)	<b>59.3</b> (47.1-70.2)	<b>74.6</b> (59.3-135)	388
20 years and older	11-12	<b>12.2</b> (11.3-13.3)	<b>13.0</b> (11.4-14.4)	<b>23.8</b> (21.8-25.8)	<b>40.2</b> (36.9-43.9)	<b>61.8</b> (52.1-73.6)	1705
<b>Gender</b>							
Males	11-12	<b>14.3</b> (13.0-15.6)	<b>14.6</b> (12.7-16.4)	<b>24.7</b> (23.1-27.6)	<b>45.7</b> (40.2-54.9)	<b>71.5</b> (59.8-88.4)	1259
Females	11-12	<b>11.8</b> (10.8-12.9)	<b>12.4</b> (11.2-13.7)	<b>25.6</b> (23.4-26.6)	<b>42.3</b> (37.4-49.5)	<b>64.9</b> (54.4-76.8)	1230
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>15.8</b> (12.7-19.6)	<b>14.9</b> (12.7-18.3)	<b>28.1</b> (22.6-34.3)	<b>51.3</b> (42.5-71.3)	<b>72.6</b> (56.6-109)	316
Non-Hispanic blacks	11-12	<b>16.4</b> (14.5-18.5)	<b>16.2</b> (14.4-18.8)	<b>30.7</b> (26.0-36.6)	<b>60.9</b> (47.5-69.9)	<b>78.1</b> (68.2-96.7)	665
Non-Hispanic whites	11-12	<b>11.8</b> (10.9-12.9)	<b>12.5</b> (11.0-14.6)	<b>23.8</b> (21.8-25.7)	<b>39.9</b> (34.8-44.2)	<b>55.8</b> (47.1-76.8)	813
All Hispanics	11-12	<b>16.0</b> (14.0-18.2)	<b>15.2</b> (12.9-18.2)	<b>30.1</b> (24.5-37.8)	<b>59.8</b> (50.0-68.9)	<b>76.0</b> (70.2-104)	571
Asians	11-12	<b>12.0</b> (10.2-14.2)	<b>11.7</b> (10.2-13.7)	<b>23.6</b> (19.5-27.7)	<b>51.1</b> (36.5-70.0)	<b>80.5</b> (58.7-138)	352

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 0.2.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DEHP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DEHP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-(2-ethyl-5-carboxypentyl) phthalate (MECPP) (creatinine corrected) (2003 – 2010)

Metabolite of Di-2-ethylhexyl phthalate (DEHP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	32.6 (29.6-36.0)	27.0 (24.3-30.6)	54.6 (48.0-63.5)	139 (109-186)	251 (192-356)	2605
	05-06	37.6 (33.7-42.0)	32.2 (29.5-37.0)	67.5 (58.2-80.8)	168 (139-209)	290 (261-328)	2548
	07-08	33.6 (29.7-38.0)	29.1 (25.8-32.2)	58.7 (49.6-68.8)	138 (109-164)	233 (178-319)	2604
	09-10	21.6 (19.0-24.7)	19.2 (16.8-22.1)	33.7 (30.0-40.0)	69.4 (54.0-84.3)	121 (85.1-184)	2749
<b>Age group</b>							
6-11 years	03-04	61.5 (49.0-77.2)	52.2 (41.6-73.8)	104 (74.2-140)	210 (111-500)	372 (192-988)	342
	05-06	63.2 (55.6-71.9)	54.2 (48.1-63.6)	92.8 (82.6-111)	160 (124-247)	312 (172-480)	356
	07-08	57.4 (49.2-66.9)	49.6 (42.7-61.5)	94.2 (79.5-122)	185 (138-294)	376 (188-404)	389
	09-10	36.1 (32.4-40.3)	33.6 (32.3-36.8)	55.4 (43.9-66.9)	88.7 (69.2-113)	121 (90.6-224)	415
12-19 years	03-04	33.4 (28.7-38.7)	27.1 (23.9-32.0)	55.0 (43.8-83.8)	168 (92.5-289)	294 (159-387)	729
	05-06	39.5 (32.5-47.8)	33.9 (27.9-41.0)	72.7 (56.9-96.7)	197 (106-327)	385 (216-531)	702
	07-08	34.5 (28.1-42.3)	28.0 (23.2-35.0)	65.9 (47.5-85.9)	159 (90.1-233)	246 (159-489)	401
	09-10	21.1 (17.4-25.5)	18.2 (15.6-20.7)	33.2 (25.5-43.3)	64.9 (42.7-158)	158 (58.4-246)	420
20 years and older	03-04	30.1 (27.7-32.7)	25.1 (22.9-27.6)	49.1 (44.1-55.2)	126 (101-154)	237 (191-315)	1534
	05-06	35.2 (31.2-39.6)	29.8 (26.1-33.3)	60.8 (54.2-74.0)	167 (131-206)	279 (247-322)	1490
	07-08	31.5 (27.8-35.8)	27.8 (24.1-30.8)	53.1 (45.0-65.4)	128 (101-155)	214 (162-319)	1814
	09-10	20.5 (17.9-23.5)	18.2 (15.9-20.5)	31.7 (27.4-36.8)	65.0 (52.1-80.6)	118 (81.3-173)	1914
<b>Gender</b>							
Males	03-04	29.8 (26.8-33.1)	23.5 (21.4-27.1)	50.7 (42.2-61.7)	132 (98.0-191)	248 (159-422)	1250
	05-06	35.0 (30.7-39.9)	29.0 (25.7-32.1)	69.3 (54.2-82.9)	172 (141-210)	301 (249-376)	1270
	07-08	29.0 (25.3-33.2)	25.1 (21.7-28.8)	47.6 (40.8-57.4)	120 (91.7-157)	210 (157-331)	1294
	09-10	21.0 (18.4-23.9)	18.4 (16.1-20.4)	33.1 (29.2-38.5)	70.2 (53.4-94.6)	125 (92.8-210)	1399
Females	03-04	35.5 (31.6-40.0)	30.6 (26.4-35.5)	58.3 (48.8-71.8)	144 (108-192)	251 (192-349)	1355
	05-06	40.3 (36.2-44.9)	36.7 (31.6-40.0)	66.1 (58.2-83.7)	168 (127-206)	279 (240-341)	1278
	07-08	38.7 (34.5-43.3)	32.8 (30.0-36.4)	67.8 (58.5-80.0)	147 (117-176)	266 (176-379)	1310
	09-10	22.3 (19.3-25.7)	20.5 (17.2-23.9)	34.9 (30.0-41.7)	67.0 (53.5-80.8)	104 (80.8-170)	1350
<b>Race/ethnicity</b>							
Mexican Americans	03-04	28.8 (25.4-32.6)	24.7 (22.4-26.3)	46.7 (39.0-56.3)	94.7 (73.2-137)	152 (118-238)	652
	05-06	35.5 (28.7-43.7)	29.8 (25.5-34.9)	61.5 (48.4-86.2)	165 (105-201)	278 (181-501)	637
	07-08	35.8 (29.1-44.0)	30.6 (23.2-38.6)	64.1 (47.2-84.8)	151 (92.3-240)	286 (198-402)	531
	09-10	26.0 (22.5-30.0)	23.8 (21.3-27.0)	40.1 (35.0-52.3)	88.8 (69.5-104)	148 (100-203)	566
Non-Hispanic blacks	03-04	30.3 (27.7-33.2)	27.0 (23.2-30.7)	51.1 (41.6-64.0)	135 (100-161)	212 (173-252)	699
	05-06	32.7 (28.9-37.1)	27.1 (22.4-31.5)	62.4 (53.1-76.0)	166 (119-260)	370 (231-429)	678
	07-08	27.2 (24.3-30.5)	23.5 (21.9-26.1)	49.1 (37.7-58.6)	103 (85.9-132)	178 (140-259)	597
	09-10	15.9 (12.6-19.9)	14.5 (11.5-18.8)	26.3 (19.5-32.9)	48.0 (32.6-66.4)	70.7 (46.1-209)	516
Non-Hispanic whites	03-04	33.4 (29.5-37.7)	27.0 (23.5-31.6)	56.8 (48.6-69.4)	145 (109-198)	294 (193-385)	1088
	05-06	39.0 (34.9-43.4)	34.3 (30.3-39.1)	69.5 (59.5-83.7)	182 (143-214)	284 (237-324)	1038
	07-08	33.4 (28.4-39.3)	29.2 (25.1-34.6)	57.7 (46.6-72.4)	138 (101-166)	233 (164-338)	1077
	09-10	22.0 (19.1-25.3)	19.4 (16.8-22.9)	34.0 (29.3-42.5)	67.6 (52.5-84.3)	113 (81.3-188)	1206

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DEHP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DEHP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-(2-ethyl-5-carboxypentyl) phthalate (MECPP) (creatinine corrected) (2011 - 2012)

Metabolite of Di-2-ethylhexyl phthalate (DEHP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	14.7 (13.8-15.7)	14.1 (12.9-15.1)	22.7 (21.1-25.3)	38.9 (34.5-44.3)	59.8 (54.5-63.5)	2487
<b>Age group</b>							
6-11 years	11-12	26.8 (23.6-30.3)	26.2 (22.6-29.4)	41.5 (36.5-47.2)	63.5 (57.5-70.7)	84.4 (71.3-107)	395
12-19 years	11-12	13.9 (11.7-16.5)	12.5 (10.7-15.5)	22.2 (16.5-29.2)	41.4 (30.3-60.8)	70.9 (46.9-92.9)	388
20 years and older	11-12	13.9 (13.0-14.8)	13.3 (12.4-14.4)	21.3 (19.5-22.8)	33.9 (30.6-39.0)	53.7 (42.9-63.2)	1704
<b>Gender</b>							
Males	11-12	13.3 (12.6-14.1)	12.5 (11.6-13.3)	20.1 (17.8-21.6)	35.0 (31.0-38.8)	56.4 (46.4-62.4)	1258
Females	11-12	16.2 (14.6-18.0)	15.8 (14.1-17.7)	25.8 (22.2-29.4)	44.1 (37.6-50.8)	63.2 (54.3-72.4)	1229
<b>Race/ethnicity</b>							
Mexican Americans	11-12	17.8 (14.6-21.6)	15.3 (12.7-19.8)	28.4 (21.9-39.0)	53.4 (44.7-62.9)	80.0 (52.4-115)	316
Non-Hispanic blacks	11-12	12.8 (11.3-14.4)	11.8 (10.6-13.0)	20.8 (18.0-25.0)	40.4 (29.6-50.3)	59.4 (46.2-75.6)	665
Non-Hispanic whites	11-12	14.3 (13.1-15.7)	13.9 (12.6-15.2)	21.8 (19.7-24.6)	34.3 (30.1-42.2)	54.9 (42.9-60.9)	811
All Hispanics	11-12	17.9 (16.2-19.7)	15.7 (14.1-18.1)	30.0 (25.8-33.4)	53.4 (44.8-64.0)	80.0 (59.0-107)	571
Asians	11-12	16.1 (13.7-18.9)	14.7 (12.3-17.2)	26.4 (21.7-33.0)	51.2 (41.5-76.9)	90.0 (51.0-142)	352

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DEHP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DEHP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-(carboxynonyl) phthalate (MCNP) (2005 – 2010)

Metabolite of Di-isodecyl phthalate (DiDP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	<b>2.73</b> (2.50-2.98)	<b>2.70</b> (2.40-3.00)	<b>5.30</b> (4.80-5.90)	<b>10.2</b> (8.80-11.9)	<b>17.5</b> (14.0-21.4)	2548
	07-08	<b>2.42</b> (2.17-2.71)	<b>2.40</b> (2.20-2.70)	<b>4.70</b> (4.20-5.30)	<b>9.20</b> (8.00-10.6)	<b>16.1</b> (12.3-21.0)	2604
	09-10	<b>2.88</b> (2.58-3.22)	<b>2.91</b> (2.51-3.26)	<b>5.52</b> (4.83-6.30)	<b>10.6</b> (9.14-12.6)	<b>16.8</b> (13.9-22.1)	2749
<b>Age group</b>							
6-11 years	05-06	<b>4.54</b> (3.94-5.24)	<b>4.70</b> (4.00-5.60)	<b>8.10</b> (6.80-9.60)	<b>14.6</b> (10.8-19.1)	<b>22.8</b> (16.7-35.3)	356
	07-08	<b>3.15</b> (2.65-3.74)	<b>3.40</b> (2.90-3.80)	<b>5.40</b> (4.60-6.80)	<b>9.10</b> (7.40-12.3)	<b>14.9</b> (9.10-24.8)	389
	09-10	<b>3.45</b> (2.95-4.03)	<b>3.59</b> (3.04-4.34)	<b>6.39</b> (5.39-7.41)	<b>9.65</b> (8.75-11.2)	<b>14.5</b> (10.4-23.2)	415
12-19 years	05-06	<b>3.18</b> (2.74-3.68)	<b>3.30</b> (2.90-3.80)	<b>6.00</b> (4.70-7.20)	<b>10.3</b> (7.60-13.7)	<b>16.5</b> (11.5-21.5)	702
	07-08	<b>2.86</b> (2.59-3.16)	<b>2.70</b> (2.40-2.90)	<b>5.10</b> (4.30-5.70)	<b>10.3</b> (8.90-13.0)	<b>16.8</b> (10.7-32.4)	401
	09-10	<b>3.02</b> (2.61-3.51)	<b>3.05</b> (2.41-3.65)	<b>5.11</b> (4.49-6.43)	<b>11.0</b> (7.24-14.6)	<b>16.9</b> (10.9-32.0)	420
20 years and older	05-06	<b>2.51</b> (2.27-2.78)	<b>2.40</b> (2.20-2.70)	<b>4.90</b> (4.40-5.40)	<b>9.50</b> (7.90-11.9)	<b>17.0</b> (13.1-21.5)	1490
	07-08	<b>2.29</b> (2.04-2.58)	<b>2.30</b> (2.00-2.50)	<b>4.50</b> (4.00-5.10)	<b>9.10</b> (7.60-10.7)	<b>16.1</b> (12.2-21.4)	1814
	09-10	<b>2.81</b> (2.49-3.16)	<b>2.80</b> (2.44-3.09)	<b>5.52</b> (4.69-6.45)	<b>10.7</b> (8.95-13.5)	<b>17.3</b> (13.5-23.7)	1914
<b>Gender</b>							
Males	05-06	<b>3.16</b> (2.82-3.54)	<b>3.00</b> (2.70-3.50)	<b>5.90</b> (5.10-6.90)	<b>11.0</b> (8.80-14.0)	<b>19.5</b> (14.0-28.0)	1270
	07-08	<b>2.75</b> (2.50-3.03)	<b>2.60</b> (2.40-2.90)	<b>5.10</b> (4.50-5.70)	<b>9.50</b> (8.00-12.2)	<b>19.4</b> (12.4-29.1)	1294
	09-10	<b>3.14</b> (2.80-3.53)	<b>3.11</b> (2.72-3.61)	<b>5.75</b> (5.13-6.56)	<b>10.4</b> (9.14-11.5)	<b>15.1</b> (12.5-20.5)	1399
Females	05-06	<b>2.37</b> (2.13-2.65)	<b>2.30</b> (2.00-2.70)	<b>4.80</b> (4.30-5.30)	<b>9.30</b> (7.60-11.5)	<b>14.7</b> (13.1-18.2)	1278
	07-08	<b>2.14</b> (1.84-2.49)	<b>2.20</b> (1.80-2.60)	<b>4.40</b> (3.80-4.90)	<b>9.00</b> (7.30-10.3)	<b>14.1</b> (10.8-18.5)	1310
	09-10	<b>2.66</b> (2.32-3.04)	<b>2.60</b> (2.21-2.98)	<b>5.21</b> (4.43-6.17)	<b>11.6</b> (8.88-14.8)	<b>17.5</b> (14.6-23.4)	1350
<b>Race/ethnicity</b>							
Mexican Americans	05-06	<b>2.72</b> (2.40-3.08)	<b>2.70</b> (2.40-3.20)	<b>4.90</b> (4.30-5.70)	<b>9.00</b> (7.00-12.4)	<b>14.4</b> (9.00-26.8)	637
	07-08	<b>2.37</b> (2.15-2.62)	<b>2.30</b> (2.10-2.60)	<b>4.30</b> (3.70-5.10)	<b>8.40</b> (6.50-10.5)	<b>12.3</b> (8.40-16.2)	531
	09-10	<b>2.35</b> (2.15-2.57)	<b>2.51</b> (2.18-2.69)	<b>4.35</b> (3.83-4.83)	<b>7.72</b> (6.56-9.53)	<b>11.0</b> (8.09-14.1)	566
Non-Hispanic blacks	05-06	<b>3.18</b> (2.75-3.67)	<b>3.20</b> (2.70-3.80)	<b>5.90</b> (4.90-7.30)	<b>13.0</b> (9.50-14.6)	<b>19.2</b> (14.6-30.5)	678
	07-08	<b>2.89</b> (2.64-3.17)	<b>2.90</b> (2.50-3.10)	<b>5.60</b> (4.80-6.20)	<b>11.9</b> (9.10-15.4)	<b>21.7</b> (17.9-28.9)	597
	09-10	<b>3.51</b> (2.92-4.22)	<b>3.64</b> (2.97-4.24)	<b>6.94</b> (5.75-8.47)	<b>13.2</b> (10.2-17.5)	<b>20.8</b> (13.5-41.7)	516
Non-Hispanic whites	05-06	<b>2.67</b> (2.39-2.98)	<b>2.60</b> (2.30-2.90)	<b>5.30</b> (4.70-6.10)	<b>10.1</b> (8.20-12.6)	<b>17.6</b> (12.6-24.3)	1038
	07-08	<b>2.42</b> (2.09-2.81)	<b>2.40</b> (2.10-2.70)	<b>4.70</b> (4.10-5.60)	<b>9.10</b> (7.60-11.6)	<b>14.9</b> (10.5-29.1)	1077
	09-10	<b>2.98</b> (2.61-3.40)	<b>2.96</b> (2.53-3.48)	<b>5.59</b> (4.78-6.57)	<b>10.7</b> (8.83-14.3)	<b>16.6</b> (12.6-23.7)	1206

Limit of detection (LOD, see Data Analysis section) for Survey years 05-06, 07-08, and 09-10 are 0.6, 0.5, and 0.2 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DiDP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DiDP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-(carboxynonyl) phthalate (MCNP) (2011 - 2012)

Metabolite of Di-isodecyl phthalate (DiDP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>2.49</b> (2.31-2.68)	<b>2.40</b> (2.10-2.60)	<b>4.60</b> (4.20-5.30)	<b>8.90</b> (8.00-10.6)	<b>15.2</b> (11.4-20.0)	2489
<b>Age group</b>							
6-11 years	11-12	<b>2.51</b> (2.15-2.93)	<b>2.70</b> (2.00-3.00)	<b>4.50</b> (3.80-5.40)	<b>7.60</b> (6.60-8.90)	<b>12.9</b> (7.90-15.4)	396
12-19 years	11-12	<b>2.65</b> (2.24-3.13)	<b>2.50</b> (2.20-3.00)	<b>5.00</b> (4.00-6.30)	<b>9.10</b> (7.70-10.5)	<b>12.2</b> (10.3-18.0)	388
20 years and older	11-12	<b>2.46</b> (2.24-2.71)	<b>2.30</b> (2.10-2.60)	<b>4.60</b> (4.10-5.30)	<b>9.00</b> (7.70-11.4)	<b>16.9</b> (11.4-22.2)	1705
<b>Gender</b>							
Males	11-12	<b>2.81</b> (2.52-3.14)	<b>2.60</b> (2.30-3.10)	<b>5.40</b> (4.60-6.20)	<b>9.80</b> (8.10-14.3)	<b>18.8</b> (10.7-22.9)	1259
Females	11-12	<b>2.21</b> (2.03-2.40)	<b>2.20</b> (1.90-2.40)	<b>4.10</b> (3.70-4.60)	<b>8.50</b> (7.70-9.90)	<b>12.0</b> (10.8-13.7)	1230
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>2.22</b> (1.87-2.64)	<b>2.10</b> (1.70-2.30)	<b>3.70</b> (3.10-4.30)	<b>7.20</b> (4.80-11.0)	<b>17.8</b> (7.90-28.5)	316
Non-Hispanic blacks	11-12	<b>3.02</b> (2.82-3.25)	<b>2.90</b> (2.70-3.20)	<b>6.00</b> (5.00-7.20)	<b>10.2</b> (8.90-12.5)	<b>17.3</b> (12.5-21.0)	665
Non-Hispanic whites	11-12	<b>2.55</b> (2.31-2.82)	<b>2.50</b> (2.10-2.80)	<b>4.80</b> (4.10-5.60)	<b>9.00</b> (7.70-11.4)	<b>15.2</b> (10.3-20.8)	813
All Hispanics	11-12	<b>2.27</b> (2.04-2.53)	<b>2.10</b> (1.80-2.40)	<b>3.80</b> (3.40-4.50)	<b>7.90</b> (6.30-10.4)	<b>16.1</b> (10.8-21.0)	571
Asians	11-12	<b>1.56</b> (1.33-1.83)	<b>1.40</b> (1.20-1.50)	<b>2.90</b> (2.30-4.10)	<b>7.30</b> (5.90-8.50)	<b>11.2</b> (8.10-20.0)	352

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 0.2.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DiDP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DiDP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)



## Urinary Mono-(carboxynonyl) phthalate (MCNP) (creatinine corrected) (2005 – 2010)

Metabolite of Di-isodecyl phthalate (DiDP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	<b>2.66</b> (2.43-2.91)	<b>2.48</b> (2.29-2.71)	<b>4.48</b> (4.05-4.85)	<b>8.67</b> (7.17-9.71)	<b>13.2</b> (10.8-17.5)	2548
	07-08	<b>2.44</b> (2.25-2.65)	<b>2.21</b> (2.00-2.36)	<b>4.00</b> (3.68-4.44)	<b>8.31</b> (6.96-9.04)	<b>12.8</b> (11.2-15.1)	2604
	09-10	<b>3.01</b> (2.74-3.31)	<b>2.79</b> (2.48-3.10)	<b>5.04</b> (4.47-5.66)	<b>9.76</b> (8.41-11.2)	<b>15.5</b> (12.8-18.9)	2749
<b>Age group</b>							
6-11 years	05-06	<b>5.00</b> (4.45-5.63)	<b>5.06</b> (4.18-5.76)	<b>7.48</b> (6.70-8.84)	<b>16.1</b> (12.5-18.9)	<b>23.5</b> (16.1-31.7)	356
	07-08	<b>3.88</b> (3.34-4.50)	<b>3.82</b> (3.17-4.18)	<b>6.07</b> (5.14-7.00)	<b>11.2</b> (9.01-13.6)	<b>18.2</b> (12.6-27.0)	389
	09-10	<b>4.49</b> (4.01-5.03)	<b>4.33</b> (3.95-4.82)	<b>7.30</b> (6.41-8.54)	<b>11.2</b> (9.74-13.6)	<b>14.9</b> (12.7-23.1)	415
12-19 years	05-06	<b>2.37</b> (2.04-2.75)	<b>2.18</b> (1.91-2.52)	<b>3.64</b> (2.94-4.55)	<b>6.26</b> (5.15-8.70)	<b>10.7</b> (7.57-14.1)	702
	07-08	<b>2.23</b> (2.07-2.40)	<b>1.96</b> (1.83-2.08)	<b>3.68</b> (3.08-3.83)	<b>6.39</b> (4.88-9.01)	<b>10.0</b> (7.26-13.5)	401
	09-10	<b>2.43</b> (2.10-2.81)	<b>2.17</b> (1.79-2.54)	<b>3.94</b> (3.23-4.87)	<b>7.67</b> (5.32-11.2)	<b>12.8</b> (8.43-14.4)	420
20 years and older	05-06	<b>2.52</b> (2.29-2.78)	<b>2.37</b> (2.14-2.57)	<b>4.05</b> (3.77-4.51)	<b>7.90</b> (6.46-9.40)	<b>12.0</b> (9.71-16.7)	1490
	07-08	<b>2.36</b> (2.15-2.58)	<b>2.14</b> (1.91-2.32)	<b>3.88</b> (3.44-4.29)	<b>8.21</b> (6.67-9.00)	<b>12.3</b> (11.0-15.3)	1814
	09-10	<b>2.97</b> (2.69-3.29)	<b>2.72</b> (2.43-3.03)	<b>4.93</b> (4.32-5.62)	<b>9.68</b> (7.90-11.6)	<b>15.6</b> (11.9-22.5)	1914
<b>Gender</b>							
Males	05-06	<b>2.53</b> (2.28-2.82)	<b>2.36</b> (2.14-2.56)	<b>4.38</b> (3.74-5.04)	<b>7.41</b> (6.47-8.88)	<b>13.0</b> (9.40-19.6)	1270
	07-08	<b>2.32</b> (2.11-2.55)	<b>2.12</b> (1.90-2.32)	<b>3.88</b> (3.50-4.29)	<b>7.13</b> (5.78-9.15)	<b>11.4</b> (9.68-15.5)	1294
	09-10	<b>2.82</b> (2.55-3.12)	<b>2.56</b> (2.28-2.96)	<b>4.73</b> (4.19-5.49)	<b>8.68</b> (7.21-10.2)	<b>13.4</b> (11.2-15.4)	1399
Females	05-06	<b>2.79</b> (2.47-3.15)	<b>2.65</b> (2.34-2.95)	<b>4.51</b> (4.03-5.15)	<b>9.41</b> (6.82-11.6)	<b>13.5</b> (10.7-19.7)	1278
	07-08	<b>2.57</b> (2.33-2.83)	<b>2.27</b> (2.03-2.57)	<b>4.13</b> (3.78-4.82)	<b>8.71</b> (7.41-9.50)	<b>13.5</b> (12.0-16.0)	1310
	09-10	<b>3.20</b> (2.88-3.57)	<b>2.98</b> (2.72-3.28)	<b>5.40</b> (4.70-6.23)	<b>10.6</b> (8.39-13.8)	<b>16.9</b> (12.5-27.3)	1350
<b>Race/ethnicity</b>							
Mexican Americans	05-06	<b>2.45</b> (2.13-2.81)	<b>2.32</b> (2.14-2.60)	<b>4.04</b> (3.64-4.58)	<b>6.96</b> (5.73-8.14)	<b>11.0</b> (7.89-19.1)	637
	07-08	<b>2.32</b> (2.10-2.56)	<b>2.10</b> (1.90-2.34)	<b>4.12</b> (3.54-4.68)	<b>6.89</b> (5.73-7.67)	<b>9.75</b> (7.69-11.7)	531
	09-10	<b>2.33</b> (2.08-2.62)	<b>2.12</b> (1.80-2.66)	<b>3.80</b> (3.27-4.58)	<b>7.02</b> (5.44-9.66)	<b>11.3</b> (8.09-13.0)	566
Non-Hispanic blacks	05-06	<b>2.24</b> (1.96-2.55)	<b>1.97</b> (1.78-2.37)	<b>3.60</b> (3.25-4.24)	<b>7.82</b> (6.38-10.4)	<b>12.1</b> (10.1-17.4)	678
	07-08	<b>2.25</b> (2.05-2.47)	<b>2.00</b> (1.88-2.17)	<b>3.88</b> (3.50-4.27)	<b>8.18</b> (6.25-10.4)	<b>14.9</b> (9.31-20.4)	597
	09-10	<b>2.54</b> (2.24-2.88)	<b>2.46</b> (2.02-2.96)	<b>4.52</b> (4.20-5.13)	<b>8.51</b> (6.35-10.9)	<b>11.3</b> (9.81-16.0)	516
Non-Hispanic whites	05-06	<b>2.81</b> (2.51-3.14)	<b>2.57</b> (2.33-2.85)	<b>4.62</b> (4.10-5.19)	<b>9.26</b> (7.00-10.8)	<b>13.5</b> (10.3-23.5)	1038
	07-08	<b>2.53</b> (2.23-2.86)	<b>2.26</b> (1.98-2.57)	<b>4.11</b> (3.66-4.70)	<b>8.51</b> (6.59-10.2)	<b>13.3</b> (10.7-17.6)	1077
	09-10	<b>3.35</b> (2.98-3.77)	<b>3.06</b> (2.76-3.36)	<b>5.51</b> (4.74-6.35)	<b>10.4</b> (8.43-13.5)	<b>15.8</b> (12.3-24.8)	1206

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DiDP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DiDP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)



## Urinary Mono-(carboxynonyl) phthalate (MCNP) (creatinine corrected) (2011 - 2012)

Metabolite of Di-isodecyl phthalate (DiDP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>2.83</b> (2.57-3.11)	<b>2.50</b> (2.28-2.80)	<b>4.59</b> (4.13-5.29)	<b>9.36</b> (7.85-11.1)	<b>14.6</b> (11.9-16.8)	2487
<b>Age group</b>							
6-11 years	11-12	<b>3.55</b> (3.13-4.03)	<b>3.16</b> (2.73-3.94)	<b>5.25</b> (4.55-6.45)	<b>9.15</b> (6.64-14.3)	<b>14.7</b> (10.0-16.8)	395
12-19 years	11-12	<b>2.58</b> (2.16-3.09)	<b>2.34</b> (1.96-3.04)	<b>4.67</b> (3.38-6.13)	<b>7.74</b> (5.97-11.3)	<b>12.0</b> (7.74-15.6)	388
20 years and older	11-12	<b>2.79</b> (2.51-3.10)	<b>2.43</b> (2.21-2.77)	<b>4.46</b> (4.02-5.27)	<b>9.73</b> (7.85-11.7)	<b>14.9</b> (11.8-17.5)	1704
<b>Gender</b>							
Males	11-12	<b>2.63</b> (2.42-2.86)	<b>2.37</b> (2.17-2.54)	<b>4.43</b> (3.83-4.92)	<b>8.49</b> (6.61-10.0)	<b>12.5</b> (9.58-15.5)	1258
Females	11-12	<b>3.03</b> (2.65-3.46)	<b>2.70</b> (2.30-3.21)	<b>4.82</b> (4.18-5.80)	<b>10.7</b> (8.66-12.1)	<b>15.6</b> (12.3-17.6)	1229
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>2.50</b> (2.21-2.83)	<b>2.18</b> (2.02-2.42)	<b>3.73</b> (3.00-4.38)	<b>8.00</b> (5.46-10.7)	<b>13.2</b> (8.49-18.8)	316
Non-Hispanic blacks	11-12	<b>2.35</b> (2.19-2.53)	<b>2.20</b> (2.06-2.39)	<b>3.99</b> (3.56-4.38)	<b>6.95</b> (6.17-8.18)	<b>12.1</b> (9.30-15.7)	665
Non-Hispanic whites	11-12	<b>3.09</b> (2.75-3.47)	<b>2.75</b> (2.36-3.25)	<b>5.05</b> (4.35-5.89)	<b>10.4</b> (8.08-12.3)	<b>15.3</b> (11.9-17.6)	811
All Hispanics	11-12	<b>2.54</b> (2.37-2.73)	<b>2.25</b> (2.06-2.42)	<b>3.92</b> (3.54-4.41)	<b>8.20</b> (6.72-9.71)	<b>13.9</b> (10.0-16.8)	571
Asians	11-12	<b>2.09</b> (1.76-2.49)	<b>1.95</b> (1.70-2.19)	<b>3.75</b> (3.04-4.44)	<b>6.36</b> (5.53-7.89)	<b>9.02</b> (7.50-17.9)	352

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DiDP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DiDP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-isononyl phthalate (MiNP) (1999 – 2010)

Metabolite of Di-isononyl phthalate (DiNP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.\*\*

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	< LOD	< LOD	5.39 (<LOD-21.3)	2541
	01-02	*	< LOD	< LOD	< LOD	< LOD	2782
	03-04	*	< LOD	< LOD	< LOD	1.54 (<LOD-2.00)	2605
	05-06	*	< LOD	< LOD	1.69 (<LOD-2.00)	3.54 (2.31-6.16)	2548
	07-08	*	< LOD	< LOD	1.54 (<LOD-1.69)	3.08 (2.16-4.16)	2604
	09-10	*	< LOD	1.80 (1.49-2.13)	5.62 (4.48-7.28)	14.6 (10.7-18.3)	2749
Age group 6-11 years	99-00	*	< LOD	< LOD	< LOD	9.55 (<LOD-34.7)	328
	01-02	*	< LOD	< LOD	< LOD	< LOD	393
	03-04	*	< LOD	< LOD	1.54 (<LOD-2.31)	2.62 (1.85-4.77)	342
	05-06	*	< LOD	< LOD	1.69 (<LOD-2.00)	2.16 (2.00-2.62)	356
	07-08	*	< LOD	< LOD	1.39 (<LOD-2.00)	2.16 (1.54-3.85)	389
	09-10	*	< LOD	1.72 (1.09-2.94)	5.30 (3.08-8.98)	13.1 (5.33-21.5)	415
12-19 years	99-00	*	< LOD	< LOD	< LOD	3.54 (<LOD-31.3)	752
	01-02	*	< LOD	< LOD	< LOD	1.39 (<LOD-1.69)	742
	03-04	*	< LOD	< LOD	< LOD	2.16 (<LOD-2.77)	729
	05-06	*	< LOD	< LOD	2.16 (<LOD-4.31)	5.39 (2.00-12.2)	702
	07-08	*	< LOD	< LOD	2.46 (1.39-5.39)	5.54 (2.46-8.01)	401
	09-10	*	< LOD	2.20 (1.42-3.96)	10.7 (4.87-17.1)	20.6 (14.8-36.1)	420
20 years and older	99-00	*	< LOD	< LOD	< LOD	4.77 (<LOD-20.3)	1461
	01-02	*	< LOD	< LOD	< LOD	< LOD	1647
	03-04	*	< LOD	< LOD	< LOD	< LOD	1534
	05-06	*	< LOD	< LOD	1.54 (<LOD-2.00)	3.54 (2.16-6.47)	1490
	07-08	*	< LOD	< LOD	1.39 (<LOD-1.69)	2.77 (1.85-3.85)	1814
	09-10	*	< LOD	1.76 (1.43-2.11)	5.44 (4.31-6.64)	12.9 (8.32-17.9)	1914
Gender Males	99-00	*	< LOD	< LOD	< LOD	7.55 (<LOD-29.1)	1215
	01-02	*	< LOD	< LOD	< LOD	< LOD	1371
	03-04	*	< LOD	< LOD	< LOD	1.54 (<LOD-2.77)	1250
	05-06	*	< LOD	< LOD	2.00 (1.39-2.93)	4.00 (3.23-6.31)	1270
	07-08	*	< LOD	< LOD	1.54 (<LOD-2.16)	3.23 (2.31-4.93)	1294
	09-10	*	< LOD	2.06 (1.74-2.68)	7.19 (5.62-10.5)	17.1 (11.7-27.6)	1399
Females	99-00	*	< LOD	< LOD	< LOD	3.85 (<LOD-10.5)	1326
	01-02	*	< LOD	< LOD	< LOD	1.39 (<LOD-1.69)	1411
	03-04	*	< LOD	< LOD	< LOD	< LOD	1355
	05-06	*	< LOD	< LOD	1.39 (<LOD-1.54)	2.62 (1.85-4.31)	1278
	07-08	*	< LOD	< LOD	1.39 (<LOD-1.69)	2.77 (2.00-3.70)	1310
	09-10	*	< LOD	1.52 (1.12-1.91)	4.70 (3.80-5.47)	12.3 (6.61-16.5)	1350

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 1.23, 1.23, 1.54, 1.23, 1.23, and 0.77 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

\*\*To correct for inadequate purity in the analytical standards, all results and LODs have been adjusted by a factor of 1.54 for survey periods 1999-2008 compared with results previously reported.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DiNP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DiNP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-isononyl phthalate (MiNP) (1999 – 2010)

Metabolite of Di-isononyl phthalate (DiNP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.\*\*

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00	*	< LOD	< LOD	< LOD	2.31 (<LOD-4.31)	814
	01-02	*	< LOD	< LOD	< LOD	1.54 (<LOD-2.16)	677
	03-04	*	< LOD	< LOD	< LOD	< LOD	652
	05-06	*	< LOD	< LOD	1.54 (<LOD-2.00)	4.31 (2.00-8.62)	637
	07-08	*	< LOD	< LOD	1.39 (<LOD-2.93)	3.08 (2.00-3.85)	531
	09-10	*	< LOD	1.52 (1.19-1.91)	5.11 (3.77-7.67)	12.9 (6.27-22.2)	566
Non-Hispanic blacks	99-00	*	< LOD	< LOD	3.54 (<LOD-21.3)	10.5 (<LOD-46.5)	603
	01-02	*	< LOD	< LOD	< LOD	1.54 (<LOD-2.62)	703
	03-04	*	< LOD	< LOD	< LOD	2.00 (1.54-3.08)	699
	05-06	*	< LOD	< LOD	2.00 (1.54-2.77)	5.70 (3.54-8.62)	678
	07-08	*	< LOD	< LOD	1.69 (<LOD-2.31)	3.70 (2.16-5.70)	597
	09-10	*	< LOD	2.14 (1.79-2.56)	6.05 (4.48-10.5)	17.1 (8.32-21.9)	516
Non-Hispanic whites	99-00	*	< LOD	< LOD	< LOD	5.39 (<LOD-24.6)	912
	01-02	*	< LOD	< LOD	< LOD	< LOD	1216
	03-04	*	< LOD	< LOD	< LOD	< LOD	1088
	05-06	*	< LOD	< LOD	1.54 (<LOD-2.16)	3.23 (1.85-6.47)	1038
	07-08	*	< LOD	< LOD	1.39 (<LOD-2.00)	2.77 (1.69-4.93)	1077
	09-10	*	< LOD	1.83 (1.40-2.53)	5.67 (4.59-8.07)	14.7 (10.3-21.5)	1206

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 1.23, 1.23, 1.54, 1.23, 1.23, and 0.77 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

\*\*To correct for inadequate purity in the analytical standards, all results and LODs have been adjusted by a factor of 1.54 for survey periods 1999-2008 compared with results previously reported

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DiNP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DiNP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-isononyl phthalate (MiNP) (2011 - 2012)

Metabolite of Di-isononyl phthalate (DiNP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	<b>.800</b> (.600-.900)	<b>2.60</b> (2.00-3.20)	<b>8.80</b> (6.80-12.5)	<b>18.6</b> (13.3-28.3)	2489
<b>Age group</b>							
6-11 years	11-12	*	<b>.700</b> (<LOD-1.10)	<b>1.90</b> (1.50-2.50)	<b>4.40</b> (2.50-6.20)	<b>6.20</b> (4.40-11.4)	396
12-19 years	11-12	<b>1.36</b> (1.12-1.65)	<b>.900</b> (.800-1.20)	<b>2.80</b> (2.20-4.00)	<b>13.1</b> (5.90-23.4)	<b>24.9</b> (17.8-90.6)	388
20 years and older	11-12	*	<b>.700</b> (.600-.800)	<b>2.70</b> (2.00-3.40)	<b>9.60</b> (7.30-13.0)	<b>18.4</b> (13.1-32.1)	1705
<b>Gender</b>							
Males	11-12	<b>1.26</b> (1.12-1.42)	<b>.900</b> (.800-1.10)	<b>3.10</b> (2.60-3.70)	<b>9.30</b> (7.20-12.8)	<b>20.0</b> (12.5-39.6)	1259
Females	11-12	*	<b>.700</b> (<LOD-.800)	<b>2.10</b> (1.70-2.80)	<b>8.20</b> (4.50-14.4)	<b>18.4</b> (14.9-26.9)	1230
<b>Race/ethnicity</b>							
Mexican Americans	11-12	*	<b>.700</b> (<LOD-1.10)	<b>2.30</b> (1.50-3.20)	<b>5.30</b> (3.70-7.70)	<b>16.8</b> (5.60-31.2)	316
Non-Hispanic blacks	11-12	<b>1.40</b> (1.19-1.65)	<b>1.00</b> (.900-1.20)	<b>3.20</b> (2.40-4.30)	<b>13.1</b> (7.70-19.5)	<b>24.1</b> (15.3-36.8)	665
Non-Hispanic whites	11-12	*	<b>.700</b> (<LOD-.900)	<b>2.60</b> (1.90-3.40)	<b>9.20</b> (6.30-12.6)	<b>17.5</b> (13.0-33.5)	813
All Hispanics	11-12	*	<b>.800</b> (.600-1.00)	<b>2.40</b> (1.80-3.30)	<b>6.20</b> (4.40-9.30)	<b>17.9</b> (10.4-24.9)	571
Asians	11-12	*	<b>.700</b> (<LOD-.800)	<b>2.30</b> (1.40-3.60)	<b>6.50</b> (5.30-9.80)	<b>19.1</b> (7.80-25.9)	352

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 0.6.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DiNP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DiNP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-isononyl phthalate (MiNP) (creatinine corrected) (1999 – 2010)

Metabolite of Di-isononyl phthalate (DiNP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.\*\*

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	< LOD	< LOD	6.61 (<LOD-12.8)	2541
	01-02	*	< LOD	< LOD	< LOD	< LOD	2782
	03-04	*	< LOD	< LOD	< LOD	4.50 (<LOD-4.90)	2605
	05-06	*	< LOD	< LOD	< LOD	3.20 (<LOD-3.82)	2548
	07-08	*	< LOD	< LOD	< LOD	3.35 (<LOD-3.96)	2604
	09-10	*	< LOD	2.16 (1.91-2.41)	5.40 (4.21-7.00)	11.8 (9.59-14.2)	2749
Age group 6-11 years	99-00	*	< LOD	< LOD	< LOD	9.24 (<LOD-21.9)	328
	01-02	*	< LOD	< LOD	< LOD	< LOD	393
	03-04	*	< LOD	< LOD	3.71 (<LOD-4.82)	5.04 (3.71-7.19)	342
	05-06	*	< LOD	< LOD	2.37 (<LOD-2.93)	3.03 (2.54-5.16)	356
	07-08	*	< LOD	< LOD	3.35 (<LOD-5.33)	5.33 (3.11-7.26)	389
	09-10	*	< LOD	2.53 (1.93-3.09)	6.61 (3.77-9.73)	10.7 (6.70-21.7)	415
12-19 years	99-00	*	< LOD	< LOD	< LOD	3.08 (<LOD-11.8)	752
	01-02	*	< LOD	< LOD	< LOD	3.19 (<LOD-5.13)	742
	03-04	*	< LOD	< LOD	< LOD	3.03 (<LOD-3.99)	729
	05-06	*	< LOD	< LOD	2.66 (<LOD-3.59)	3.99 (2.97-5.28)	702
	07-08	*	< LOD	< LOD	2.56 (2.10-3.23)	3.68 (2.90-6.84)	401
	09-10	*	< LOD	2.14 (1.40-3.40)	7.58 (4.06-11.2)	13.2 (10.2-23.4)	420
20 years and older	99-00	*	< LOD	< LOD	< LOD	7.11 (<LOD-12.4)	1461
	01-02	*	< LOD	< LOD	< LOD	< LOD	1647
	03-04	*	< LOD	< LOD	< LOD	< LOD	1534
	05-06	*	< LOD	< LOD	3.37 (<LOD-4.19)	5.17 (4.17-6.11)	1490
	07-08	*	< LOD	< LOD	3.48 (<LOD-4.15)	5.45 (4.15-6.39)	1814
	09-10	*	< LOD	2.12 (1.86-2.35)	5.00 (3.91-6.67)	11.7 (8.29-14.5)	1914
Gender Males	99-00	*	< LOD	< LOD	< LOD	6.53 (<LOD-15.7)	1215
	01-02	*	< LOD	< LOD	< LOD	< LOD	1371
	03-04	*	< LOD	< LOD	< LOD	3.56 (<LOD-4.54)	1250
	05-06	*	< LOD	< LOD	2.51 (1.96-3.51)	3.99 (2.79-5.61)	1270
	07-08	*	< LOD	< LOD	2.42 (<LOD-2.95)	3.96 (3.23-5.05)	1294
	09-10	*	< LOD	1.91 (1.59-2.37)	5.54 (4.14-7.89)	12.9 (9.90-18.8)	1399
Females	99-00	*	< LOD	< LOD	< LOD	6.61 (<LOD-11.8)	1326
	01-02	*	< LOD	< LOD	< LOD	4.20 (<LOD-4.40)	1411
	03-04	*	< LOD	< LOD	< LOD	< LOD	1355
	05-06	*	< LOD	< LOD	3.67 (<LOD-4.39)	5.37 (4.88-6.27)	1278
	07-08	*	< LOD	< LOD	4.08 (<LOD-4.84)	5.81 (4.36-7.26)	1310
	09-10	*	< LOD	2.35 (2.01-2.49)	5.40 (4.13-7.00)	10.8 (7.58-14.9)	1350

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

\*\*To correct for inadequate purity in the analytical standards, all results and LODs have been adjusted by a factor of 1.54 for survey periods 1999-2008 compared with results previously reported

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DiNP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DiNP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-isononyl phthalate (MiNP) (creatinine corrected) (1999 – 2010)

Metabolite of Di-isononyl phthalate (DiNP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.\*\*

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00	*	< LOD	< LOD	< LOD	5.44 (<LOD-7.70)	814
	01-02	*	< LOD	< LOD	< LOD	3.70 (<LOD-4.20)	677
	03-04	*	< LOD	< LOD	< LOD	< LOD	652
	05-06	*	< LOD	< LOD	2.71 (<LOD-3.73)	4.88 (3.73-6.27)	637
	07-08	*	< LOD	< LOD	2.81 (<LOD-3.23)	3.96 (3.23-5.13)	531
	09-10	*	< LOD	1.74 (1.42-2.35)	4.35 (3.10-9.92)	11.5 (8.42-19.1)	566
Non-Hispanic blacks	99-00	*	< LOD	< LOD	3.13 (<LOD-8.18)	6.61 (<LOD-22.1)	603
	01-02	*	< LOD	< LOD	< LOD	2.71 (<LOD-3.30)	703
	03-04	*	< LOD	< LOD	< LOD	3.37 (2.57-3.85)	699
	05-06	*	< LOD	< LOD	2.22 (1.83-2.59)	4.39 (2.83-6.75)	678
	07-08	*	< LOD	< LOD	2.49 (<LOD-3.35)	4.19 (3.11-4.62)	597
	09-10	*	< LOD	1.51 (1.25-1.80)	4.00 (2.90-5.61)	8.97 (5.15-15.1)	516
Non-Hispanic whites	99-00	*	< LOD	< LOD	< LOD	8.39 (<LOD-15.4)	912
	01-02	*	< LOD	< LOD	< LOD	< LOD	1216
	03-04	*	< LOD	< LOD	< LOD	< LOD	1088
	05-06	*	< LOD	< LOD	3.37 (<LOD-3.99)	4.88 (3.99-5.41)	1038
	07-08	*	< LOD	< LOD	3.60 (<LOD-4.15)	5.45 (3.96-6.96)	1077
	09-10	*	< LOD	2.41 (2.08-2.70)	6.00 (4.23-8.05)	12.9 (10.4-16.6)	1206

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

\*\*To correct for inadequate purity in the analytical standards, all results and LODs have been adjusted by a factor of 1.54 for survey periods 1999-2008 compared with results previously reported

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DiNP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DiNP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-isononyl phthalate (MiNP) (creatinine corrected) (2011 - 2012)

Metabolite of Di-isononyl phthalate (DiNP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	<b>1.08</b> (.921-1.25)	<b>2.69</b> (2.25-3.26)	<b>7.88</b> (5.88-11.3)	<b>17.6</b> (11.6-26.6)	2487
<b>Age group</b>							
6-11 years	11-12	*	<b>1.13</b> (<LOD-1.40)	<b>2.44</b> (1.84-2.98)	<b>4.20</b> (3.27-7.88)	<b>7.88</b> (4.00-15.2)	395
12-19 years	11-12	<b>1.33</b> (1.05-1.68)	<b>1.01</b> (.818-1.40)	<b>2.72</b> (1.94-3.89)	<b>10.6</b> (4.63-17.6)	<b>33.0</b> (11.8-53.5)	388
20 years and older	11-12	*	<b>1.09</b> (.876-1.30)	<b>2.78</b> (2.22-3.33)	<b>8.23</b> (5.95-11.4)	<b>18.1</b> (11.4-33.8)	1704
<b>Gender</b>							
Males	11-12	<b>1.18</b> (1.04-1.33)	<b>.982</b> (.778-1.16)	<b>2.50</b> (2.15-3.06)	<b>7.88</b> (5.65-11.4)	<b>15.6</b> (10.1-24.1)	1258
Females	11-12	*	<b>1.21</b> (<LOD-1.40)	<b>2.86</b> (2.18-3.88)	<b>7.73</b> (5.20-13.0)	<b>20.1</b> (11.4-33.8)	1229
<b>Race/ethnicity</b>							
Mexican Americans	11-12	*	<b>.942</b> (<LOD-1.13)	<b>2.04</b> (1.65-2.50)	<b>4.68</b> (3.19-13.8)	<b>17.1</b> (8.39-42.6)	316
Non-Hispanic blacks	11-12	<b>1.09</b> (.915-1.29)	<b>.896</b> (.750-1.05)	<b>2.31</b> (1.73-3.33)	<b>7.45</b> (5.19-10.7)	<b>15.2</b> (9.60-22.5)	665
Non-Hispanic whites	11-12	*	<b>1.15</b> (<LOD-1.38)	<b>3.06</b> (2.35-3.60)	<b>8.23</b> (5.91-11.9)	<b>20.1</b> (11.4-33.8)	811
All Hispanics	11-12	*	<b>1.02</b> (.875-1.20)	<b>2.18</b> (1.90-2.46)	<b>6.67</b> (4.00-9.25)	<b>14.9</b> (10.1-29.7)	571
Asians	11-12	*	<b>1.21</b> (<LOD-1.49)	<b>2.70</b> (2.00-3.50)	<b>6.75</b> (4.62-10.1)	<b>14.9</b> (8.75-21.5)	352

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DiNP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DiNP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)



## Urinary Mono-(carboxyoctyl) phthalate (MCOP) (2005 – 2010)

Metabolite of Di-isononyl phthalate (DiNP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	<b>5.39</b> (4.68-6.22)	<b>5.10</b> (4.40-6.00)	<b>10.9</b> (9.10-13.1)	<b>25.5</b> (19.1-35.4)	<b>54.4</b> (32.5-85.2)	2548
	07-08	<b>6.79</b> (5.83-7.92)	<b>6.40</b> (5.60-7.40)	<b>14.9</b> (12.1-18.2)	<b>34.6</b> (25.2-43.8)	<b>63.0</b> (41.8-80.0)	2604
	09-10	<b>12.6</b> (10.4-15.2)	<b>11.8</b> (9.26-14.7)	<b>33.1</b> (25.8-40.2)	<b>83.3</b> (61.2-113)	<b>160</b> (117-191)	2749
<b>Age group</b>							
6-11 years	05-06	<b>8.52</b> (7.19-10.1)	<b>8.90</b> (7.60-9.90)	<b>15.0</b> (11.3-19.3)	<b>26.4</b> (19.9-37.3)	<b>40.3</b> (26.4-61.6)	356
	07-08	<b>10.8</b> (9.25-12.6)	<b>10.7</b> (9.10-13.1)	<b>19.8</b> (15.8-24.5)	<b>33.8</b> (26.1-50.3)	<b>59.9</b> (33.5-79.5)	389
	09-10	<b>15.0</b> (10.8-20.7)	<b>14.2</b> (9.15-20.7)	<b>34.7</b> (18.6-56.5)	<b>74.6</b> (41.6-135)	<b>120</b> (74.6-340)	415
12-19 years	05-06	<b>6.61</b> (5.42-8.06)	<b>6.30</b> (5.20-7.30)	<b>11.9</b> (9.60-16.0)	<b>28.4</b> (18.2-58.7)	<b>63.2</b> (28.4-106)	702
	07-08	<b>9.25</b> (7.33-11.7)	<b>8.10</b> (6.80-10.3)	<b>20.8</b> (15.4-28.7)	<b>60.5</b> (29.6-79.4)	<b>79.4</b> (49.7-166)	401
	09-10	<b>16.1</b> (12.3-20.9)	<b>14.5</b> (11.6-17.0)	<b>39.8</b> (22.5-61.2)	<b>96.8</b> (66.7-191)	<b>209</b> (135-263)	420
20 years and older	05-06	<b>4.96</b> (4.27-5.76)	<b>4.50</b> (3.90-5.20)	<b>9.70</b> (8.20-12.3)	<b>25.1</b> (18.2-35.7)	<b>54.4</b> (30.8-88.5)	1490
	07-08	<b>6.15</b> (5.20-7.29)	<b>5.80</b> (5.00-6.60)	<b>13.2</b> (10.5-16.8)	<b>32.0</b> (23.0-41.8)	<b>61.2</b> (38.9-80.0)	1814
	09-10	<b>11.9</b> (9.89-14.3)	<b>11.0</b> (8.58-13.7)	<b>32.1</b> (25.8-39.0)	<b>83.7</b> (56.0-114)	<b>158</b> (109-188)	1914
<b>Gender</b>							
Males	05-06	<b>6.24</b> (5.25-7.42)	<b>5.70</b> (4.70-6.90)	<b>12.1</b> (10.2-15.1)	<b>30.8</b> (19.0-58.8)	<b>66.4</b> (33.8-122)	1270
	07-08	<b>7.14</b> (6.10-8.36)	<b>6.60</b> (5.70-7.70)	<b>15.6</b> (12.4-19.3)	<b>35.7</b> (24.7-43.2)	<b>61.2</b> (40.1-89.1)	1294
	09-10	<b>14.0</b> (11.6-16.8)	<b>13.4</b> (10.5-15.6)	<b>36.0</b> (27.5-45.9)	<b>92.9</b> (66.1-134)	<b>168</b> (111-217)	1399
Females	05-06	<b>4.69</b> (4.14-5.30)	<b>4.50</b> (4.00-5.20)	<b>9.30</b> (8.20-11.1)	<b>21.5</b> (17.5-27.0)	<b>41.7</b> (28.1-61.7)	1278
	07-08	<b>6.48</b> (5.49-7.65)	<b>6.20</b> (5.40-7.40)	<b>14.3</b> (12.0-17.0)	<b>32.6</b> (24.8-47.0)	<b>64.8</b> (47.0-73.3)	1310
	09-10	<b>11.4</b> (9.17-14.1)	<b>10.6</b> (8.05-13.7)	<b>29.6</b> (20.8-38.4)	<b>70.4</b> (50.1-113)	<b>146</b> (85.2-188)	1350
<b>Race/ethnicity</b>							
Mexican Americans	05-06	<b>5.77</b> (4.84-6.87)	<b>5.20</b> (4.50-5.70)	<b>9.90</b> (8.50-12.0)	<b>23.6</b> (14.9-49.7)	<b>54.4</b> (23.0-185)	637
	07-08	<b>6.83</b> (6.23-7.49)	<b>6.20</b> (5.60-6.80)	<b>12.9</b> (11.3-14.9)	<b>29.1</b> (25.2-33.8)	<b>52.0</b> (36.8-61.2)	531
	09-10	<b>9.96</b> (7.99-12.4)	<b>8.59</b> (6.21-12.1)	<b>20.3</b> (15.8-32.6)	<b>59.3</b> (44.0-69.5)	<b>86.2</b> (63.2-136)	566
Non-Hispanic blacks	05-06	<b>6.08</b> (5.60-6.61)	<b>6.00</b> (5.10-6.70)	<b>11.4</b> (10.4-13.0)	<b>24.5</b> (20.3-28.1)	<b>50.0</b> (32.0-70.3)	678
	07-08	<b>7.55</b> (6.21-9.17)	<b>7.00</b> (6.00-8.00)	<b>16.6</b> (12.0-22.9)	<b>40.3</b> (25.5-51.9)	<b>60.4</b> (41.8-97.8)	597
	09-10	<b>12.6</b> (9.85-16.1)	<b>11.0</b> (7.35-16.2)	<b>34.5</b> (26.5-42.1)	<b>82.4</b> (63.8-109)	<b>137</b> (83.3-188)	516
Non-Hispanic whites	05-06	<b>5.25</b> (4.40-6.27)	<b>5.00</b> (4.10-6.20)	<b>11.1</b> (8.60-13.6)	<b>25.5</b> (17.7-43.5)	<b>56.1</b> (28.1-88.5)	1038
	07-08	<b>6.81</b> (5.48-8.46)	<b>6.40</b> (5.20-7.90)	<b>15.1</b> (11.0-20.8)	<b>35.7</b> (23.2-62.0)	<b>64.7</b> (39.4-89.0)	1077
	09-10	<b>13.4</b> (10.7-16.8)	<b>12.9</b> (10.1-16.1)	<b>34.8</b> (27.5-43.4)	<b>88.9</b> (64.4-136)	<b>168</b> (113-220)	1206

Limit of detection (LOD, see Data Analysis section) for Survey years 05-06, 07-08, and 09-10 are 0.7, 0.7, and 0.2 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DiNP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DiNP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-(carboxyoctyl) phthalate (MCOP) (2011 - 2012)

Metabolite of Di-isononyl phthalates (DiNP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>19.7</b> (17.4-22.3)	<b>18.7</b> (15.6-21.3)	<b>50.0</b> (43.0-61.8)	<b>123</b> (98.3-160)	<b>214</b> (180-275)	2489
<b>Age group</b>							
6-11 years	11-12	<b>18.3</b> (15.7-21.4)	<b>17.0</b> (14.7-19.8)	<b>35.2</b> (30.2-46.4)	<b>88.2</b> (63.1-108)	<b>144</b> (90.7-249)	396
12-19 years	11-12	<b>21.7</b> (17.2-27.3)	<b>20.7</b> (16.0-25.8)	<b>51.4</b> (35.9-68.0)	<b>160</b> (80.4-261)	<b>289</b> (174-421)	388
20 years and older	11-12	<b>19.6</b> (17.0-22.6)	<b>18.6</b> (14.7-21.5)	<b>51.4</b> (43.4-66.1)	<b>127</b> (103-165)	<b>199</b> (178-273)	1705
<b>Gender</b>							
Males	11-12	<b>22.8</b> (19.9-26.1)	<b>20.2</b> (16.6-22.1)	<b>59.8</b> (50.0-67.5)	<b>155</b> (120-184)	<b>255</b> (184-379)	1259
Females	11-12	<b>17.1</b> (14.7-19.9)	<b>16.3</b> (13.5-20.4)	<b>43.3</b> (35.3-58.6)	<b>103</b> (75.4-138)	<b>180</b> (119-259)	1230
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>17.1</b> (14.8-19.9)	<b>14.4</b> (11.5-20.5)	<b>38.1</b> (33.9-46.6)	<b>96.7</b> (70.3-133)	<b>174</b> (98.9-251)	316
Non-Hispanic blacks	11-12	<b>24.1</b> (21.0-27.5)	<b>22.4</b> (19.0-25.1)	<b>58.2</b> (45.7-75.9)	<b>165</b> (102-220)	<b>273</b> (206-306)	665
Non-Hispanic whites	11-12	<b>20.1</b> (17.2-23.4)	<b>19.5</b> (15.6-21.8)	<b>52.8</b> (43.1-68.0)	<b>123</b> (94.0-166)	<b>196</b> (166-275)	813
All Hispanics	11-12	<b>18.5</b> (15.3-22.2)	<b>15.8</b> (11.9-21.1)	<b>42.3</b> (35.3-55.1)	<b>104</b> (77.9-153)	<b>221</b> (133-297)	571
Asians	11-12	<b>12.2</b> (10.0-14.8)	<b>11.0</b> (8.40-13.8)	<b>36.7</b> (25.6-47.1)	<b>81.9</b> (66.1-127)	<b>135</b> (91.9-204)	352

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 0.2.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DiNP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DiNP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-(carboxyoctyl) phthalate (MCOP) (creatinine corrected) (2005 – 2010)

Metabolite of Di-isononyl phthalate (DiNP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	<b>5.26</b> (4.54-6.10)	<b>4.53</b> (3.95-5.11)	<b>9.25</b> (7.64-11.2)	<b>24.0</b> (17.1-30.8)	<b>40.2</b> (30.3-55.2)	2548
	07-08	<b>6.85</b> (6.05-7.75)	<b>5.94</b> (5.19-6.67)	<b>12.6</b> (10.8-14.4)	<b>30.6</b> (23.4-38.5)	<b>50.2</b> (40.0-60.0)	2604
	09-10	<b>13.1</b> (11.1-15.5)	<b>11.6</b> (9.69-13.8)	<b>29.3</b> (23.7-36.2)	<b>72.3</b> (55.0-93.8)	<b>119</b> (89.1-147)	2749
<b>Age group</b>							
6-11 years	05-06	<b>9.38</b> (8.08-10.9)	<b>8.48</b> (7.66-10.1)	<b>14.8</b> (12.2-18.7)	<b>30.3</b> (20.0-38.8)	<b>40.1</b> (28.2-57.3)	356
	07-08	<b>13.3</b> (11.4-15.5)	<b>11.6</b> (9.90-14.2)	<b>23.1</b> (16.2-32.5)	<b>44.2</b> (27.0-64.1)	<b>60.3</b> (44.2-110)	389
	09-10	<b>19.5</b> (14.7-25.9)	<b>18.6</b> (11.7-26.9)	<b>35.9</b> (25.7-56.9)	<b>87.8</b> (43.7-132)	<b>139</b> (80.1-312)	415
12-19 years	05-06	<b>4.93</b> (4.10-5.93)	<b>4.32</b> (3.61-4.89)	<b>7.44</b> (5.93-11.0)	<b>19.4</b> (12.4-31.8)	<b>34.7</b> (24.1-58.3)	702
	07-08	<b>7.20</b> (5.94-8.73)	<b>6.28</b> (4.79-8.08)	<b>12.6</b> (10.0-20.7)	<b>32.7</b> (22.6-56.9)	<b>56.9</b> (31.4-103)	401
	09-10	<b>12.9</b> (10.5-15.8)	<b>11.5</b> (8.38-15.1)	<b>26.3</b> (19.2-37.9)	<b>74.8</b> (43.5-120)	<b>125</b> (101-167)	420
20 years and older	05-06	<b>4.97</b> (4.26-5.81)	<b>4.17</b> (3.68-4.77)	<b>8.58</b> (7.23-10.6)	<b>23.4</b> (15.5-31.8)	<b>41.1</b> (29.2-55.9)	1490
	07-08	<b>6.32</b> (5.49-7.27)	<b>5.31</b> (4.77-6.05)	<b>11.8</b> (9.27-13.9)	<b>27.5</b> (19.5-36.8)	<b>47.7</b> (34.4-60.9)	1814
	09-10	<b>12.6</b> (10.7-14.8)	<b>10.9</b> (9.42-12.7)	<b>28.5</b> (23.3-35.9)	<b>69.5</b> (52.5-89.4)	<b>113</b> (81.9-153)	1914
<b>Gender</b>							
Males	05-06	<b>5.01</b> (4.21-5.97)	<b>4.29</b> (3.75-5.03)	<b>8.44</b> (7.17-10.9)	<b>21.6</b> (15.1-35.4)	<b>44.6</b> (25.7-85.9)	1270
	07-08	<b>6.01</b> (5.29-6.84)	<b>5.14</b> (4.54-6.26)	<b>11.5</b> (9.32-13.6)	<b>24.5</b> (19.2-31.0)	<b>43.2</b> (31.2-54.9)	1294
	09-10	<b>12.5</b> (10.6-14.7)	<b>11.4</b> (9.29-13.9)	<b>28.6</b> (23.5-36.6)	<b>67.2</b> (52.0-85.9)	<b>106</b> (82.2-138)	1399
Females	05-06	<b>5.51</b> (4.75-6.39)	<b>4.73</b> (4.23-5.32)	<b>9.55</b> (8.26-12.2)	<b>24.7</b> (17.3-30.3)	<b>39.3</b> (30.3-45.0)	1278
	07-08	<b>7.76</b> (6.84-8.81)	<b>6.52</b> (5.95-7.39)	<b>13.7</b> (11.9-16.5)	<b>35.3</b> (26.6-44.2)	<b>57.7</b> (43.5-74.4)	1310
	09-10	<b>13.7</b> (11.5-16.4)	<b>11.8</b> (9.80-14.4)	<b>29.5</b> (22.8-37.9)	<b>75.3</b> (54.2-110)	<b>123</b> (93.8-197)	1350
<b>Race/ethnicity</b>							
Mexican Americans	05-06	<b>5.19</b> (4.38-6.14)	<b>4.50</b> (3.64-5.29)	<b>8.04</b> (7.13-10.1)	<b>19.5</b> (12.3-37.7)	<b>43.6</b> (20.9-93.4)	637
	07-08	<b>6.66</b> (5.97-7.44)	<b>5.29</b> (4.69-6.20)	<b>11.6</b> (10.4-13.0)	<b>25.7</b> (20.9-29.8)	<b>38.3</b> (30.8-58.3)	531
	09-10	<b>9.89</b> (7.75-12.6)	<b>8.53</b> (6.98-10.0)	<b>20.9</b> (12.8-28.3)	<b>51.6</b> (34.2-72.3)	<b>89.4</b> (59.3-125)	566
Non-Hispanic blacks	05-06	<b>4.28</b> (3.86-4.74)	<b>3.67</b> (3.26-4.09)	<b>7.60</b> (6.80-8.81)	<b>17.1</b> (13.2-21.5)	<b>31.8</b> (22.5-43.7)	678
	07-08	<b>5.87</b> (4.82-7.13)	<b>5.37</b> (4.16-6.50)	<b>11.1</b> (8.68-15.2)	<b>28.1</b> (17.7-37.2)	<b>40.2</b> (32.0-57.8)	597
	09-10	<b>9.11</b> (7.52-11.0)	<b>7.62</b> (5.84-10.8)	<b>19.8</b> (15.5-26.5)	<b>47.6</b> (36.9-57.7)	<b>77.8</b> (57.0-104)	516
Non-Hispanic whites	05-06	<b>5.53</b> (4.61-6.63)	<b>4.81</b> (4.13-5.56)	<b>10.0</b> (7.63-13.3)	<b>25.2</b> (16.3-34.5)	<b>39.3</b> (26.8-59.7)	1038
	07-08	<b>7.11</b> (5.91-8.56)	<b>6.27</b> (5.09-7.50)	<b>13.0</b> (10.4-16.3)	<b>31.1</b> (21.3-43.2)	<b>54.2</b> (40.2-64.1)	1077
	09-10	<b>15.1</b> (12.6-18.1)	<b>13.5</b> (11.3-16.4)	<b>33.6</b> (27.0-43.5)	<b>79.2</b> (60.0-106)	<b>126</b> (97.9-186)	1206

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DiNP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DiNP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-(carboxyoctyl) phthalate (MCOP) (creatinine corrected) (2011 - 2012)

*Metabolite of Di-isononyl phthalates (DiNP)*

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Total</b>	11-12	<b>22.4</b> (19.4-25.8)	<b>20.4</b> (17.0-24.4)	<b>54.1</b> (42.0-62.1)	<b>118</b> (92.5-144)	<b>194</b> (144-239)	2487
<b>Age group</b>							
6-11 years	11-12	<b>25.9</b> (22.8-29.6)	<b>22.1</b> (18.7-25.8)	<b>42.3</b> (32.7-54.2)	<b>116</b> (56.9-161)	<b>161</b> (117-259)	395
12-19 years	11-12	<b>21.1</b> (16.6-26.9)	<b>16.9</b> (13.7-20.2)	<b>45.6</b> (28.8-63.4)	<b>120</b> (73.7-209)	<b>238</b> (117-396)	388
20 years and older	11-12	<b>22.2</b> (19.1-25.8)	<b>20.8</b> (16.7-25.1)	<b>55.3</b> (42.0-64.5)	<b>118</b> (92.2-144)	<b>194</b> (136-250)	1704
<b>Gender</b>							
Males	11-12	<b>21.3</b> (18.9-23.9)	<b>20.0</b> (16.1-23.2)	<b>54.2</b> (45.8-58.8)	<b>112</b> (90.3-144)	<b>189</b> (136-222)	1258
Females	11-12	<b>23.5</b> (19.4-28.5)	<b>20.8</b> (16.6-26.2)	<b>53.7</b> (38.3-68.5)	<b>121</b> (86.8-156)	<b>194</b> (135-290)	1229
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>19.3</b> (16.8-22.2)	<b>16.3</b> (12.8-20.7)	<b>35.7</b> (26.8-55.5)	<b>81.9</b> (70.6-115)	<b>136</b> (81.1-384)	316
Non-Hispanic blacks	11-12	<b>18.7</b> (16.5-21.3)	<b>16.1</b> (14.1-19.6)	<b>40.0</b> (32.6-51.6)	<b>102</b> (76.4-134)	<b>154</b> (132-201)	665
Non-Hispanic whites	11-12	<b>24.3</b> (20.4-29.0)	<b>21.9</b> (18.1-27.5)	<b>58.8</b> (48.3-71.3)	<b>127</b> (101-161)	<b>203</b> (146-284)	811
All Hispanics	11-12	<b>20.7</b> (18.0-23.7)	<b>18.3</b> (15.5-21.7)	<b>38.7</b> (31.2-53.0)	<b>90.7</b> (79.3-117)	<b>163</b> (121-276)	571
Asians	11-12	<b>16.3</b> (13.7-19.4)	<b>16.5</b> (11.5-22.3)	<b>37.5</b> (31.5-51.3)	<b>71.8</b> (58.5-110)	<b>121</b> (77.5-172)	352

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DiNP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DiNP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-methyl phthalate (MMP) (2001 – 2010)

Metabolite of Dimethyl phthalate (DMP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	<b>1.15</b> (.985-1.34)	<b>1.50</b> (1.30-1.80)	<b>3.30</b> (2.90-3.70)	<b>6.00</b> (5.10-7.50)	<b>9.80</b> (8.00-12.5)	2782
	03-04	*	<b>1.30</b> (<LOD-1.70)	<b>3.90</b> (3.00-4.90)	<b>9.70</b> (7.70-12.2)	<b>16.3</b> (12.0-20.4)	2605
	05-06	*	< LOD	<b>2.50</b> (1.90-3.40)	<b>7.40</b> (6.10-8.60)	<b>12.4</b> (10.8-14.7)	2548
	07-08	*	< LOD	<b>2.20</b> (1.80-2.70)	<b>6.50</b> (4.70-8.30)	<b>11.3</b> (8.40-16.3)	2604
	09-10	*	<b>.940</b> (.670-1.21)	<b>2.89</b> (2.51-3.28)	<b>6.72</b> (5.76-8.16)	<b>12.0</b> (9.29-15.3)	2749
Age group 6-11 years	01-02	<b>1.45</b> (1.13-1.87)	<b>1.90</b> (1.40-2.80)	<b>4.00</b> (3.40-4.90)	<b>7.20</b> (6.00-8.00)	<b>11.8</b> (7.60-20.8)	393
	03-04	<b>2.10</b> (1.67-2.63)	<b>1.70</b> (1.20-2.40)	<b>4.30</b> (2.80-6.40)	<b>9.50</b> (6.40-18.8)	<b>18.8</b> (9.40-33.4)	342
	05-06	*	< LOD	<b>4.00</b> (3.30-4.80)	<b>10.6</b> (7.40-13.4)	<b>15.4</b> (10.6-30.6)	356
	07-08	*	<b>1.20</b> (<LOD-1.60)	<b>3.70</b> (3.00-5.30)	<b>8.00</b> (6.50-8.70)	<b>12.1</b> (8.30-35.8)	389
	09-10	<b>2.13</b> (1.83-2.47)	<b>2.36</b> (1.72-2.92)	<b>4.83</b> (3.85-5.61)	<b>10.8</b> (8.59-16.7)	<b>22.3</b> (11.4-25.8)	415
12-19 years	01-02	<b>1.59</b> (1.28-1.96)	<b>2.10</b> (1.80-2.50)	<b>3.90</b> (3.30-4.70)	<b>8.50</b> (5.30-10.5)	<b>13.0</b> (9.60-17.8)	742
	03-04	*	<b>1.50</b> (1.00-2.20)	<b>4.40</b> (3.00-7.00)	<b>13.3</b> (7.40-20.9)	<b>21.8</b> (17.8-31.5)	729
	05-06	*	< LOD	<b>3.70</b> (2.70-4.60)	<b>8.60</b> (7.00-9.50)	<b>12.4</b> (9.30-20.7)	702
	07-08	*	< LOD	<b>2.30</b> (1.70-3.20)	<b>6.70</b> (4.20-8.90)	<b>12.0</b> (7.90-17.4)	401
	09-10	<b>1.45</b> (1.12-1.89)	<b>1.37</b> (.870-1.98)	<b>3.33</b> (2.76-4.53)	<b>7.68</b> (5.27-11.7)	<b>12.0</b> (7.33-19.6)	420
20 years and older	01-02	<b>1.06</b> (.904-1.25)	<b>1.40</b> (1.10-1.60)	<b>3.10</b> (2.50-3.50)	<b>5.60</b> (4.60-7.10)	<b>9.20</b> (7.40-12.3)	1647
	03-04	*	<b>1.20</b> (<LOD-1.50)	<b>3.80</b> (2.80-4.90)	<b>9.30</b> (7.10-11.8)	<b>14.3</b> (10.8-19.9)	1534
	05-06	*	< LOD	<b>2.20</b> (1.60-2.80)	<b>6.90</b> (5.30-8.40)	<b>11.9</b> (9.50-14.7)	1490
	07-08	*	< LOD	<b>2.00</b> (1.60-2.50)	<b>6.00</b> (4.20-8.30)	<b>11.1</b> (8.10-17.3)	1814
	09-10	*	<b>.750</b> (<LOD-1.02)	<b>2.59</b> (2.19-2.90)	<b>6.30</b> (5.22-7.60)	<b>10.5</b> (8.49-14.2)	1914
Gender Males	01-02	<b>1.17</b> (.962-1.43)	<b>1.50</b> (1.30-1.90)	<b>3.30</b> (2.90-4.00)	<b>5.90</b> (4.80-7.90)	<b>9.20</b> (7.10-13.5)	1371
	03-04	*	<b>1.30</b> (1.00-1.80)	<b>4.00</b> (3.20-5.20)	<b>10.0</b> (7.30-13.5)	<b>17.7</b> (11.8-20.4)	1250
	05-06	*	< LOD	<b>2.40</b> (1.80-3.50)	<b>7.40</b> (5.70-9.20)	<b>13.4</b> (11.0-15.7)	1270
	07-08	*	< LOD	<b>2.40</b> (1.80-3.20)	<b>6.90</b> (4.70-8.70)	<b>10.3</b> (8.20-17.2)	1294
	09-10	*	<b>1.04</b> (.730-1.40)	<b>2.92</b> (2.60-3.47)	<b>6.53</b> (5.38-8.66)	<b>11.4</b> (8.86-13.9)	1399
Females	01-02	<b>1.13</b> (.973-1.31)	<b>1.40</b> (1.10-1.70)	<b>3.30</b> (2.80-3.70)	<b>6.40</b> (5.00-7.80)	<b>10.3</b> (8.20-16.2)	1411
	03-04	*	<b>1.20</b> (<LOD-1.60)	<b>3.60</b> (2.80-4.70)	<b>9.50</b> (7.70-12.2)	<b>15.3</b> (11.7-22.9)	1355
	05-06	*	< LOD	<b>2.60</b> (1.80-3.40)	<b>7.40</b> (5.10-9.30)	<b>12.0</b> (9.30-16.0)	1278
	07-08	*	< LOD	<b>2.10</b> (1.70-2.50)	<b>6.20</b> (4.30-8.20)	<b>12.0</b> (7.90-16.1)	1310
	09-10	*	<b>.840</b> (.600-1.09)	<b>2.81</b> (2.30-3.25)	<b>6.81</b> (5.49-8.27)	<b>13.5</b> (8.91-16.8)	1350

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.2, 1.0, 1.1, 1.1, and 0.5 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DMP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DMP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-methyl phthalate (MMP) (2001 – 2010)

Metabolite of Dimethyl phthalate (DMP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	01-02	<b>1.21</b> (1.02-1.45)	<b>1.60</b> (1.30-1.70)	<b>3.30</b> (2.70-4.00)	<b>5.60</b> (4.70-7.30)	<b>8.60</b> (6.40-15.2)	677
	03-04	*	<b>1.40</b> (1.10-1.80)	<b>4.00</b> (2.50-6.30)	<b>9.60</b> (7.30-13.4)	<b>15.0</b> (11.4-18.8)	652
	05-06	*	< LOD	<b>3.10</b> (2.20-4.30)	<b>7.30</b> (5.90-9.40)	<b>11.3</b> (8.50-18.0)	637
	07-08	*	< LOD	<b>2.50</b> (1.30-3.70)	<b>6.40</b> (4.20-11.1)	<b>12.1</b> (6.80-16.3)	531
	09-10	<b>1.36</b> (1.22-1.51)	<b>1.26</b> (.970-1.53)	<b>3.67</b> (2.97-4.16)	<b>8.30</b> (6.51-9.24)	<b>12.0</b> (9.36-18.2)	566
Non-Hispanic blacks	01-02	<b>1.64</b> (1.37-1.98)	<b>2.10</b> (1.70-2.70)	<b>4.40</b> (3.60-5.10)	<b>8.30</b> (6.20-10.1)	<b>11.0</b> (9.50-13.4)	703
	03-04	<b>2.16</b> (1.64-2.84)	<b>1.70</b> (1.00-2.80)	<b>5.10</b> (3.70-7.00)	<b>11.4</b> (7.30-17.3)	<b>17.8</b> (10.2-39.4)	699
	05-06	*	< LOD	<b>3.70</b> (2.40-4.70)	<b>8.20</b> (6.10-10.6)	<b>13.0</b> (10.6-15.8)	678
	07-08	*	< LOD	<b>2.40</b> (1.50-3.40)	<b>6.10</b> (4.10-8.80)	<b>10.6</b> (6.70-16.4)	597
	09-10	<b>1.71</b> (1.32-2.21)	<b>1.89</b> (1.33-2.66)	<b>4.11</b> (3.38-5.12)	<b>7.87</b> (5.90-12.5)	<b>14.2</b> (8.47-17.0)	516
Non-Hispanic whites	01-02	<b>1.08</b> (.906-1.29)	<b>1.40</b> (1.10-1.70)	<b>3.20</b> (2.50-3.60)	<b>5.60</b> (4.70-6.70)	<b>9.70</b> (7.10-14.0)	1216
	03-04	*	<b>1.20</b> (<LOD-1.60)	<b>3.60</b> (2.80-4.80)	<b>9.70</b> (7.50-12.2)	<b>16.5</b> (12.0-20.4)	1088
	05-06	*	< LOD	<b>2.30</b> (1.70-2.80)	<b>7.40</b> (5.50-8.80)	<b>12.5</b> (10.4-15.0)	1038
	07-08	*	< LOD	<b>2.10</b> (1.70-2.60)	<b>6.80</b> (4.30-8.50)	<b>11.2</b> (8.00-18.7)	1077
	09-10	*	<b>.690</b> (<LOD-.930)	<b>2.37</b> (1.95-2.85)	<b>6.17</b> (5.23-8.04)	<b>12.3</b> (8.97-15.9)	1206

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.2, 1.0, 1.1, 1.1, and 0.5 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DMP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DMP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-methyl phthalate (MMP) (2011 - 2012)

Metabolite of Dimethyl phthalate (DMP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	1.00 (.800-1.20)	3.00 (2.60-3.50)	7.00 (6.30-8.10)	11.8 (10.3-14.8)	2489
<b>Age group</b>							
6-11 years	11-12	2.33 (1.78-3.04)	2.20 (1.50-3.30)	6.40 (5.70-7.70)	15.6 (9.60-24.1)	27.7 (14.8-157)	396
12-19 years	11-12	1.41 (1.09-1.81)	1.10 (.800-1.70)	3.80 (2.20-6.00)	9.90 (5.90-14.0)	14.8 (10.4-28.4)	388
20 years and older	11-12	*	.800 (.600-1.10)	2.60 (2.30-2.90)	6.10 (4.90-6.90)	9.80 (8.60-11.7)	1705
<b>Gender</b>							
Males	11-12	1.34 (1.16-1.55)	1.20 (.900-1.60)	3.40 (2.80-4.10)	8.50 (6.90-9.10)	12.9 (10.1-18.6)	1259
Females	11-12	*	.800 (.600-.900)	2.50 (2.20-2.90)	6.30 (5.00-7.30)	10.5 (8.80-13.6)	1230
<b>Race/ethnicity</b>							
Mexican Americans	11-12	1.39 (1.10-1.76)	1.40 (1.00-1.80)	3.80 (2.50-5.40)	6.90 (5.00-9.40)	9.60 (6.90-14.5)	316
Non-Hispanic blacks	11-12	1.51 (1.30-1.77)	1.40 (1.10-1.60)	4.30 (3.10-5.20)	8.90 (6.80-13.0)	16.6 (9.90-24.8)	665
Non-Hispanic whites	11-12	*	.700 (<LOD-1.10)	2.50 (2.00-3.10)	6.30 (4.80-8.20)	10.7 (8.90-16.0)	813
All Hispanics	11-12	1.54 (1.27-1.87)	1.50 (1.20-1.90)	4.00 (2.90-5.70)	8.00 (5.90-10.7)	11.4 (9.40-14.8)	571
Asians	11-12	1.33 (1.13-1.57)	1.20 (.800-1.60)	3.50 (2.90-4.20)	7.50 (5.20-10.6)	14.1 (9.00-20.1)	352

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 0.5.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DMP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DMP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)



## Urinary Mono-methyl phthalate (MMP) (creatinine corrected) (2001 – 2010)

Metabolite of Dimethyl phthalate (DMP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	<b>1.08</b> (.936-1.25)	<b>1.33</b> (1.13-1.55)	<b>2.62</b> (2.36-2.97)	<b>5.00</b> (3.97-6.02)	<b>8.00</b> (6.07-11.0)	2782
	03-04	*	<b>1.53</b> (<LOD-1.79)	<b>3.45</b> (2.76-4.37)	<b>7.95</b> (5.83-11.8)	<b>13.5</b> (11.3-18.1)	2605
	05-06	*	< LOD	<b>2.85</b> (2.52-3.25)	<b>6.53</b> (5.49-7.67)	<b>12.2</b> (9.74-14.3)	2548
	07-08	*	< LOD	<b>2.79</b> (2.31-3.25)	<b>5.68</b> (4.77-7.36)	<b>10.8</b> (8.00-13.6)	2604
	09-10	*	<b>1.18</b> (1.03-1.38)	<b>2.56</b> (2.29-2.92)	<b>5.55</b> (4.81-6.54)	<b>10.6</b> (7.70-13.1)	2749
Age group 6-11 years	01-02	<b>1.65</b> (1.28-2.14)	<b>2.32</b> (1.72-2.86)	<b>3.97</b> (3.27-4.71)	<b>7.20</b> (5.99-9.41)	<b>13.2</b> (7.60-22.5)	393
	03-04	<b>2.22</b> (1.75-2.81)	<b>1.88</b> (1.49-2.60)	<b>4.96</b> (2.81-6.49)	<b>9.67</b> (6.15-14.6)	<b>16.2</b> (12.1-34.5)	342
	05-06	*	< LOD	<b>4.59</b> (3.09-6.35)	<b>11.0</b> (8.07-15.0)	<b>18.6</b> (10.4-21.9)	356
	07-08	*	<b>2.05</b> (<LOD-2.33)	<b>4.56</b> (3.85-5.36)	<b>9.06</b> (6.63-11.4)	<b>13.6</b> (10.4-36.0)	389
	09-10	<b>2.77</b> (2.44-3.15)	<b>2.85</b> (2.46-3.29)	<b>5.24</b> (4.34-6.18)	<b>14.7</b> (9.87-16.6)	<b>20.5</b> (14.7-27.7)	415
12-19 years	01-02	<b>1.23</b> (1.01-1.48)	<b>1.51</b> (1.32-1.82)	<b>2.84</b> (2.52-3.33)	<b>5.36</b> (3.68-6.39)	<b>7.27</b> (5.64-11.4)	742
	03-04	*	<b>1.34</b> (1.12-1.73)	<b>3.19</b> (2.26-4.43)	<b>7.84</b> (4.95-12.1)	<b>13.3</b> (9.49-19.1)	729
	05-06	*	< LOD	<b>2.80</b> (2.15-3.55)	<b>5.65</b> (4.33-6.52)	<b>12.4</b> (6.45-18.9)	702
	07-08	*	< LOD	<b>2.00</b> (1.63-2.63)	<b>4.32</b> (3.10-6.05)	<b>7.25</b> (4.77-10.8)	401
	09-10	<b>1.17</b> (.907-1.51)	<b>1.18</b> (.930-1.49)	<b>2.24</b> (1.81-2.62)	<b>4.17</b> (3.09-6.47)	<b>7.33</b> (4.56-15.9)	420
20 years and older	01-02	<b>1.00</b> (.868-1.16)	<b>1.21</b> (1.05-1.40)	<b>2.44</b> (2.14-2.68)	<b>4.53</b> (3.49-6.02)	<b>7.72</b> (5.52-11.4)	1647
	03-04	*	<b>1.52</b> (<LOD-1.79)	<b>3.39</b> (2.69-4.31)	<b>7.69</b> (5.40-11.8)	<b>13.3</b> (10.1-18.9)	1534
	05-06	*	< LOD	<b>2.76</b> (2.44-3.12)	<b>6.09</b> (5.00-7.75)	<b>11.2</b> (9.17-13.4)	1490
	07-08	*	< LOD	<b>2.75</b> (2.26-3.25)	<b>5.58</b> (4.33-7.59)	<b>10.4</b> (7.09-14.8)	1814
	09-10	*	<b>1.09</b> (<LOD-1.23)	<b>2.34</b> (2.02-2.69)	<b>5.16</b> (4.25-6.39)	<b>9.53</b> (7.07-12.1)	1914
Gender Males	01-02	<b>.954</b> (.794-1.15)	<b>1.17</b> (1.02-1.40)	<b>2.37</b> (2.03-2.75)	<b>4.18</b> (3.45-5.64)	<b>6.42</b> (4.94-9.59)	1371
	03-04	*	<b>1.35</b> (1.15-1.52)	<b>2.95</b> (2.26-4.09)	<b>7.11</b> (5.00-10.2)	<b>11.8</b> (9.05-13.3)	1250
	05-06	*	< LOD	<b>2.19</b> (1.89-2.50)	<b>5.03</b> (4.09-6.45)	<b>10.2</b> (7.75-13.4)	1270
	07-08	*	< LOD	<b>2.33</b> (1.92-2.88)	<b>4.88</b> (3.85-7.25)	<b>8.56</b> (6.25-13.8)	1294
	09-10	*	<b>1.02</b> (.850-1.21)	<b>2.49</b> (2.00-2.86)	<b>5.23</b> (4.25-6.84)	<b>9.51</b> (7.20-12.4)	1399
Females	01-02	<b>1.21</b> (1.06-1.38)	<b>1.45</b> (1.23-1.82)	<b>2.87</b> (2.58-3.06)	<b>5.56</b> (4.55-7.14)	<b>10.0</b> (7.20-15.3)	1411
	03-04	*	<b>1.83</b> (<LOD-2.10)	<b>3.87</b> (3.04-4.96)	<b>9.41</b> (6.41-13.6)	<b>16.5</b> (12.5-23.5)	1355
	05-06	*	< LOD	<b>3.47</b> (3.00-4.11)	<b>7.67</b> (6.00-9.75)	<b>13.2</b> (9.75-18.7)	1278
	07-08	*	< LOD	<b>3.12</b> (2.72-3.71)	<b>6.50</b> (5.20-8.67)	<b>11.7</b> (8.56-14.8)	1310
	09-10	*	<b>1.35</b> (1.16-1.57)	<b>2.76</b> (2.34-3.18)	<b>5.77</b> (4.94-7.22)	<b>11.3</b> (8.29-15.5)	1350

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DMP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DMP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-methyl phthalate (MMP) (creatinine corrected) (2001 – 2010)

Metabolite of Dimethyl phthalate (DMP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	01-02	<b>1.14</b> (.975-1.34)	<b>1.48</b> (1.30-1.63)	<b>2.50</b> (2.20-2.94)	<b>4.19</b> (3.77-5.76)	<b>8.47</b> (5.58-12.5)	677
	03-04	*	<b>1.36</b> (1.15-1.71)	<b>3.56</b> (2.45-4.90)	<b>7.53</b> (5.62-9.64)	<b>12.5</b> (9.44-16.9)	652
	05-06	*	< LOD	<b>2.86</b> (2.07-3.67)	<b>6.48</b> (4.21-8.24)	<b>11.5</b> (6.94-21.7)	637
	07-08	*	< LOD	<b>2.59</b> (2.06-3.39)	<b>5.65</b> (3.60-8.13)	<b>9.40</b> (6.06-13.9)	531
	09-10	<b>1.35</b> (1.19-1.53)	<b>1.37</b> (1.13-1.67)	<b>3.13</b> (2.61-3.57)	<b>6.18</b> (5.33-8.40)	<b>10.7</b> (8.33-15.2)	566
Non-Hispanic blacks	01-02	<b>1.15</b> (.949-1.40)	<b>1.39</b> (1.29-1.67)	<b>2.70</b> (2.36-2.95)	<b>4.87</b> (4.21-5.93)	<b>8.09</b> (5.86-11.0)	703
	03-04	<b>1.53</b> (1.21-1.94)	<b>1.40</b> (1.07-1.75)	<b>3.14</b> (2.26-4.37)	<b>7.50</b> (4.29-14.6)	<b>13.7</b> (7.70-20.7)	699
	05-06	*	< LOD	<b>2.59</b> (1.87-3.28)	<b>5.20</b> (4.53-6.29)	<b>8.50</b> (6.79-10.3)	678
	07-08	*	< LOD	<b>2.10</b> (1.69-2.44)	<b>4.22</b> (2.94-5.74)	<b>7.36</b> (4.88-8.79)	597
	09-10	<b>1.24</b> (.983-1.56)	<b>1.35</b> (1.08-1.58)	<b>2.69</b> (2.22-3.23)	<b>4.94</b> (4.03-6.54)	<b>8.18</b> (5.74-15.5)	516
Non-Hispanic whites	01-02	<b>1.07</b> (.914-1.26)	<b>1.30</b> (1.05-1.58)	<b>2.62</b> (2.32-2.99)	<b>5.22</b> (3.68-6.82)	<b>8.26</b> (6.07-12.6)	1216
	03-04	*	<b>1.56</b> (<LOD-1.89)	<b>3.50</b> (2.71-4.67)	<b>8.10</b> (6.00-11.9)	<b>13.6</b> (11.3-18.9)	1088
	05-06	*	< LOD	<b>2.98</b> (2.60-3.39)	<b>7.19</b> (5.58-9.51)	<b>13.4</b> (10.4-16.6)	1038
	07-08	*	< LOD	<b>2.89</b> (2.26-3.67)	<b>6.01</b> (4.63-8.57)	<b>11.7</b> (7.47-15.6)	1077
	09-10	*	<b>1.13</b> (<LOD-1.29)	<b>2.48</b> (2.06-2.80)	<b>5.38</b> (4.44-6.76)	<b>10.9</b> (7.68-13.8)	1206

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DMP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DMP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-methyl phthalate (MMP) (creatinine corrected) (2011 - 2012)

Metabolite of Dimethyl phthalate (DMP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	1.32 (1.16-1.49)	2.84 (2.52-3.24)	6.13 (5.42-7.43)	11.0 (9.44-12.9)	2487
<b>Age group</b>							
6-11 years	11-12	3.31 (2.57-4.25)	2.97 (2.14-3.89)	7.73 (5.56-8.53)	17.3 (12.4-24.2)	30.2 (17.3-171)	395
12-19 years	11-12	1.37 (1.12-1.68)	1.16 (.959-1.46)	2.86 (1.88-4.29)	7.68 (4.95-10.0)	12.2 (7.68-24.6)	388
20 years and older	11-12	*	1.26 (1.05-1.40)	2.57 (2.33-2.82)	5.29 (4.43-5.93)	9.31 (7.26-10.2)	1704
<b>Gender</b>							
Males	11-12	1.25 (1.09-1.44)	1.23 (.957-1.49)	2.74 (2.35-3.16)	5.88 (5.08-7.73)	10.0 (8.33-12.9)	1258
Females	11-12	*	1.38 (1.23-1.52)	2.92 (2.57-3.29)	6.17 (5.44-8.08)	12.2 (8.98-15.4)	1229
<b>Race/ethnicity</b>							
Mexican Americans	11-12	1.57 (1.19-2.06)	1.57 (1.06-2.14)	3.44 (2.44-5.26)	7.26 (4.28-12.2)	11.8 (7.39-22.4)	316
Non-Hispanic blacks	11-12	1.18 (1.01-1.38)	1.20 (.955-1.45)	2.64 (2.19-3.33)	6.50 (4.30-9.78)	11.1 (6.93-18.0)	665
Non-Hispanic whites	11-12	*	1.23 (<LOD-1.45)	2.52 (2.13-3.04)	5.75 (4.69-6.54)	10.0 (8.08-12.9)	811
All Hispanics	11-12	1.73 (1.44-2.08)	1.79 (1.48-2.14)	3.55 (2.82-4.89)	7.73 (5.54-10.9)	12.7 (8.51-19.8)	571
Asians	11-12	1.79 (1.52-2.10)	1.75 (1.50-2.07)	3.91 (3.49-4.37)	8.75 (6.61-10.3)	11.5 (10.0-15.0)	352

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DMP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DMP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-(3-carboxypropyl) phthalate (MCPP) (2001 – 2010)

Metabolite of Di-n-octyl phthalate (DOP) and of several high molecular weight phthalates

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	<b>2.75</b> (2.49-3.04)	<b>3.10</b> (2.80-3.30)	<b>5.70</b> (5.10-6.40)	<b>10.0</b> (8.90-11.3)	<b>14.6</b> (12.7-17.5)	2782
	03-04	<b>2.91</b> (2.79-3.04)	<b>3.10</b> (3.00-3.30)	<b>5.70</b> (5.20-6.10)	<b>10.2</b> (9.20-11.8)	<b>15.3</b> (13.8-16.2)	2605
	05-06	<b>2.05</b> (1.87-2.26)	<b>2.10</b> (1.90-2.40)	<b>4.40</b> (4.00-4.80)	<b>8.90</b> (7.60-10.1)	<b>13.1</b> (10.6-17.4)	2548
	07-08	<b>2.76</b> (2.52-3.04)	<b>2.70</b> (2.50-3.00)	<b>5.80</b> (5.20-6.50)	<b>11.1</b> (9.70-13.1)	<b>18.1</b> (15.4-22.3)	2604
	09-10	<b>3.02</b> (2.58-3.53)	<b>3.10</b> (2.57-3.65)	<b>6.44</b> (5.44-7.70)	<b>13.4</b> (11.4-16.5)	<b>22.3</b> (19.5-26.2)	2749
Age group 6-11 years	01-02	<b>6.11</b> (5.46-6.84)	<b>6.70</b> (5.40-7.50)	<b>11.8</b> (10.2-13.3)	<b>20.1</b> (17.8-23.1)	<b>24.7</b> (22.2-31.6)	393
	03-04	<b>6.86</b> (5.80-8.11)	<b>7.10</b> (6.00-8.90)	<b>12.7</b> (10.4-16.4)	<b>22.0</b> (17.2-27.7)	<b>29.2</b> (22.3-36.6)	342
	05-06	<b>4.82</b> (4.09-5.68)	<b>4.90</b> (4.30-5.90)	<b>8.50</b> (6.70-10.4)	<b>13.1</b> (10.3-17.9)	<b>17.9</b> (12.6-34.5)	356
	07-08	<b>6.01</b> (4.80-7.53)	<b>6.40</b> (5.10-8.00)	<b>11.3</b> (8.40-15.9)	<b>20.3</b> (13.2-27.3)	<b>23.9</b> (19.1-34.1)	389
	09-10	<b>4.54</b> (3.74-5.52)	<b>4.86</b> (3.71-6.49)	<b>9.08</b> (7.14-11.2)	<b>14.4</b> (10.8-20.3)	<b>20.3</b> (14.3-51.9)	415
12-19 years	01-02	<b>3.71</b> (3.18-4.33)	<b>4.00</b> (3.40-4.70)	<b>7.10</b> (6.10-8.10)	<b>11.5</b> (9.50-12.7)	<b>14.1</b> (11.8-19.0)	742
	03-04	<b>3.72</b> (3.33-4.15)	<b>4.10</b> (3.50-4.60)	<b>7.20</b> (5.80-8.40)	<b>11.0</b> (9.50-13.6)	<b>15.4</b> (13.4-17.9)	729
	05-06	<b>2.96</b> (2.52-3.46)	<b>3.10</b> (2.50-3.60)	<b>5.90</b> (4.80-7.30)	<b>11.8</b> (9.10-14.5)	<b>17.0</b> (12.7-21.5)	702
	07-08	<b>3.81</b> (3.15-4.61)	<b>4.00</b> (3.20-4.70)	<b>8.20</b> (6.90-9.40)	<b>13.3</b> (11.1-17.1)	<b>24.1</b> (13.8-25.6)	401
	09-10	<b>3.65</b> (2.88-4.64)	<b>3.74</b> (2.90-4.74)	<b>7.16</b> (5.48-9.32)	<b>15.9</b> (10.8-25.8)	<b>32.3</b> (20.9-54.3)	420
20 years and older	01-02	<b>2.37</b> (2.11-2.66)	<b>2.60</b> (2.20-3.00)	<b>4.80</b> (4.30-5.40)	<b>8.10</b> (7.20-9.50)	<b>12.0</b> (10.1-14.2)	1647
	03-04	<b>2.53</b> (2.41-2.66)	<b>2.80</b> (2.60-2.90)	<b>4.90</b> (4.50-5.20)	<b>8.10</b> (7.50-8.90)	<b>13.2</b> (10.8-14.3)	1534
	05-06	<b>1.76</b> (1.60-1.93)	<b>1.70</b> (1.60-2.00)	<b>3.60</b> (3.20-4.10)	<b>7.10</b> (6.10-8.40)	<b>11.3</b> (9.60-13.6)	1490
	07-08	<b>2.41</b> (2.18-2.67)	<b>2.50</b> (2.20-2.60)	<b>5.00</b> (4.60-5.50)	<b>9.60</b> (8.00-11.1)	<b>15.6</b> (12.9-19.9)	1814
	09-10	<b>2.80</b> (2.40-3.28)	<b>2.88</b> (2.42-3.39)	<b>6.00</b> (5.04-7.15)	<b>13.1</b> (10.8-16.4)	<b>21.8</b> (18.7-27.9)	1914
Gender Males	01-02	<b>2.89</b> (2.64-3.17)	<b>3.10</b> (2.80-3.40)	<b>5.70</b> (5.00-6.80)	<b>9.90</b> (8.70-12.0)	<b>14.2</b> (12.4-18.1)	1371
	03-04	<b>3.25</b> (3.01-3.52)	<b>3.30</b> (3.00-3.60)	<b>6.00</b> (5.60-6.80)	<b>11.8</b> (10.1-13.6)	<b>16.0</b> (14.2-20.0)	1250
	05-06	<b>2.32</b> (2.11-2.54)	<b>2.40</b> (2.00-2.70)	<b>4.70</b> (4.30-5.20)	<b>9.60</b> (7.90-11.8)	<b>14.5</b> (11.5-22.3)	1270
	07-08	<b>3.02</b> (2.70-3.39)	<b>2.90</b> (2.60-3.30)	<b>5.80</b> (5.10-6.60)	<b>12.3</b> (10.1-15.3)	<b>21.3</b> (16.7-28.5)	1294
	09-10	<b>3.37</b> (2.86-3.96)	<b>3.42</b> (2.91-4.04)	<b>7.09</b> (6.04-8.32)	<b>15.5</b> (12.9-18.7)	<b>23.6</b> (19.9-33.0)	1399
Females	01-02	<b>2.62</b> (2.29-2.99)	<b>3.00</b> (2.50-3.30)	<b>5.70</b> (5.00-6.30)	<b>10.0</b> (8.50-11.5)	<b>14.7</b> (11.2-20.3)	1411
	03-04	<b>2.63</b> (2.44-2.83)	<b>3.00</b> (2.60-3.20)	<b>5.20</b> (4.70-5.80)	<b>9.20</b> (8.20-10.3)	<b>13.4</b> (11.0-16.2)	1355
	05-06	<b>1.83</b> (1.59-2.10)	<b>1.80</b> (1.60-2.10)	<b>4.00</b> (3.30-4.60)	<b>8.00</b> (6.60-9.50)	<b>12.1</b> (9.50-14.7)	1278
	07-08	<b>2.54</b> (2.30-2.79)	<b>2.60</b> (2.30-3.00)	<b>5.90</b> (5.00-6.80)	<b>10.5</b> (9.10-12.3)	<b>15.4</b> (13.3-21.5)	1310
	09-10	<b>2.72</b> (2.29-3.22)	<b>2.79</b> (2.25-3.40)	<b>5.78</b> (4.67-7.20)	<b>12.6</b> (9.86-15.9)	<b>20.7</b> (15.9-29.7)	1350

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.4, 0.2, 0.2, 0.2, and 0.2 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DOP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DOP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-(3-carboxypropyl) phthalate (MCPP) (2001 – 2010)

Metabolite of Di-n-octyl phthalate (DOP) and of several high molecular weight phthalates

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	01-02	<b>2.67</b> (2.26-3.16)	<b>3.00</b> (2.30-3.50)	<b>5.30</b> (4.40-5.90)	<b>9.20</b> (7.30-12.4)	<b>13.6</b> (10.4-18.7)	677
	03-04	<b>3.08</b> (2.86-3.32)	<b>3.10</b> (2.80-3.40)	<b>5.50</b> (4.80-6.10)	<b>9.90</b> (7.90-12.6)	<b>13.7</b> (11.5-19.8)	652
	05-06	<b>2.24</b> (1.71-2.94)	<b>2.20</b> (1.60-3.10)	<b>4.50</b> (3.30-6.50)	<b>9.40</b> (6.50-13.1)	<b>14.1</b> (9.90-25.4)	637
	07-08	<b>2.66</b> (2.37-3.00)	<b>2.70</b> (2.40-3.20)	<b>5.00</b> (4.30-5.70)	<b>8.80</b> (7.60-11.2)	<b>14.5</b> (11.5-17.8)	531
	09-10	<b>2.31</b> (1.95-2.74)	<b>2.32</b> (1.92-2.93)	<b>5.11</b> (4.44-5.58)	<b>8.95</b> (7.39-11.3)	<b>14.8</b> (11.1-23.2)	566
Non-Hispanic blacks	01-02	<b>3.09</b> (2.81-3.40)	<b>3.30</b> (2.90-3.60)	<b>6.30</b> (5.50-6.90)	<b>10.9</b> (9.10-13.0)	<b>15.1</b> (13.5-22.4)	703
	03-04	<b>3.30</b> (3.01-3.62)	<b>3.20</b> (2.90-3.60)	<b>6.10</b> (5.50-6.90)	<b>11.6</b> (9.30-13.4)	<b>20.1</b> (13.6-25.5)	699
	05-06	<b>2.28</b> (2.03-2.57)	<b>2.40</b> (2.10-2.80)	<b>4.50</b> (3.80-5.60)	<b>8.70</b> (7.10-10.3)	<b>13.3</b> (10.4-16.5)	678
	07-08	<b>2.94</b> (2.50-3.44)	<b>2.90</b> (2.50-3.40)	<b>5.80</b> (4.90-6.80)	<b>12.2</b> (8.50-17.1)	<b>21.1</b> (13.7-42.4)	597
	09-10	<b>3.38</b> (2.66-4.31)	<b>3.35</b> (2.49-4.56)	<b>6.92</b> (5.86-8.97)	<b>13.6</b> (10.2-21.0)	<b>22.9</b> (17.9-28.7)	516
Non-Hispanic whites	01-02	<b>2.72</b> (2.40-3.08)	<b>3.00</b> (2.60-3.30)	<b>5.80</b> (4.80-6.80)	<b>10.3</b> (8.90-11.9)	<b>15.8</b> (12.6-19.5)	1216
	03-04	<b>2.87</b> (2.73-3.02)	<b>3.10</b> (2.90-3.30)	<b>5.60</b> (5.00-6.00)	<b>10.1</b> (9.10-12.0)	<b>15.2</b> (13.4-16.1)	1088
	05-06	<b>1.97</b> (1.81-2.15)	<b>2.00</b> (1.80-2.20)	<b>4.20</b> (3.80-4.60)	<b>8.70</b> (6.80-10.3)	<b>13.1</b> (10.0-17.5)	1038
	07-08	<b>2.84</b> (2.51-3.21)	<b>2.90</b> (2.50-3.40)	<b>6.10</b> (5.30-7.00)	<b>11.4</b> (9.70-14.0)	<b>18.1</b> (14.0-24.1)	1077
	09-10	<b>3.17</b> (2.65-3.79)	<b>3.16</b> (2.60-3.87)	<b>6.86</b> (5.72-8.32)	<b>14.5</b> (12.6-17.8)	<b>23.6</b> (18.9-35.7)	1206

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.4, 0.2, 0.2, 0.2, and 0.2 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DOP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DOP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-(3-carboxypropyl) phthalate (MCP) (2011 - 2012)

Metabolite of Di-n-octyl phthalate (DOP) and of several high molecular weight phthalates

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>3.01</b> (2.59-3.50)	<b>2.70</b> (2.40-3.10)	<b>6.60</b> (5.60-7.90)	<b>16.9</b> (13.1-23.1)	<b>34.4</b> (21.3-51.8)	2489
<b>Age group</b>							
6-11 years	11-12	<b>3.38</b> (2.87-3.97)	<b>3.20</b> (2.70-4.10)	<b>6.80</b> (5.50-8.50)	<b>11.0</b> (9.40-14.1)	<b>20.7</b> (13.7-34.2)	396
12-19 years	11-12	<b>3.26</b> (2.59-4.12)	<b>3.00</b> (2.20-4.10)	<b>6.80</b> (5.80-9.90)	<b>22.2</b> (13.1-38.4)	<b>45.0</b> (24.6-58.9)	388
20 years and older	11-12	<b>2.94</b> (2.46-3.50)	<b>2.60</b> (2.30-3.00)	<b>6.50</b> (5.40-7.70)	<b>16.9</b> (12.8-23.5)	<b>34.4</b> (19.8-56.3)	1705
<b>Gender</b>							
Males	11-12	<b>3.52</b> (2.94-4.22)	<b>2.80</b> (2.50-3.50)	<b>7.30</b> (5.90-10.0)	<b>18.7</b> (13.0-33.2)	<b>48.0</b> (22.1-106)	1259
Females	11-12	<b>2.58</b> (2.24-2.97)	<b>2.50</b> (2.20-2.80)	<b>6.00</b> (4.80-7.00)	<b>15.5</b> (11.2-19.8)	<b>27.8</b> (17.7-40.2)	1230
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>2.58</b> (2.12-3.13)	<b>2.40</b> (2.10-2.80)	<b>4.50</b> (3.60-6.00)	<b>12.2</b> (6.60-22.2)	<b>22.2</b> (12.2-50.7)	316
Non-Hispanic blacks	11-12	<b>3.55</b> (3.13-4.02)	<b>3.00</b> (2.70-3.30)	<b>6.80</b> (5.60-8.10)	<b>19.7</b> (13.4-25.0)	<b>30.9</b> (25.0-39.8)	665
Non-Hispanic whites	11-12	<b>3.03</b> (2.54-3.62)	<b>2.80</b> (2.30-3.30)	<b>6.70</b> (5.50-8.80)	<b>16.9</b> (12.8-24.4)	<b>37.2</b> (18.3-51.8)	813
All Hispanics	11-12	<b>2.79</b> (2.19-3.56)	<b>2.40</b> (2.10-2.70)	<b>5.70</b> (4.20-7.80)	<b>16.3</b> (9.00-33.7)	<b>35.1</b> (14.9-115)	571
Asians	11-12	<b>2.24</b> (1.66-3.01)	<b>2.00</b> (1.50-2.60)	<b>4.60</b> (3.60-6.90)	<b>11.5</b> (7.70-25.7)	<b>33.2</b> (11.5-74.3)	352

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 0.2.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DOP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DOP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-(3-carboxypropyl) phthalate (MCP) (creatinine corrected) (2001 – 2010)

Metabolite of Di-n-octyl phthalate (DOP) and of several high molecular weight phthalates

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	<b>2.58</b> (2.35-2.83)	<b>2.47</b> (2.25-2.76)	<b>4.08</b> (3.87-4.48)	<b>7.24</b> (6.58-8.00)	<b>11.4</b> (10.0-12.5)	2782
	03-04	<b>2.74</b> (2.56-2.93)	<b>2.60</b> (2.42-2.79)	<b>4.39</b> (3.94-4.86)	<b>7.70</b> (6.65-8.60)	<b>10.7</b> (9.53-11.9)	2605
	05-06	<b>2.00</b> (1.82-2.20)	<b>1.86</b> (1.67-2.06)	<b>3.55</b> (3.14-4.00)	<b>6.80</b> (5.77-7.95)	<b>10.3</b> (8.68-12.7)	2548
	07-08	<b>2.79</b> (2.63-2.96)	<b>2.53</b> (2.37-2.70)	<b>4.76</b> (4.33-5.16)	<b>9.70</b> (8.52-10.9)	<b>14.8</b> (12.7-17.0)	2604
	09-10	<b>3.15</b> (2.77-3.59)	<b>2.94</b> (2.55-3.38)	<b>5.71</b> (4.88-6.72)	<b>11.8</b> (10.5-13.5)	<b>18.8</b> (16.0-21.9)	2749
Age group 6-11 years	01-02	<b>6.96</b> (6.29-7.70)	<b>7.08</b> (5.83-7.87)	<b>11.2</b> (9.15-14.0)	<b>20.7</b> (15.5-22.3)	<b>26.4</b> (20.7-27.0)	393
	03-04	<b>7.25</b> (6.43-8.18)	<b>7.06</b> (5.93-7.59)	<b>11.2</b> (9.38-12.4)	<b>19.1</b> (14.4-25.6)	<b>26.9</b> (19.3-29.0)	342
	05-06	<b>5.31</b> (4.57-6.17)	<b>5.06</b> (4.57-5.79)	<b>8.78</b> (7.50-10.0)	<b>13.7</b> (10.2-21.3)	<b>21.3</b> (13.2-36.7)	356
	07-08	<b>7.41</b> (5.87-9.34)	<b>6.81</b> (5.50-9.05)	<b>11.6</b> (9.43-14.1)	<b>20.2</b> (12.7-39.2)	<b>30.4</b> (16.5-68.9)	389
	09-10	<b>5.92</b> (5.09-6.88)	<b>5.94</b> (5.09-6.92)	<b>9.47</b> (8.38-10.3)	<b>15.5</b> (10.7-23.7)	<b>22.7</b> (13.6-47.2)	415
12-19 years	01-02	<b>2.86</b> (2.52-3.25)	<b>2.94</b> (2.50-3.36)	<b>4.59</b> (4.03-5.23)	<b>6.69</b> (6.30-7.25)	<b>9.55</b> (8.03-10.7)	742
	03-04	<b>2.78</b> (2.54-3.05)	<b>2.75</b> (2.53-2.99)	<b>4.55</b> (4.05-5.15)	<b>6.61</b> (6.15-7.20)	<b>8.24</b> (7.00-10.2)	729
	05-06	<b>2.20</b> (1.90-2.55)	<b>2.07</b> (1.76-2.46)	<b>3.67</b> (2.99-4.39)	<b>6.84</b> (5.35-8.67)	<b>9.67</b> (7.12-11.4)	702
	07-08	<b>2.96</b> (2.59-3.38)	<b>2.95</b> (2.51-3.62)	<b>5.04</b> (4.33-6.00)	<b>8.18</b> (6.75-10.4)	<b>10.9</b> (9.38-15.1)	401
	09-10	<b>2.94</b> (2.40-3.60)	<b>2.67</b> (2.26-3.28)	<b>4.68</b> (4.04-5.56)	<b>10.8</b> (7.30-17.8)	<b>21.4</b> (15.6-29.9)	420
20 years and older	01-02	<b>2.24</b> (2.03-2.47)	<b>2.20</b> (2.00-2.40)	<b>3.51</b> (3.11-3.95)	<b>5.39</b> (4.82-6.18)	<b>7.71</b> (6.71-9.28)	1647
	03-04	<b>2.43</b> (2.27-2.61)	<b>2.38</b> (2.19-2.56)	<b>3.70</b> (3.33-4.08)	<b>6.09</b> (5.38-7.06)	<b>8.79</b> (7.84-9.56)	1534
	05-06	<b>1.76</b> (1.60-1.94)	<b>1.67</b> (1.47-1.86)	<b>2.96</b> (2.60-3.38)	<b>5.55</b> (4.61-6.46)	<b>8.46</b> (7.00-10.3)	1490
	07-08	<b>2.48</b> (2.33-2.64)	<b>2.26</b> (2.14-2.36)	<b>4.00</b> (3.68-4.39)	<b>8.03</b> (7.11-9.09)	<b>12.7</b> (11.1-14.8)	1814
	09-10	<b>2.97</b> (2.60-3.39)	<b>2.75</b> (2.38-3.22)	<b>5.25</b> (4.45-6.31)	<b>11.3</b> (9.63-13.2)	<b>18.1</b> (15.4-21.6)	1914
Gender Males	01-02	<b>2.35</b> (2.17-2.56)	<b>2.20</b> (2.02-2.42)	<b>3.76</b> (3.45-4.20)	<b>7.17</b> (6.27-8.06)	<b>11.5</b> (9.28-15.1)	1371
	03-04	<b>2.55</b> (2.39-2.72)	<b>2.36</b> (2.22-2.47)	<b>4.14</b> (3.52-4.86)	<b>7.84</b> (6.80-8.79)	<b>11.6</b> (10.2-13.5)	1250
	05-06	<b>1.86</b> (1.70-2.03)	<b>1.70</b> (1.53-1.88)	<b>3.33</b> (2.92-3.70)	<b>6.70</b> (5.59-8.33)	<b>10.7</b> (8.72-14.2)	1270
	07-08	<b>2.54</b> (2.34-2.76)	<b>2.32</b> (2.10-2.50)	<b>4.17</b> (3.80-4.81)	<b>8.91</b> (7.37-11.2)	<b>14.7</b> (12.9-17.5)	1294
	09-10	<b>3.02</b> (2.61-3.49)	<b>2.82</b> (2.43-3.36)	<b>5.51</b> (4.70-6.36)	<b>10.9</b> (9.84-12.1)	<b>18.5</b> (13.7-23.7)	1399
Females	01-02	<b>2.81</b> (2.48-3.18)	<b>2.76</b> (2.46-3.02)	<b>4.39</b> (3.97-4.92)	<b>7.66</b> (6.17-8.69)	<b>11.0</b> (8.62-15.9)	1411
	03-04	<b>2.93</b> (2.68-3.20)	<b>2.89</b> (2.58-3.23)	<b>4.53</b> (4.09-5.00)	<b>7.58</b> (6.44-8.57)	<b>10.0</b> (8.60-11.6)	1355
	05-06	<b>2.15</b> (1.88-2.45)	<b>2.00</b> (1.72-2.44)	<b>3.77</b> (3.15-4.47)	<b>6.90</b> (5.62-8.43)	<b>10.0</b> (8.14-12.5)	1278
	07-08	<b>3.04</b> (2.84-3.25)	<b>2.80</b> (2.50-3.11)	<b>5.08</b> (4.64-5.52)	<b>10.3</b> (8.67-11.3)	<b>15.0</b> (11.8-17.8)	1310
	09-10	<b>3.28</b> (2.88-3.74)	<b>3.00</b> (2.58-3.46)	<b>5.87</b> (4.96-7.05)	<b>13.0</b> (10.3-14.8)	<b>19.1</b> (15.4-29.5)	1350

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DOP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DOP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)



## Urinary Mono-(3-carboxypropyl) phthalate (MCP) (creatinine corrected) (2001 – 2010)

Metabolite of Di-n-octyl phthalate (DOP) and of several high molecular weight phthalates

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	01-02	<b>2.52</b> (2.21-2.88)	<b>2.37</b> (2.07-2.73)	<b>4.29</b> (3.73-5.00)	<b>7.36</b> (5.58-10.3)	<b>11.4</b> (8.36-14.5)	677
	03-04	<b>2.78</b> (2.56-3.02)	<b>2.63</b> (2.30-2.96)	<b>4.32</b> (3.66-4.96)	<b>8.14</b> (6.72-10.3)	<b>12.8</b> (9.37-17.1)	652
	05-06	<b>2.02</b> (1.62-2.51)	<b>1.79</b> (1.42-2.53)	<b>3.85</b> (2.74-5.22)	<b>7.00</b> (5.40-8.82)	<b>10.2</b> (7.64-16.4)	637
	07-08	<b>2.60</b> (2.26-2.99)	<b>2.45</b> (2.05-3.10)	<b>4.31</b> (3.49-5.22)	<b>8.31</b> (6.67-9.76)	<b>12.9</b> (9.50-15.5)	531
	09-10	<b>2.29</b> (1.92-2.74)	<b>2.08</b> (1.76-2.60)	<b>4.29</b> (3.61-5.05)	<b>9.02</b> (7.16-11.4)	<b>13.7</b> (10.9-17.8)	566
Non-Hispanic blacks	01-02	<b>2.17</b> (2.02-2.33)	<b>2.07</b> (1.88-2.28)	<b>3.68</b> (3.25-4.07)	<b>6.73</b> (5.46-7.70)	<b>10.0</b> (8.27-13.1)	703
	03-04	<b>2.34</b> (2.13-2.58)	<b>2.17</b> (1.99-2.45)	<b>3.96</b> (3.33-4.43)	<b>6.93</b> (6.03-8.80)	<b>13.4</b> (9.32-15.9)	699
	05-06	<b>1.61</b> (1.42-1.81)	<b>1.58</b> (1.38-1.77)	<b>2.76</b> (2.27-3.37)	<b>5.63</b> (4.33-7.59)	<b>8.68</b> (6.86-10.4)	678
	07-08	<b>2.28</b> (1.96-2.65)	<b>2.11</b> (1.72-2.35)	<b>3.91</b> (3.33-4.56)	<b>7.97</b> (5.58-12.8)	<b>16.4</b> (8.21-57.0)	597
	09-10	<b>2.45</b> (2.02-2.97)	<b>2.26</b> (1.81-2.84)	<b>4.14</b> (3.35-5.19)	<b>8.02</b> (6.24-11.3)	<b>14.7</b> (9.92-19.7)	516
Non-Hispanic whites	01-02	<b>2.69</b> (2.42-3.00)	<b>2.57</b> (2.25-2.94)	<b>4.19</b> (3.87-4.79)	<b>7.63</b> (6.58-8.45)	<b>11.8</b> (10.0-14.7)	1216
	03-04	<b>2.83</b> (2.60-3.09)	<b>2.65</b> (2.43-2.96)	<b>4.55</b> (3.90-5.16)	<b>7.79</b> (6.59-8.79)	<b>10.6</b> (9.43-11.3)	1088
	05-06	<b>2.08</b> (1.92-2.24)	<b>1.95</b> (1.76-2.12)	<b>3.60</b> (3.26-4.00)	<b>6.47</b> (5.56-7.93)	<b>10.3</b> (7.95-13.1)	1038
	07-08	<b>2.96</b> (2.72-3.23)	<b>2.70</b> (2.50-2.93)	<b>5.06</b> (4.35-5.77)	<b>10.3</b> (8.61-11.5)	<b>15.1</b> (12.3-19.3)	1077
	09-10	<b>3.57</b> (3.12-4.07)	<b>3.28</b> (2.81-3.73)	<b>6.33</b> (5.25-7.39)	<b>13.2</b> (11.1-14.9)	<b>21.6</b> (16.6-26.2)	1206

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DOP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DOP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-(3-carboxypropyl) phthalate (MCP) (creatinine corrected) (2011 - 2012)

Metabolite of Di-n-octyl phthalate (DOP) and of several high molecular weight phthalates

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>3.42</b> (2.93-3.99)	<b>2.86</b> (2.44-3.33)	<b>6.00</b> (4.95-7.75)	<b>15.8</b> (10.8-23.6)	<b>36.6</b> (18.8-65.9)	2487
<b>Age group</b>							
6-11 years	11-12	<b>4.79</b> (4.18-5.49)	<b>4.19</b> (3.60-4.67)	<b>7.26</b> (5.81-8.61)	<b>15.7</b> (8.97-26.7)	<b>28.2</b> (16.4-39.8)	395
12-19 years	11-12	<b>3.18</b> (2.50-4.04)	<b>2.44</b> (1.82-3.31)	<b>5.59</b> (3.85-8.33)	<b>26.6</b> (8.44-45.7)	<b>45.7</b> (17.4-80.0)	388
20 years and older	11-12	<b>3.33</b> (2.83-3.93)	<b>2.69</b> (2.34-3.16)	<b>5.97</b> (4.78-7.89)	<b>15.7</b> (10.7-22.1)	<b>32.2</b> (17.1-69.6)	1704
<b>Gender</b>							
Males	11-12	<b>3.29</b> (2.80-3.86)	<b>2.67</b> (2.35-3.07)	<b>6.00</b> (4.86-7.58)	<b>15.7</b> (10.1-25.0)	<b>41.5</b> (17.2-89.9)	1258
Females	11-12	<b>3.55</b> (2.95-4.27)	<b>3.00</b> (2.44-3.65)	<b>6.05</b> (4.80-8.45)	<b>15.8</b> (9.78-25.7)	<b>33.7</b> (16.2-65.9)	1229
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>2.91</b> (2.34-3.61)	<b>2.50</b> (2.14-2.92)	<b>4.88</b> (3.49-6.11)	<b>11.5</b> (6.42-24.4)	<b>24.4</b> (9.94-78.7)	316
Non-Hispanic blacks	11-12	<b>2.76</b> (2.42-3.15)	<b>2.27</b> (1.96-2.65)	<b>4.82</b> (3.77-6.23)	<b>11.8</b> (8.36-15.1)	<b>22.9</b> (15.3-31.9)	665
Non-Hispanic whites	11-12	<b>3.67</b> (3.06-4.42)	<b>3.08</b> (2.58-3.93)	<b>6.92</b> (5.14-9.10)	<b>16.3</b> (11.2-27.0)	<b>36.8</b> (17.6-69.6)	811
All Hispanics	11-12	<b>3.13</b> (2.50-3.92)	<b>2.45</b> (2.14-2.73)	<b>5.31</b> (4.04-6.73)	<b>15.1</b> (7.09-36.6)	<b>34.6</b> (11.9-128)	571
Asians	11-12	<b>3.00</b> (2.29-3.92)	<b>2.54</b> (2.08-3.14)	<b>4.64</b> (3.56-7.40)	<b>14.7</b> (6.97-38.8)	<b>38.8</b> (21.3-65.7)	352

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DOP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DOP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-*n*-octyl phthalate (MOP) (1999 – 2010)†

Metabolite of Di-*n*-octyl phthalate (DOP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.\*\*

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	< LOD	2.69 (2.02-3.36)	4.87 (3.86-5.71)	2541
	01-02	*	< LOD	< LOD	< LOD	< LOD	2782
	03-04	*	< LOD	< LOD	< LOD	< LOD	2605
	05-06	*	< LOD	< LOD	< LOD	< LOD	2548
	07-08	*	< LOD	< LOD	< LOD	< LOD	2604
	09-10	*	< LOD	< LOD	< LOD	< LOD	2749
Age group 6-11 years	99-00	*	< LOD	< LOD	3.70 (<LOD-5.88)	5.38 (2.86-8.40)	328
	01-02	*	< LOD	< LOD	< LOD	< LOD	393
	03-04	*	< LOD	< LOD	< LOD	< LOD	342
	05-06	*	< LOD	< LOD	< LOD	< LOD	356
	07-08	*	< LOD	< LOD	< LOD	< LOD	389
	09-10	*	< LOD	< LOD	< LOD	< LOD	415
12-19 years	99-00	*	< LOD	< LOD	2.86 (<LOD-4.20)	4.70 (3.36-7.06)	752
	01-02	*	< LOD	< LOD	< LOD	< LOD	742
	03-04	*	< LOD	< LOD	< LOD	< LOD	729
	05-06	*	< LOD	< LOD	< LOD	< LOD	702
	07-08	*	< LOD	< LOD	< LOD	< LOD	401
	09-10	*	< LOD	< LOD	< LOD	< LOD	420
20 years and older	99-00	*	< LOD	< LOD	2.52 (1.85-3.19)	4.87 (3.53-5.88)	1461
	01-02	*	< LOD	< LOD	< LOD	< LOD	1647
	03-04	*	< LOD	< LOD	< LOD	< LOD	1534
	05-06	*	< LOD	< LOD	< LOD	< LOD	1490
	07-08	*	< LOD	< LOD	< LOD	< LOD	1814
	09-10	*	< LOD	< LOD	< LOD	< LOD	1914
Gender							
Males	99-00	*	< LOD	< LOD	2.69 (1.85-3.70)	4.70 (3.36-5.88)	1215
	01-02	*	< LOD	< LOD	< LOD	< LOD	1371
	03-04	*	< LOD	< LOD	< LOD	< LOD	1250
	05-06	*	< LOD	< LOD	< LOD	< LOD	1270
	07-08	*	< LOD	< LOD	< LOD	< LOD	1294
	09-10	*	< LOD	< LOD	< LOD	< LOD	1399
Females	99-00	*	< LOD	< LOD	2.52 (2.02-3.53)	5.21 (3.70-6.38)	1326
	01-02	*	< LOD	< LOD	< LOD	< LOD	1411
	03-04	*	< LOD	< LOD	< LOD	< LOD	1355
	05-06	*	< LOD	< LOD	< LOD	< LOD	1278
	07-08	*	< LOD	< LOD	< LOD	< LOD	1310
	09-10	*	< LOD	< LOD	< LOD	< LOD	1350

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 1.51, 1.68, 1.68, 1.85, 1.85 and 0.84 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

\*\*To correct for inadequate purity in the analytical standards, all results and LODs have been adjusted by a factor of 1.68 for survey periods 1999-2008 compared with results previously reported.

†Not measured after Survey years 2009-2010

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DOP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DOP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-*n*-octyl phthalate (MOP) (1999 – 2010) ‡

Metabolite of Di-*n*-octyl phthalate (DOP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.\*\*

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b> Mexican Americans	99-00	*	< LOD	< LOD	1.85 (<LOD-2.35)	2.69 (2.35-4.37)	814
	01-02	*	< LOD	< LOD	< LOD	< LOD	677
	03-04	*	< LOD	< LOD	< LOD	< LOD	652
	05-06	*	< LOD	< LOD	< LOD	< LOD	637
	07-08	*	< LOD	< LOD	< LOD	< LOD	531
	09-10	*	< LOD	< LOD	< LOD	< LOD	566
Non-Hispanic blacks	99-00	*	< LOD	< LOD	3.19 (<LOD-5.04)	5.04 (3.70-6.89)	603
	01-02	*	< LOD	< LOD	< LOD	< LOD	703
	03-04	*	< LOD	< LOD	< LOD	< LOD	699
	05-06	*	< LOD	< LOD	< LOD	< LOD	678
	07-08	*	< LOD	< LOD	< LOD	< LOD	597
	09-10	*	< LOD	< LOD	< LOD	< LOD	516
Non-Hispanic whites	99-00	*	< LOD	< LOD	2.69 (2.02-3.53)	5.04 (3.86-5.88)	912
	01-02	*	< LOD	< LOD	< LOD	< LOD	1216
	03-04	*	< LOD	< LOD	< LOD	< LOD	1088
	05-06	*	< LOD	< LOD	< LOD	< LOD	1038
	07-08	*	< LOD	< LOD	< LOD	< LOD	1077
	09-10	*	< LOD	< LOD	< LOD	< LOD	1206

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 1.51, 1.68, 1.68, 1.85, 1.85 and 0.84 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

\*\*To correct for inadequate purity in the analytical standards, all results and LODs have been adjusted by a factor of 1.68 for survey periods 1999-2008 compared with results previously reported.

‡Not measured after Survey years 2009-2010

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DOP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DOP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-*n*-octyl phthalate (MOP) (creatinine corrected) (1999 – 2010) ‡

Metabolite of Di-*n*-octyl phthalate (DOP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.\*\*

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	< LOD	4.03 (3.48-4.38)	5.93 (4.96-7.21)	2541
	01-02	*	< LOD	< LOD	< LOD	< LOD	2782
	03-04	*	< LOD	< LOD	< LOD	< LOD	2605
	05-06	*	< LOD	< LOD	< LOD	< LOD	2548
	07-08	*	< LOD	< LOD	< LOD	< LOD	2604
	09-10	*	< LOD	< LOD	< LOD	< LOD	2749
Age group 6-11 years	99-00	*	< LOD	< LOD	3.73 (<LOD-6.30)	6.30 (3.31-17.2)	328
	01-02	*	< LOD	< LOD	< LOD	< LOD	393
	03-04	*	< LOD	< LOD	< LOD	< LOD	342
	05-06	*	< LOD	< LOD	< LOD	< LOD	356
	07-08	*	< LOD	< LOD	< LOD	< LOD	389
	09-10	*	< LOD	< LOD	< LOD	< LOD	415
12-19 years	99-00	*	< LOD	< LOD	2.50 (<LOD-2.87)	3.16 (2.59-5.59)	752
	01-02	*	< LOD	< LOD	< LOD	< LOD	742
	03-04	*	< LOD	< LOD	< LOD	< LOD	729
	05-06	*	< LOD	< LOD	< LOD	< LOD	702
	07-08	*	< LOD	< LOD	< LOD	< LOD	401
	09-10	*	< LOD	< LOD	< LOD	< LOD	420
20 years and older	99-00	*	< LOD	< LOD	4.37 (3.48-4.89)	5.93 (5.04-7.76)	1461
	01-02	*	< LOD	< LOD	< LOD	< LOD	1647
	03-04	*	< LOD	< LOD	< LOD	< LOD	1534
	05-06	*	< LOD	< LOD	< LOD	< LOD	1490
	07-08	*	< LOD	< LOD	< LOD	< LOD	1814
	09-10	*	< LOD	< LOD	< LOD	< LOD	1914
Gender							
Males	99-00	*	< LOD	< LOD	3.06 (2.59-3.48)	4.30 (3.26-5.80)	1215
	01-02	*	< LOD	< LOD	< LOD	< LOD	1371
	03-04	*	< LOD	< LOD	< LOD	< LOD	1250
	05-06	*	< LOD	< LOD	< LOD	< LOD	1270
	07-08	*	< LOD	< LOD	< LOD	< LOD	1294
	09-10	*	< LOD	< LOD	< LOD	< LOD	1399
Females	99-00	*	< LOD	< LOD	5.04 (4.20-5.96)	7.21 (5.59-10.5)	1326
	01-02	*	< LOD	< LOD	< LOD	< LOD	1411
	03-04	*	< LOD	< LOD	< LOD	< LOD	1355
	05-06	*	< LOD	< LOD	< LOD	< LOD	1278
	07-08	*	< LOD	< LOD	< LOD	< LOD	1310
	09-10	*	< LOD	< LOD	< LOD	< LOD	1350

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

\*\*To correct for inadequate purity in the analytical standards, all results and LODs have been adjusted by a factor of 1.68 for survey periods 1999-2008 compared with results previously reported..

‡Not measured after Survey years 2009-2010

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DOP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DOP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Mono-*n*-octyl phthalate (MOP) (creatinine corrected) (1999 – 2010) ‡

Metabolite of Di-*n*-octyl phthalate (DOP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.\*\*

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00	*	< LOD	< LOD	3.06 (<LOD-4.70)	5.59 (4.37-6.72)	814
	01-02	*	< LOD	< LOD	< LOD	< LOD	677
	03-04	*	< LOD	< LOD	< LOD	< LOD	652
	05-06	*	< LOD	< LOD	< LOD	< LOD	637
	07-08	*	< LOD	< LOD	< LOD	< LOD	531
	09-10	*	< LOD	< LOD	< LOD	< LOD	566
Non-Hispanic blacks	99-00	*	< LOD	< LOD	2.28 (<LOD-3.26)	3.73 (2.52-5.49)	603
	01-02	*	< LOD	< LOD	< LOD	< LOD	703
	03-04	*	< LOD	< LOD	< LOD	< LOD	699
	05-06	*	< LOD	< LOD	< LOD	< LOD	678
	07-08	*	< LOD	< LOD	< LOD	< LOD	597
	09-10	*	< LOD	< LOD	< LOD	< LOD	516
Non-Hispanic whites	99-00	*	< LOD	< LOD	4.38 (3.60-5.17)	6.12 (5.29-8.40)	912
	01-02	*	< LOD	< LOD	< LOD	< LOD	1216
	03-04	*	< LOD	< LOD	< LOD	< LOD	1088
	05-06	*	< LOD	< LOD	< LOD	< LOD	1038
	07-08	*	< LOD	< LOD	< LOD	< LOD	1077
	09-10	*	< LOD	< LOD	< LOD	< LOD	1206

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

\*\*To correct for inadequate purity in the analytical standards, all results and LODs have been adjusted by a factor of 1.68 for survey periods 1999-2008 compared with results previously reported.

‡Not measured after Survey years 2009-2010

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DOP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DOP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Cyclohexane-1,2-dicarboxylic acid-mono(hydroxy-isononyl) ester (MHNCH) (2011 - 2012)

Metabolite of Di(isononyl) cyclohexane-1,2-dicarboxylate (DINCH)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	.600 (.500-.800)	1.10 (.900-1.20)	2489
<b>Age group</b>							
6-11 years	11-12	*	< LOD	.800 (.600-1.10)	1.90 (1.20-2.70)	4.10 (1.90-6.00)	396
12-19 years	11-12	*	< LOD	.400 (<LOD-.600)	.900 (.600-1.30)	1.30 (.900-2.50)	388
20 years and older	11-12	*	< LOD	< LOD	.500 (.400-.600)	.800 (.700-.900)	1705
<b>Gender</b>							
Males	11-12	*	< LOD	< LOD	.700 (.600-1.00)	1.10 (.800-1.70)	1259
Females	11-12	*	< LOD	< LOD	.600 (.500-.700)	.900 (.800-1.10)	1230
<b>Race/ethnicity</b>							
Mexican Americans	11-12	*	< LOD	.400 (<LOD-.500)	.800 (.600-1.10)	1.30 (.800-2.70)	316
Non-Hispanic blacks	11-12	*	< LOD	.500 (<LOD-.500)	.900 (.700-1.10)	1.20 (1.10-1.50)	665
Non-Hispanic whites	11-12	*	< LOD	< LOD	.600 (.500-.700)	.900 (.700-1.10)	813
All Hispanics	11-12	*	< LOD	< LOD	.700 (.600-.900)	1.10 (.800-1.60)	571
Asians	11-12	*	< LOD	< LOD	1.00 (.700-1.50)	2.00 (1.20-5.50)	352

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 0.4.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DOP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DOP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)



## Urinary Cyclohexane-1,2-dicarboxylic acid-mono(hydroxy-isononyl) ester (MHNCH) (creatinine corrected) (2011 - 2012)

Metabolite of Di(isononyl) cyclohexane-1,2-dicarboxylate (DINCH)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	1.12 (1.01-1.22)	1.57 (1.39-1.87)	2487
<b>Age group</b>							
6-11 years	11-12	*	< LOD	1.27 (1.04-1.40)	2.22 (1.65-3.11)	3.81 (2.38-6.64)	395
12-19 years	11-12	*	< LOD	.581 (<LOD-.700)	1.00 (.778-1.33)	1.57 (1.04-2.86)	388
20 years and older	11-12	*	< LOD	< LOD	1.03 (.933-1.12)	1.39 (1.17-1.65)	1704
<b>Gender</b>							
Males	11-12	*	< LOD	< LOD	.916 (.778-1.08)	1.39 (1.08-1.59)	1258
Females	11-12	*	< LOD	< LOD	1.22 (1.12-1.40)	1.91 (1.47-2.55)	1229
<b>Race/ethnicity</b>							
Mexican Americans	11-12	*	< LOD	.667 (<LOD-.755)	1.22 (.903-1.47)	1.61 (1.27-2.76)	316
Non-Hispanic blacks	11-12	*	< LOD	.449 (<LOD-.528)	.848 (.757-.952)	1.23 (1.02-1.57)	665
Non-Hispanic whites	11-12	*	< LOD	< LOD	1.12 (1.00-1.22)	1.56 (1.22-2.00)	811
All Hispanics	11-12	*	< LOD	< LOD	1.12 (.824-1.47)	1.54 (1.27-1.87)	571
Asians	11-12	*	< LOD	< LOD	1.89 (1.33-2.22)	3.57 (2.00-7.00)	352

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DOP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DOP_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

## Urinary Daidzein (1999 – 2010) ‡

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	<b>75.1</b> (61.9-91.1)	<b>69.8</b> (57.8-82.6)	<b>229</b> (184-298)	<b>538</b> (471-702)	<b>1320</b> (1020-1540)	2553
	01-02	<b>51.7</b> (46.6-57.5)	<b>52.3</b> (48.9-57.4)	<b>192</b> (151-226)	<b>577</b> (447-725)	<b>1250</b> (863-1640)	2794
	03-04	<b>66.7</b> (60.4-73.7)	<b>62.0</b> (54.1-69.7)	<b>195</b> (171-219)	<b>590</b> (500-675)	<b>1070</b> (893-1330)	2594
	05-06	<b>66.5</b> (59.7-74.1)	<b>58.8</b> (51.0-67.7)	<b>204</b> (187-226)	<b>648</b> (485-745)	<b>1180</b> (1000-1350)	2528
	07-08	<b>67.1</b> (60.2-74.8)	<b>57.6</b> (49.1-66.0)	<b>203</b> (182-222)	<b>747</b> (551-994)	<b>1740</b> (1210-2240)	2424
	09-10	<b>69.3</b> (61.6-77.9)	<b>57.2</b> (48.8-64.3)	<b>228</b> (190-262)	<b>753</b> (671-880)	<b>1850</b> (1380-2480)	2792
	Age group 6-11 years	99-00	<b>90.5</b> (75.1-109)	<b>101</b> (70.3-138)	<b>257</b> (172-430)	<b>510</b> (437-840)	<b>1130</b> (657-1740)
01-02		<b>84.9</b> (71.6-101)	<b>72.7</b> (56.3-97.0)	<b>261</b> (155-385)	<b>605</b> (437-989)	<b>1060</b> (645-1500)	396
03-04		<b>84.9</b> (71.6-101)	<b>66.8</b> (55.4-92.8)	<b>229</b> (151-314)	<b>574</b> (371-654)	<b>818</b> (625-1060)	341
05-06		<b>94.1</b> (74.3-119)	<b>74.0</b> (56.0-95.9)	<b>287</b> (149-471)	<b>1010</b> (557-1600)	<b>1870</b> (1040-3830)	351
07-08		<b>105</b> (80.2-137)	<b>90.6</b> (61.4-123)	<b>277</b> (183-431)	<b>1370</b> (491-2190)	<b>2190</b> (1340-3500)	360
09-10		<b>109</b> (88.1-135)	<b>98.5</b> (75.4-119)	<b>461</b> (262-605)	<b>1000</b> (730-1520)	<b>1900</b> (1120-2800)	371
12-19 years		99-00	<b>123</b> (91.4-166)	<b>124</b> (85.6-168)	<b>326</b> (227-454)	<b>833</b> (445-1490)	<b>1460</b> (861-2410)
	01-02	<b>69.3</b> (52.6-91.3)	<b>70.2</b> (52.5-87.5)	<b>255</b> (185-344)	<b>774</b> (573-984)	<b>1360</b> (922-1950)	744
	03-04	<b>89.0</b> (75.2-105)	<b>78.0</b> (59.0-104)	<b>248</b> (197-332)	<b>808</b> (500-968)	<b>1200</b> (900-1790)	729
	05-06	<b>94.4</b> (76.0-117)	<b>77.1</b> (59.7-103)	<b>286</b> (200-416)	<b>836</b> (530-1170)	<b>1390</b> (929-2220)	693
	07-08	<b>79.7</b> (64.4-98.6)	<b>76.0</b> (52.2-107)	<b>256</b> (189-300)	<b>828</b> (396-1100)	<b>1220</b> (874-2070)	375
	09-10	<b>94.2</b> (74.1-120)	<b>82.9</b> (60.8-116)	<b>295</b> (201-395)	<b>1020</b> (690-1210)	<b>1390</b> (1150-2500)	447
	20 years and older	99-00	<b>67.6</b> (55.4-82.4)	<b>60.9</b> (49.3-74.1)	<b>215</b> (167-239)	<b>518</b> (459-573)	<b>1320</b> (978-1540)
01-02		<b>46.4</b> (41.4-52.0)	<b>49.1</b> (40.8-53.4)	<b>176</b> (133-216)	<b>520</b> (396-703)	<b>1210</b> (771-1900)	1654
03-04		<b>61.9</b> (55.2-69.4)	<b>57.9</b> (48.7-68.5)	<b>180</b> (150-214)	<b>554</b> (416-695)	<b>1110</b> (857-1360)	1524
05-06		<b>60.5</b> (53.4-68.7)	<b>54.0</b> (46.8-63.8)	<b>197</b> (169-209)	<b>512</b> (427-664)	<b>1100</b> (795-1270)	1484
07-08		<b>62.2</b> (55.0-70.4)	<b>51.7</b> (44.3-60.3)	<b>189</b> (169-211)	<b>686</b> (514-939)	<b>1640</b> (1060-2500)	1689
09-10		<b>63.0</b> (54.7-72.5)	<b>49.3</b> (43.0-59.8)	<b>203</b> (168-250)	<b>701</b> (572-856)	<b>1980</b> (1220-2780)	1974
Gender Males		99-00	<b>88.9</b> (71.4-111)	<b>80.6</b> (66.6-112)	<b>262</b> (198-355)	<b>587</b> (501-989)	<b>1540</b> (989-2080)
	01-02	<b>49.8</b> (42.8-57.9)	<b>50.8</b> (46.0-55.0)	<b>190</b> (137-240)	<b>498</b> (386-694)	<b>920</b> (717-1380)	1375
	03-04	<b>73.8</b> (63.4-85.9)	<b>65.2</b> (56.1-76.4)	<b>214</b> (156-311)	<b>709</b> (535-900)	<b>1200</b> (969-1380)	1244
	05-06	<b>73.9</b> (65.3-83.6)	<b>66.4</b> (53.8-78.5)	<b>210</b> (180-241)	<b>694</b> (471-823)	<b>1180</b> (979-1400)	1252
	07-08	<b>72.7</b> (62.2-85.0)	<b>63.4</b> (49.3-76.5)	<b>210</b> (174-259)	<b>706</b> (520-1180)	<b>2010</b> (1210-3520)	1198
	09-10	<b>68.8</b> (59.0-80.3)	<b>55.0</b> (46.0-65.0)	<b>207</b> (168-257)	<b>674</b> (559-840)	<b>1430</b> (1160-2370)	1377
	Females	99-00	<b>64.1</b> (52.9-77.6)	<b>57.8</b> (45.0-73.2)	<b>199</b> (150-244)	<b>476</b> (389-722)	<b>1220</b> (566-1700)
01-02		<b>53.6</b> (48.1-59.8)	<b>55.7</b> (49.8-62.7)	<b>199</b> (149-234)	<b>642</b> (511-816)	<b>1470</b> (1170-1980)	1419
03-04		<b>60.7</b> (53.6-68.8)	<b>57.4</b> (49.1-67.6)	<b>175</b> (159-201)	<b>466</b> (381-622)	<b>884</b> (654-1380)	1350
05-06		<b>60.1</b> (52.5-68.9)	<b>52.5</b> (45.0-61.1)	<b>200</b> (166-231)	<b>587</b> (420-717)	<b>1140</b> (811-1440)	1276
07-08		<b>62.2</b> (54.4-71.0)	<b>52.2</b> (44.4-58.7)	<b>191</b> (169-217)	<b>752</b> (476-905)	<b>1570</b> (994-2180)	1226
09-10		<b>69.8</b> (60.7-80.3)	<b>60.2</b> (46.1-71.1)	<b>249</b> (200-309)	<b>840</b> (694-973)	<b>2140</b> (1210-2910)	1415

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.5, 1.6, 0.3, 0.4, 0.4, and 0.4 respectively.

‡Not measured after Survey years 2009-2010

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Phytoestrogens\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Phytoestrogens_BiomonitoringSummary.html)

## Urinary Daidzein (1999 – 2010) ‡

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00	<b>78.9</b> (59.8-104)	<b>66.2</b> (48.4-87.1)	<b>254</b> (170-402)	<b>806</b> (534-1020)	<b>1360</b> (968-2780)	816
	01-02	<b>39.2</b> (28.5-54.0)	<b>39.9</b> (28.8-59.9)	<b>169</b> (100-291)	<b>515</b> (388-669)	<b>896</b> (613-1480)	679
	03-04	<b>57.4</b> (50.2-65.7)	<b>45.5</b> (35.2-53.3)	<b>178</b> (130-236)	<b>686</b> (487-934)	<b>1390</b> (934-1650)	653
	05-06	<b>60.6</b> (53.3-68.9)	<b>54.1</b> (44.3-65.2)	<b>193</b> (155-239)	<b>671</b> (424-966)	<b>1350</b> (966-1550)	634
	07-08	<b>60.5</b> (46.6-78.6)	<b>45.8</b> (34.4-67.3)	<b>206</b> (143-313)	<b>815</b> (510-1010)	<b>1410</b> (994-2010)	520
	09-10	<b>60.6</b> (48.8-75.2)	<b>48.8</b> (38.6-74.3)	<b>219</b> (142-283)	<b>622</b> (495-853)	<b>1190</b> (884-1570)	604
Non-Hispanic blacks	99-00	<b>91.9</b> (71.9-118)	<b>103</b> (81.6-133)	<b>286</b> (243-377)	<b>553</b> (459-824)	<b>1190</b> (640-1900)	607
	01-02	<b>66.1</b> (48.2-90.7)	<b>72.9</b> (52.8-97.3)	<b>255</b> (182-393)	<b>757</b> (448-1400)	<b>1410</b> (757-2480)	706
	03-04	<b>75.0</b> (56.1-100)	<b>66.0</b> (50.7-86.6)	<b>241</b> (151-340)	<b>622</b> (408-875)	<b>1190</b> (660-2300)	699
	05-06	<b>81.3</b> (71.6-92.4)	<b>76.5</b> (64.7-97.1)	<b>254</b> (199-331)	<b>676</b> (463-874)	<b>1210</b> (760-1790)	662
	07-08	<b>84.0</b> (63.3-111)	<b>69.8</b> (43.4-102)	<b>338</b> (248-419)	<b>1080</b> (735-1500)	<b>2180</b> (1230-2610)	562
	09-10	<b>77.2</b> (64.6-92.1)	<b>69.9</b> (58.1-82.6)	<b>229</b> (192-281)	<b>711</b> (534-1080)	<b>1350</b> (894-3480)	534
Non-Hispanic whites	99-00	<b>74.4</b> (61.5-89.9)	<b>66.9</b> (56.2-78.2)	<b>216</b> (157-298)	<b>512</b> (438-745)	<b>1360</b> (989-1710)	917
	01-02	<b>48.6</b> (43.8-54.0)	<b>49.8</b> (42.8-54.2)	<b>171</b> (137-204)	<b>504</b> (389-658)	<b>1140</b> (774-1620)	1222
	03-04	<b>65.8</b> (58.6-74.0)	<b>62.0</b> (52.8-71.9)	<b>191</b> (165-215)	<b>572</b> (416-722)	<b>1070</b> (823-1330)	1079
	05-06	<b>62.0</b> (54.4-70.7)	<b>54.2</b> (46.9-64.1)	<b>200</b> (164-216)	<b>581</b> (430-717)	<b>1040</b> (811-1310)	1039
	07-08	<b>63.6</b> (56.8-71.2)	<b>56.7</b> (46.2-65.0)	<b>180</b> (158-212)	<b>603</b> (455-832)	<b>1430</b> (915-2170)	993
	09-10	<b>68.3</b> (58.2-80.2)	<b>55.0</b> (45.5-66.8)	<b>219</b> (168-284)	<b>726</b> (584-887)	<b>1740</b> (1150-2510)	1186

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.5, 1.6, 0.3, 0.4, 0.4, and 0.4 respectively.

‡Not measured after Survey years 2009-2010

### Biomonitoring Summary

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## Urinary Daidzein (creatinine corrected) (1999 – 2010) ‡

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	<b>68.5</b> (55.9-83.9)	<b>65.1</b> (52.8-80.8)	<b>204</b> (156-249)	<b>560</b> (471-629)	<b>944</b> (836-1150)	2553
	01-02	<b>48.5</b> (43.7-54.0)	<b>48.3</b> (43.1-56.5)	<b>166</b> (140-196)	<b>500</b> (391-608)	<b>957</b> (801-1180)	2794
	03-04	<b>62.5</b> (58.3-67.0)	<b>56.1</b> (50.0-63.5)	<b>164</b> (144-187)	<b>502</b> (429-591)	<b>1060</b> (825-1150)	2594
	05-06	<b>64.8</b> (58.7-71.6)	<b>52.4</b> (47.4-59.7)	<b>184</b> (162-209)	<b>564</b> (461-679)	<b>1070</b> (896-1310)	2528
	07-08	<b>67.5</b> (60.5-75.2)	<b>55.6</b> (47.4-64.0)	<b>197</b> (178-217)	<b>672</b> (538-897)	<b>1400</b> (1070-2250)	2424
	09-10	<b>74.2</b> (67.0-82.2)	<b>55.9</b> (51.6-61.7)	<b>219</b> (184-272)	<b>790</b> (688-1090)	<b>1920</b> (1550-2390)	2791
Age group 6-11 years	99-00	<b>92.6</b> (76.3-112)	<b>93.1</b> (71.2-114)	<b>251</b> (157-324)	<b>552</b> (363-838)	<b>1070</b> (781-2150)	330
	01-02	<b>96.4</b> (79.0-118)	<b>85.9</b> (60.3-127)	<b>275</b> (159-395)	<b>655</b> (452-733)	<b>938</b> (683-1140)	396
	03-04	<b>90.4</b> (77.2-106)	<b>72.8</b> (58.1-99.5)	<b>201</b> (152-240)	<b>454</b> (329-638)	<b>702</b> (526-1200)	341
	05-06	<b>104</b> (83.1-130)	<b>73.8</b> (59.5-96.7)	<b>305</b> (175-453)	<b>1040</b> (686-1830)	<b>2430</b> (1190-3630)	351
	07-08	<b>128</b> (101-164)	<b>106</b> (80.0-141)	<b>307</b> (197-429)	<b>1420</b> (543-2630)	<b>2630</b> (1380-3670)	360
	09-10	<b>149</b> (124-179)	<b>128</b> (91.0-162)	<b>500</b> (346-601)	<b>1230</b> (814-1530)	<b>2150</b> (1450-3070)	370
12-19 years	99-00	<b>83.1</b> (58.4-118)	<b>85.6</b> (53.8-126)	<b>207</b> (138-386)	<b>628</b> (295-1060)	<b>1000</b> (628-2380)	753
	01-02	<b>53.4</b> (40.8-70.0)	<b>50.9</b> (38.3-77.6)	<b>181</b> (142-248)	<b>549</b> (385-718)	<b>1030</b> (622-1360)	744
	03-04	<b>66.6</b> (55.7-79.6)	<b>56.4</b> (43.9-74.6)	<b>179</b> (151-217)	<b>517</b> (370-753)	<b>877</b> (617-1240)	729
	05-06	<b>70.0</b> (56.9-86.2)	<b>55.1</b> (42.9-74.3)	<b>203</b> (149-263)	<b>545</b> (338-845)	<b>914</b> (659-1750)	693
	07-08	<b>61.3</b> (51.5-72.9)	<b>61.9</b> (39.9-75.0)	<b>191</b> (144-217)	<b>470</b> (295-645)	<b>821</b> (544-1110)	375
	09-10	<b>88.6</b> (71.3-110)	<b>76.5</b> (53.6-107)	<b>249</b> (177-312)	<b>689</b> (522-969)	<b>1410</b> (823-2740)	447
20 years and older	99-00	<b>63.8</b> (51.5-79.1)	<b>59.3</b> (48.7-75.0)	<b>194</b> (151-234)	<b>554</b> (471-624)	<b>908</b> (783-1180)	1470
	01-02	<b>43.9</b> (39.4-48.9)	<b>43.8</b> (37.4-53.3)	<b>153</b> (125-186)	<b>428</b> (348-590)	<b>946</b> (728-1220)	1654
	03-04	<b>59.2</b> (54.3-64.5)	<b>51.7</b> (46.4-62.6)	<b>155</b> (131-185)	<b>501</b> (404-658)	<b>1090</b> (808-1240)	1524
	05-06	<b>60.7</b> (54.3-67.8)	<b>50.6</b> (43.1-59.5)	<b>171</b> (151-199)	<b>483</b> (434-609)	<b>1030</b> (847-1200)	1484
	07-08	<b>63.9</b> (56.0-72.9)	<b>49.2</b> (42.6-57.7)	<b>187</b> (164-216)	<b>675</b> (514-904)	<b>1340</b> (962-2780)	1689
	09-10	<b>67.1</b> (59.4-75.7)	<b>50.3</b> (44.2-55.5)	<b>194</b> (168-232)	<b>775</b> (613-1120)	<b>1980</b> (1550-2640)	1974
Gender							
Males	99-00	<b>69.7</b> (54.7-88.8)	<b>70.2</b> (51.3-84.3)	<b>198</b> (147-276)	<b>623</b> (494-836)	<b>1050</b> (884-1290)	1220
	01-02	<b>40.5</b> (34.8-47.1)	<b>41.7</b> (34.5-47.9)	<b>139</b> (107-179)	<b>348</b> (260-553)	<b>788</b> (585-947)	1375
	03-04	<b>57.7</b> (49.4-67.3)	<b>48.9</b> (41.6-58.2)	<b>160</b> (126-205)	<b>467</b> (368-600)	<b>919</b> (665-1200)	1244
	05-06	<b>59.5</b> (53.3-66.3)	<b>51.0</b> (43.2-57.6)	<b>164</b> (134-203)	<b>467</b> (403-612)	<b>927</b> (781-1100)	1252
	07-08	<b>61.3</b> (52.5-71.7)	<b>48.7</b> (41.5-63.2)	<b>178</b> (141-205)	<b>585</b> (412-845)	<b>1290</b> (907-2810)	1198
	09-10	<b>62.8</b> (54.8-72.1)	<b>49.9</b> (42.6-57.3)	<b>174</b> (145-196)	<b>613</b> (497-790)	<b>1740</b> (1170-2570)	1376
Females	99-00	<b>67.4</b> (54.8-82.9)	<b>62.7</b> (51.1-80.9)	<b>207</b> (152-250)	<b>509</b> (356-624)	<b>850</b> (610-1410)	1333
	01-02	<b>57.6</b> (50.8-65.2)	<b>59.5</b> (48.1-73.4)	<b>191</b> (159-227)	<b>615</b> (536-722)	<b>1180</b> (924-1430)	1419
	03-04	<b>67.4</b> (60.8-74.9)	<b>65.1</b> (54.6-73.4)	<b>165</b> (143-191)	<b>564</b> (409-699)	<b>1090</b> (757-1370)	1350
	05-06	<b>70.4</b> (61.3-80.8)	<b>57.1</b> (45.1-71.7)	<b>194</b> (169-216)	<b>609</b> (463-887)	<b>1200</b> (957-1750)	1276
	07-08	<b>73.8</b> (64.9-84.0)	<b>63.0</b> (52.1-77.2)	<b>223</b> (190-259)	<b>763</b> (577-1000)	<b>1410</b> (1070-1990)	1226
	09-10	<b>87.2</b> (77.9-97.7)	<b>64.1</b> (55.6-76.7)	<b>292</b> (240-336)	<b>972</b> (800-1230)	<b>2280</b> (1560-2880)	1415

‡Not measured after Survey years 2009-2010

### Biomonitoring Summary

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## Urinary Daidzein (creatinine corrected) (1999 – 2010) ‡

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Race/ethnicity</b>							
Mexican Americans	99-00	<b>72.5</b> (59.1-88.9)	<b>64.2</b> (47.1-91.1)	<b>243</b> (176-310)	<b>677</b> (468-1080)	<b>1380</b> (753-2690)	816
	01-02	<b>36.9</b> (27.8-49.0)	<b>37.1</b> (24.8-57.9)	<b>146</b> (101-225)	<b>441</b> (307-596)	<b>722</b> (565-1160)	679
	03-04	<b>51.8</b> (45.0-59.6)	<b>47.7</b> (35.9-58.3)	<b>159</b> (117-209)	<b>502</b> (354-686)	<b>1130</b> (779-1390)	653
	05-06	<b>54.7</b> (45.6-65.7)	<b>47.2</b> (35.7-61.1)	<b>174</b> (136-219)	<b>558</b> (380-617)	<b>925</b> (642-1140)	634
	07-08	<b>59.5</b> (44.1-80.1)	<b>41.1</b> (27.4-76.1)	<b>200</b> (150-288)	<b>715</b> (502-1060)	<b>1410</b> (1090-1860)	520
	09-10	<b>63.7</b> (52.5-77.1)	<b>49.2</b> (37.9-65.4)	<b>213</b> (167-273)	<b>614</b> (487-861)	<b>1380</b> (865-1940)	604
Non-Hispanic blacks	99-00	<b>59.1</b> (46.5-75.1)	<b>67.6</b> (52.1-87.1)	<b>172</b> (134-207)	<b>381</b> (316-533)	<b>802</b> (562-1010)	607
	01-02	<b>46.4</b> (33.7-63.8)	<b>49.8</b> (35.5-69.7)	<b>169</b> (104-249)	<b>504</b> (263-773)	<b>939</b> (542-1530)	706
	03-04	<b>53.1</b> (42.5-66.4)	<b>44.7</b> (28.6-72.1)	<b>147</b> (121-191)	<b>415</b> (275-538)	<b>727</b> (538-1040)	699
	05-06	<b>57.0</b> (50.3-64.5)	<b>48.5</b> (40.3-59.7)	<b>157</b> (124-221)	<b>467</b> (370-654)	<b>913</b> (603-1290)	662
	07-08	<b>65.0</b> (48.7-86.6)	<b>53.0</b> (36.0-80.6)	<b>240</b> (171-292)	<b>728</b> (520-937)	<b>1330</b> (800-2670)	562
	09-10	<b>62.1</b> (53.0-72.8)	<b>55.7</b> (42.7-65.0)	<b>179</b> (157-223)	<b>576</b> (457-690)	<b>956</b> (710-1840)	533
Non-Hispanic whites	99-00	<b>72.8</b> (60.3-88.0)	<b>67.5</b> (55.3-81.5)	<b>207</b> (160-249)	<b>560</b> (442-659)	<b>908</b> (742-1350)	917
	01-02	<b>48.1</b> (43.4-53.3)	<b>47.0</b> (42.0-56.0)	<b>163</b> (137-191)	<b>463</b> (375-627)	<b>957</b> (805-1220)	1222
	03-04	<b>64.9</b> (59.8-70.3)	<b>58.2</b> (50.4-66.3)	<b>165</b> (138-204)	<b>516</b> (385-667)	<b>1090</b> (786-1250)	1079
	05-06	<b>65.2</b> (57.9-73.3)	<b>52.7</b> (46.5-60.7)	<b>184</b> (155-211)	<b>564</b> (443-737)	<b>1070</b> (894-1390)	1039
	07-08	<b>66.2</b> (58.4-75.1)	<b>57.7</b> (46.0-65.5)	<b>187</b> (160-216)	<b>604</b> (474-763)	<b>1210</b> (907-1670)	993
	09-10	<b>76.6</b> (67.1-87.4)	<b>56.7</b> (51.2-64.1)	<b>225</b> (173-306)	<b>809</b> (617-1180)	<b>1920</b> (1410-2470)	1186

‡Not measured after Survey years 2009-2010

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Phytoestrogens\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Phytoestrogens_BiomonitoringSummary.html)

## Urinary Enterodiol (1999 – 2010) ‡

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	<b>26.6</b> (21.9-32.3)	<b>34.0</b> (29.4-38.7)	<b>78.8</b> (62.6-95.5)	<b>165</b> (135-215)	<b>266</b> (215-335)	2527
	01-02	<b>35.7</b> (32.5-39.3)	<b>39.4</b> (36.3-43.4)	<b>89.2</b> (80.7-96.9)	<b>181</b> (162-205)	<b>253</b> (223-308)	2794
	03-04	<b>39.5</b> (36.1-43.3)	<b>44.9</b> (40.6-50.3)	<b>106</b> (97.2-115)	<b>242</b> (212-264)	<b>367</b> (311-423)	2594
	05-06	<b>37.7</b> (33.2-42.9)	<b>42.4</b> (39.4-47.2)	<b>106</b> (95.5-120)	<b>244</b> (226-266)	<b>379</b> (305-440)	2528
	07-08	<b>36.8</b> (32.0-42.4)	<b>43.5</b> (37.8-49.2)	<b>109</b> (92.1-124)	<b>238</b> (199-294)	<b>429</b> (279-723)	2424
	09-10	<b>39.5</b> (36.3-43.1)	<b>44.5</b> (41.0-48.5)	<b>107</b> (98.4-120)	<b>264</b> (226-288)	<b>545</b> (446-651)	2792
Age group 6-11 years	99-00	<b>26.5</b> (17.1-41.0)	<b>29.4</b> (21.2-44.2)	<b>78.7</b> (44.2-109)	<b>215</b> (91.1-279)	<b>276</b> (131-458)	327
	01-02	<b>33.6</b> (29.8-37.8)	<b>35.5</b> (29.4-43.7)	<b>78.1</b> (63.8-87.0)	<b>152</b> (113-171)	<b>203</b> (167-327)	396
	03-04	<b>42.0</b> (34.5-51.1)	<b>42.1</b> (34.4-49.2)	<b>91.4</b> (74.4-110)	<b>199</b> (126-289)	<b>312</b> (217-525)	341
	05-06	<b>33.2</b> (26.1-42.3)	<b>38.5</b> (34.7-43.2)	<b>70.4</b> (55.7-91.7)	<b>129</b> (99.1-162)	<b>181</b> (129-366)	351
	07-08	<b>38.5</b> (30.1-49.3)	<b>42.9</b> (31.3-55.3)	<b>80.4</b> (62.7-118)	<b>181</b> (119-318)	<b>318</b> (186-439)	360
	09-10	<b>38.6</b> (33.9-44.0)	<b>39.9</b> (32.5-44.2)	<b>88.8</b> (67.7-106)	<b>195</b> (131-265)	<b>277</b> (210-380)	371
12-19 years	99-00	<b>29.8</b> (23.8-37.2)	<b>34.0</b> (27.4-42.0)	<b>84.4</b> (59.1-101)	<b>166</b> (112-234)	<b>253</b> (182-337)	744
	01-02	<b>35.3</b> (30.5-40.9)	<b>37.7</b> (34.8-43.4)	<b>84.2</b> (72.1-96.9)	<b>165</b> (128-206)	<b>238</b> (169-343)	744
	03-04	<b>45.1</b> (39.4-51.6)	<b>46.3</b> (38.7-56.9)	<b>99.5</b> (84.9-109)	<b>191</b> (161-269)	<b>325</b> (275-415)	729
	05-06	<b>39.1</b> (34.0-45.0)	<b>41.1</b> (36.8-46.5)	<b>92.0</b> (80.2-109)	<b>193</b> (151-238)	<b>265</b> (231-303)	693
	07-08	<b>37.3</b> (29.5-47.2)	<b>45.8</b> (32.2-54.1)	<b>97.9</b> (73.4-126)	<b>199</b> (151-253)	<b>293</b> (212-483)	375
	09-10	<b>37.5</b> (30.4-46.2)	<b>38.3</b> (32.5-50.7)	<b>98.0</b> (72.3-119)	<b>184</b> (122-286)	<b>315</b> (177-820)	447
20 years and older	99-00	<b>26.1</b> (21.8-31.3)	<b>34.3</b> (29.8-38.7)	<b>78.3</b> (63.5-94.8)	<b>160</b> (132-196)	<b>263</b> (189-335)	1456
	01-02	<b>36.1</b> (31.8-41.0)	<b>40.4</b> (36.0-45.7)	<b>91.2</b> (79.3-105)	<b>190</b> (161-220)	<b>256</b> (224-312)	1654
	03-04	<b>38.4</b> (34.2-43.0)	<b>44.9</b> (40.1-51.9)	<b>112</b> (98.8-125)	<b>255</b> (215-274)	<b>398</b> (320-448)	1524
	05-06	<b>38.1</b> (32.7-44.4)	<b>43.8</b> (39.0-49.5)	<b>116</b> (103-130)	<b>266</b> (242-281)	<b>413</b> (326-479)	1484
	07-08	<b>36.5</b> (31.2-42.8)	<b>43.5</b> (37.6-49.3)	<b>116</b> (97.5-130)	<b>247</b> (194-326)	<b>473</b> (300-757)	1689
	09-10	<b>40.0</b> (36.2-44.1)	<b>47.6</b> (42.2-53.0)	<b>114</b> (101-130)	<b>277</b> (230-366)	<b>596</b> (460-746)	1974
Gender							
Males	99-00	<b>25.3</b> (19.5-32.7)	<b>33.0</b> (28.0-38.0)	<b>72.6</b> (54.7-94.3)	<b>149</b> (109-219)	<b>258</b> (169-286)	1206
	01-02	<b>35.2</b> (31.8-39.1)	<b>40.5</b> (36.8-44.8)	<b>90.6</b> (82.3-103)	<b>184</b> (158-198)	<b>263</b> (223-338)	1375
	03-04	<b>39.7</b> (36.2-43.6)	<b>45.1</b> (40.5-51.1)	<b>102</b> (92.9-115)	<b>231</b> (186-266)	<b>361</b> (268-460)	1244
	05-06	<b>40.4</b> (32.8-49.8)	<b>46.2</b> (38.9-52.3)	<b>107</b> (90.6-127)	<b>264</b> (227-289)	<b>413</b> (287-496)	1252
	07-08	<b>33.1</b> (28.6-38.2)	<b>39.8</b> (34.7-43.3)	<b>91.8</b> (78.6-116)	<b>216</b> (180-242)	<b>378</b> (238-738)	1198
	09-10	<b>37.4</b> (30.9-45.3)	<b>41.7</b> (35.5-48.4)	<b>94.7</b> (78.9-111)	<b>227</b> (173-312)	<b>476</b> (366-664)	1377
Females	99-00	<b>27.9</b> (23.4-33.3)	<b>36.0</b> (29.9-40.3)	<b>84.4</b> (71.8-97.9)	<b>177</b> (146-219)	<b>280</b> (219-375)	1321
	01-02	<b>36.2</b> (32.2-40.7)	<b>38.5</b> (35.3-43.4)	<b>87.0</b> (75.6-98.5)	<b>175</b> (152-212)	<b>248</b> (220-283)	1419
	03-04	<b>39.3</b> (33.8-45.5)	<b>44.9</b> (38.3-53.0)	<b>110</b> (97.3-124)	<b>250</b> (203-294)	<b>398</b> (309-464)	1350
	05-06	<b>35.4</b> (30.3-41.2)	<b>41.1</b> (35.6-45.4)	<b>106</b> (94.2-123)	<b>225</b> (186-267)	<b>352</b> (268-477)	1276
	07-08	<b>40.7</b> (33.0-50.2)	<b>48.4</b> (39.3-58.1)	<b>123</b> (101-145)	<b>258</b> (206-336)	<b>479</b> (311-757)	1226
	09-10	<b>41.7</b> (37.6-46.3)	<b>48.9</b> (41.6-56.7)	<b>123</b> (111-140)	<b>277</b> (243-304)	<b>553</b> (448-778)	1415

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.8, 1.5, 0.3, 0.04, 0.04, and 0.04 respectively.

‡Not measured after Survey years 2009-2010

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Phytoestrogens\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Phytoestrogens_BiomonitoringSummary.html)



## Urinary Enterodiol (1999 – 2010) ‡

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Race/ethnicity</b>							
Mexican Americans	99-00	<b>21.7</b> (19.5-24.1)	<b>28.0</b> (24.7-34.7)	<b>70.4</b> (60.8-78.8)	<b>143</b> (117-169)	<b>213</b> (169-256)	791
	01-02	<b>30.5</b> (25.7-36.3)	<b>34.0</b> (29.0-39.2)	<b>75.9</b> (58.8-89.7)	<b>159</b> (119-202)	<b>244</b> (192-298)	679
	03-04	<b>33.1</b> (26.4-41.6)	<b>38.7</b> (31.2-47.6)	<b>95.2</b> (78.1-115)	<b>198</b> (125-307)	<b>307</b> (186-480)	653
	05-06	<b>38.1</b> (32.2-45.1)	<b>40.6</b> (34.6-47.6)	<b>102</b> (86.8-123)	<b>262</b> (177-359)	<b>383</b> (289-511)	634
	07-08	<b>28.2</b> (24.8-32.0)	<b>29.7</b> (26.7-33.4)	<b>70.8</b> (59.9-83.8)	<b>173</b> (139-208)	<b>305</b> (207-456)	520
	09-10	<b>27.9</b> (24.5-31.7)	<b>31.1</b> (28.8-36.7)	<b>75.5</b> (66.6-85.5)	<b>157</b> (120-192)	<b>255</b> (174-408)	604
Non-Hispanic blacks	99-00	<b>25.8</b> (21.7-30.7)	<b>31.2</b> (24.4-35.9)	<b>66.0</b> (50.2-86.7)	<b>157</b> (122-193)	<b>260</b> (185-336)	608
	01-02	<b>35.0</b> (28.9-42.3)	<b>38.7</b> (33.2-49.2)	<b>83.7</b> (70.0-103)	<b>169</b> (132-191)	<b>225</b> (175-339)	706
	03-04	<b>40.4</b> (34.9-46.7)	<b>47.1</b> (40.4-53.7)	<b>100</b> (81.3-123)	<b>212</b> (157-254)	<b>293</b> (232-417)	699
	05-06	<b>34.7</b> (30.1-40.1)	<b>38.4</b> (32.6-44.7)	<b>85.1</b> (70.9-109)	<b>190</b> (137-242)	<b>269</b> (245-364)	662
	07-08	<b>34.4</b> (26.9-44.0)	<b>38.9</b> (28.9-48.5)	<b>95.7</b> (78.5-126)	<b>202</b> (147-252)	<b>327</b> (232-514)	562
	09-10	<b>32.4</b> (27.3-38.4)	<b>35.7</b> (30.4-42.3)	<b>98.5</b> (76.2-126)	<b>211</b> (178-245)	<b>307</b> (221-546)	534
Non-Hispanic whites	99-00	<b>29.2</b> (24.0-35.4)	<b>37.6</b> (31.3-43.8)	<b>85.8</b> (68.3-99.4)	<b>171</b> (138-228)	<b>270</b> (187-375)	915
	01-02	<b>35.6</b> (31.8-40.0)	<b>40.4</b> (36.1-44.7)	<b>89.6</b> (78.5-101)	<b>175</b> (153-198)	<b>254</b> (214-337)	1222
	03-04	<b>39.8</b> (35.5-44.7)	<b>45.8</b> (38.9-54.9)	<b>109</b> (95.8-126)	<b>255</b> (206-267)	<b>365</b> (294-424)	1079
	05-06	<b>37.3</b> (31.2-44.6)	<b>42.6</b> (37.1-50.1)	<b>108</b> (94.0-127)	<b>243</b> (219-267)	<b>371</b> (285-456)	1039
	07-08	<b>39.1</b> (31.5-48.5)	<b>46.8</b> (39.3-55.5)	<b>116</b> (91.8-140)	<b>257</b> (188-369)	<b>444</b> (269-839)	993
	09-10	<b>44.1</b> (39.0-49.9)	<b>51.7</b> (44.2-56.7)	<b>114</b> (100-129)	<b>277</b> (236-311)	<b>596</b> (414-778)	1186

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.8, 1.5, 0.3, 0.04, 0.04, and 0.04 respectively.

‡Not measured after Survey years 2009-2010

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Phytoestrogens\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Phytoestrogens_BiomonitoringSummary.html)



## Urinary Enterodiol (creatinine corrected) (1999 – 2010) ‡

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	24.2 (20.3-28.9)	29.9 (25.0-34.7)	70.5 (59.6-82.1)	146 (124-177)	240 (199-320)	2527
	01-02	33.5 (30.7-36.7)	37.6 (33.0-42.1)	79.2 (72.6-87.3)	149 (136-164)	224 (197-250)	2794
	03-04	37.0 (33.6-40.7)	41.7 (37.9-45.4)	95.9 (85.6-106)	194 (171-213)	294 (247-368)	2594
	05-06	36.8 (32.7-41.4)	41.0 (35.9-46.3)	103 (94.3-114)	204 (174-219)	323 (280-424)	2528
	07-08	37.0 (32.3-42.3)	42.1 (36.8-48.1)	103 (87.1-117)	224 (164-328)	395 (292-634)	2424
	09-10	42.3 (38.9-46.1)	47.1 (44.9-49.8)	108 (101-117)	281 (234-333)	522 (415-602)	2791
	Age group 6-11 years	99-00	27.0 (18.6-39.3)	33.7 (21.8-43.7)	62.7 (43.0-108)	168 (81.6-290)	290 (150-411)
01-02		38.1 (32.5-44.7)	39.3 (30.8-53.1)	78.3 (66.6-103)	188 (147-244)	304 (242-389)	396
03-04		44.7 (37.4-53.5)	46.6 (38.5-58.3)	93.3 (73.9-125)	177 (128-205)	215 (181-413)	341
05-06		36.6 (28.9-46.4)	37.8 (32.3-46.5)	75.6 (60.9-105)	156 (109-219)	223 (165-326)	351
07-08		47.2 (37.5-59.4)	48.0 (38.0-65.2)	86.3 (67.9-178)	230 (181-297)	335 (230-854)	360
09-10		52.6 (45.0-61.4)	54.3 (39.8-64.5)	104 (79.5-139)	235 (145-335)	336 (239-413)	370
12-19 years		99-00	20.1 (16.7-24.2)	24.1 (19.6-30.1)	55.1 (42.6-71.7)	99.5 (91.5-116)	158 (121-177)
	01-02	27.2 (23.3-31.8)	28.7 (24.9-34.9)	62.7 (54.9-71.0)	104 (84.2-139)	152 (111-225)	744
	03-04	33.8 (30.3-37.7)	34.8 (33.2-38.8)	67.6 (64.1-73.9)	130 (107-164)	221 (138-324)	729
	05-06	29.0 (25.2-33.3)	31.4 (27.8-36.1)	68.8 (57.7-80.7)	131 (113-160)	167 (160-216)	693
	07-08	28.7 (22.3-36.9)	33.8 (25.1-43.3)	73.4 (52.9-99.3)	131 (100-207)	207 (128-280)	375
	09-10	35.3 (29.5-42.1)	37.8 (29.7-44.1)	81.7 (66.9-101)	170 (111-303)	306 (170-763)	447
	20 years and older	99-00	24.7 (20.6-29.5)	30.6 (26.0-34.8)	73.0 (62.5-84.5)	157 (129-184)	242 (199-344)
01-02		34.2 (30.3-38.5)	39.6 (32.5-45.3)	84.1 (73.8-93.3)	152 (136-169)	224 (193-250)	1654
03-04		36.7 (32.5-41.4)	42.0 (37.1-47.8)	103 (91.8-111)	205 (173-239)	327 (256-431)	1524
05-06		38.2 (33.1-44.0)	43.1 (36.4-49.4)	111 (96.0-128)	216 (187-242)	358 (291-475)	1484
07-08		37.5 (32.2-43.7)	42.5 (36.8-49.9)	109 (90.7-134)	242 (167-372)	447 (328-718)	1689
09-10		42.6 (39.0-46.4)	48.3 (46.0-51.1)	113 (103-128)	303 (252-355)	579 (461-747)	1974
Gender Males		99-00	19.8 (15.4-25.4)	25.4 (20.0-31.4)	55.1 (46.4-64.2)	122 (94.6-168)	199 (145-282)
	01-02	28.7 (26.0-31.7)	31.4 (27.0-36.8)	71.3 (64.2-78.0)	136 (114-160)	212 (179-259)	1375
	03-04	31.1 (27.5-35.0)	34.8 (32.3-38.5)	78.0 (68.8-92.7)	165 (128-211)	249 (187-361)	1244
	05-06	32.5 (26.7-39.5)	34.2 (29.5-41.1)	90.9 (75.2-102)	192 (147-235)	311 (218-490)	1252
	07-08	27.9 (23.9-32.6)	33.0 (28.5-38.6)	79.3 (72.4-87.1)	164 (122-234)	259 (172-499)	1198
	09-10	34.2 (27.9-42.0)	39.0 (33.0-45.6)	80.9 (69.7-103)	197 (150-253)	345 (235-494)	1376
	Females	99-00	29.3 (25.0-34.4)	35.4 (29.5-41.6)	85.2 (74.5-92.3)	165 (141-201)	321 (226-370)
01-02		38.9 (34.9-43.3)	43.9 (39.3-48.7)	88.3 (74.7-102)	157 (139-174)	235 (180-304)	1419
03-04		43.6 (38.3-49.7)	49.0 (43.4-57.7)	109 (98.8-123)	215 (178-270)	377 (278-443)	1350
05-06		41.4 (36.1-47.4)	48.2 (41.8-55.7)	116 (98.0-131)	210 (183-231)	376 (235-470)	1276
07-08		48.4 (40.6-57.6)	53.2 (44.2-62.9)	128 (105-154)	300 (215-388)	529 (372-759)	1226
09-10		52.1 (46.7-58.1)	59.4 (49.4-66.2)	139 (121-156)	384 (311-450)	694 (526-938)	1415

‡Not measured after Survey years 2009-2010

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Phytoestrogens\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Phytoestrogens_BiomonitoringSummary.html)

## Urinary Enterodiol (creatinine corrected) (1999 – 2010) ‡

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Race/ethnicity</b>							
Mexican Americans	99-00	<b>19.6</b> (17.3-22.2)	<b>23.5</b> (19.7-28.7)	<b>60.6</b> (49.8-77.7)	<b>134</b> (114-154)	<b>193</b> (154-227)	791
	01-02	<b>28.7</b> (24.5-33.7)	<b>31.0</b> (27.0-37.3)	<b>64.1</b> (55.0-77.5)	<b>133</b> (94.4-183)	<b>223</b> (143-337)	679
	03-04	<b>29.9</b> (23.8-37.4)	<b>34.0</b> (26.5-42.8)	<b>74.1</b> (62.0-101)	<b>176</b> (118-234)	<b>241</b> (189-364)	653
	05-06	<b>34.4</b> (28.3-41.8)	<b>35.3</b> (30.7-40.0)	<b>84.6</b> (71.2-110)	<b>200</b> (145-271)	<b>315</b> (221-515)	634
	07-08	<b>27.7</b> (24.5-31.3)	<b>29.5</b> (23.9-33.8)	<b>75.9</b> (61.3-88.2)	<b>169</b> (124-198)	<b>240</b> (178-387)	520
	09-10	<b>29.3</b> (25.8-33.3)	<b>33.6</b> (29.5-38.0)	<b>72.3</b> (61.4-82.7)	<b>157</b> (116-193)	<b>265</b> (193-351)	604
Non-Hispanic blacks	99-00	<b>16.6</b> (13.9-19.7)	<b>18.8</b> (14.4-22.9)	<b>47.3</b> (37.7-55.8)	<b>113</b> (85.9-145)	<b>169</b> (131-272)	608
	01-02	<b>24.5</b> (19.7-30.6)	<b>27.0</b> (22.6-33.3)	<b>57.5</b> (48.2-73.2)	<b>117</b> (92.2-143)	<b>157</b> (118-246)	706
	03-04	<b>28.6</b> (24.5-33.4)	<b>30.4</b> (26.1-36.1)	<b>68.3</b> (53.4-87.5)	<b>126</b> (96.3-191)	<b>203</b> (153-227)	699
	05-06	<b>24.3</b> (20.5-28.9)	<b>25.3</b> (22.1-30.4)	<b>68.6</b> (50.3-86.0)	<b>125</b> (110-147)	<b>190</b> (139-245)	662
	07-08	<b>26.6</b> (20.8-34.0)	<b>30.0</b> (23.6-38.0)	<b>62.9</b> (51.9-80.8)	<b>139</b> (102-191)	<b>257</b> (156-459)	562
	09-10	<b>26.1</b> (22.1-30.8)	<b>29.7</b> (25.5-35.9)	<b>73.9</b> (56.7-88.3)	<b>153</b> (115-191)	<b>252</b> (191-339)	533
Non-Hispanic whites	99-00	<b>28.6</b> (24.3-33.6)	<b>34.4</b> (28.9-39.3)	<b>75.8</b> (65.3-87.2)	<b>163</b> (130-197)	<b>252</b> (203-363)	915
	01-02	<b>35.3</b> (31.6-39.4)	<b>40.9</b> (34.3-46.8)	<b>83.3</b> (74.7-90.3)	<b>152</b> (136-173)	<b>225</b> (189-275)	1222
	03-04	<b>39.3</b> (34.4-44.8)	<b>45.5</b> (38.4-53.0)	<b>105</b> (90.2-116)	<b>202</b> (168-234)	<b>299</b> (244-374)	1079
	05-06	<b>39.2</b> (33.3-46.1)	<b>45.0</b> (39.4-50.2)	<b>111</b> (96.2-124)	<b>210</b> (175-235)	<b>331</b> (277-439)	1039
	07-08	<b>40.7</b> (32.7-50.6)	<b>46.4</b> (38.6-56.7)	<b>109</b> (86.3-138)	<b>240</b> (154-384)	<b>424</b> (257-802)	993
	09-10	<b>49.5</b> (43.6-56.1)	<b>53.5</b> (48.3-59.0)	<b>123</b> (106-140)	<b>325</b> (252-384)	<b>572</b> (414-766)	1186

‡Not measured after Survey years 2009-2010

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Phytoestrogens\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Phytoestrogens_BiomonitoringSummary.html)

## Urinary Enterolactone (1999 – 2010) ‡

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	<b>239</b> (200-286)	<b>315</b> (245-381)	<b>726</b> (595-879)	<b>1970</b> (1440-2370)	<b>2800</b> (2500-3140)	2548
	01-02	<b>259</b> (233-287)	<b>350</b> (314-389)	<b>807</b> (739-873)	<b>1590</b> (1440-1820)	<b>2720</b> (1870-3430)	2794
	03-04	<b>298</b> (265-334)	<b>395</b> (331-464)	<b>900</b> (819-969)	<b>1790</b> (1560-2040)	<b>2620</b> (2360-2880)	2594
	05-06	<b>283</b> (245-327)	<b>385</b> (338-460)	<b>935</b> (824-1060)	<b>1850</b> (1710-2040)	<b>2880</b> (2480-3160)	2528
	07-08	<b>242</b> (211-277)	<b>311</b> (263-371)	<b>876</b> (741-1010)	<b>1740</b> (1480-2050)	<b>2910</b> (2170-3320)	2424
	09-10	<b>215</b> (193-240)	<b>267</b> (229-306)	<b>734</b> (659-853)	<b>1760</b> (1490-2090)	<b>2690</b> (2220-3160)	2792
Age group 6-11 years	99-00	<b>308</b> (219-432)	<b>356</b> (243-474)	<b>721</b> (520-1320)	<b>1730</b> (973-2840)	<b>2840</b> (1700-3590)	331
	01-02	<b>288</b> (245-339)	<b>329</b> (271-412)	<b>680</b> (566-794)	<b>1380</b> (929-1620)	<b>2200</b> (1420-2550)	396
	03-04	<b>384</b> (287-513)	<b>414</b> (299-567)	<b>926</b> (589-1190)	<b>1660</b> (1140-2280)	<b>2360</b> (1700-3440)	341
	05-06	<b>300</b> (242-373)	<b>399</b> (280-546)	<b>851</b> (667-984)	<b>1390</b> (1000-1770)	<b>1910</b> (1390-2460)	351
	07-08	<b>255</b> (203-320)	<b>314</b> (247-418)	<b>706</b> (547-882)	<b>1340</b> (897-1610)	<b>1730</b> (1150-2600)	360
	09-10	<b>255</b> (206-316)	<b>275</b> (209-346)	<b>666</b> (552-749)	<b>1480</b> (1180-1720)	<b>1870</b> (1500-2870)	371
12-19 years	99-00	<b>250</b> (191-327)	<b>317</b> (242-410)	<b>672</b> (454-888)	<b>1760</b> (973-2480)	<b>2920</b> (1950-4330)	746
	01-02	<b>267</b> (231-308)	<b>321</b> (255-399)	<b>729</b> (617-856)	<b>1480</b> (1230-1800)	<b>2180</b> (1560-3440)	744
	03-04	<b>314</b> (267-369)	<b>400</b> (333-468)	<b>866</b> (736-1050)	<b>1690</b> (1410-2080)	<b>2620</b> (2000-2890)	729
	05-06	<b>292</b> (245-348)	<b>393</b> (350-492)	<b>877</b> (681-1010)	<b>1620</b> (1470-1800)	<b>2360</b> (1780-2960)	693
	07-08	<b>250</b> (203-309)	<b>281</b> (217-444)	<b>832</b> (645-1000)	<b>1450</b> (1100-2030)	<b>2390</b> (1450-3320)	375
	09-10	<b>194</b> (154-244)	<b>229</b> (181-318)	<b>632</b> (479-735)	<b>1340</b> (812-2040)	<b>2190</b> (1340-2960)	447
20 years and older	99-00	<b>230</b> (193-274)	<b>310</b> (242-375)	<b>734</b> (599-888)	<b>2000</b> (1490-2390)	<b>2790</b> (2510-3540)	1471
	01-02	<b>254</b> (223-289)	<b>357</b> (314-397)	<b>835</b> (760-914)	<b>1660</b> (1460-1890)	<b>2840</b> (1890-3610)	1654
	03-04	<b>286</b> (253-324)	<b>394</b> (311-465)	<b>900</b> (824-960)	<b>1820</b> (1560-2060)	<b>2630</b> (2350-3100)	1524
	05-06	<b>280</b> (238-330)	<b>379</b> (332-460)	<b>958</b> (843-1110)	<b>1970</b> (1760-2310)	<b>3130</b> (2540-3570)	1484
	07-08	<b>239</b> (205-280)	<b>311</b> (258-374)	<b>923</b> (746-1090)	<b>1800</b> (1480-2370)	<b>3000</b> (2210-4030)	1689
	09-10	<b>215</b> (189-243)	<b>272</b> (228-320)	<b>768</b> (666-930)	<b>1850</b> (1590-2140)	<b>2770</b> (2350-3690)	1974
Gender							
Males	99-00	<b>254</b> (212-304)	<b>351</b> (266-418)	<b>778</b> (579-1050)	<b>2000</b> (1580-2400)	<b>2730</b> (2430-3350)	1219
	01-02	<b>262</b> (233-295)	<b>340</b> (314-387)	<b>873</b> (769-957)	<b>1810</b> (1490-2470)	<b>3050</b> (1990-4070)	1375
	03-04	<b>314</b> (280-351)	<b>425</b> (376-477)	<b>938</b> (840-1060)	<b>1760</b> (1540-2050)	<b>2620</b> (2060-3230)	1244
	05-06	<b>301</b> (247-368)	<b>421</b> (341-515)	<b>1000</b> (854-1150)	<b>2020</b> (1730-2330)	<b>3130</b> (2660-3340)	1252
	07-08	<b>245</b> (215-278)	<b>321</b> (261-389)	<b>882</b> (714-1030)	<b>1620</b> (1420-2050)	<b>2700</b> (2000-3360)	1198
	09-10	<b>210</b> (173-256)	<b>254</b> (207-324)	<b>718</b> (583-870)	<b>1670</b> (1300-2110)	<b>2680</b> (1850-4060)	1377
Females	99-00	<b>226</b> (180-284)	<b>287</b> (236-339)	<b>684</b> (560-799)	<b>1890</b> (1200-2460)	<b>2830</b> (2100-4330)	1329
	01-02	<b>255</b> (226-288)	<b>357</b> (298-397)	<b>759</b> (680-840)	<b>1450</b> (1190-1700)	<b>2200</b> (1710-2950)	1419
	03-04	<b>283</b> (233-343)	<b>371</b> (278-465)	<b>859</b> (706-984)	<b>1810</b> (1440-2170)	<b>2630</b> (2210-3440)	1350
	05-06	<b>267</b> (220-324)	<b>359</b> (318-445)	<b>874</b> (716-1030)	<b>1770</b> (1440-2020)	<b>2660</b> (2040-3270)	1276
	07-08	<b>240</b> (196-293)	<b>301</b> (234-394)	<b>875</b> (747-1030)	<b>1870</b> (1510-2200)	<b>2920</b> (2160-3510)	1226
	09-10	<b>220</b> (196-247)	<b>281</b> (237-325)	<b>749</b> (662-868)	<b>1850</b> (1520-2220)	<b>2690</b> (2350-3200)	1415

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.6, 1.9, 0.3, 0.1, 0.1, and 0.1 respectively.

‡Not measured after Survey years 2009-2010

### Biomonitoring Summary

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## Urinary Enterolactone (1999 – 2010) ‡

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00	<b>212</b> (169-265)	<b>281</b> (230-335)	<b>631</b> (539-732)	<b>1650</b> (950-2210)	<b>2690</b> (2380-3350)	813
	01-02	<b>275</b> (221-342)	<b>347</b> (312-395)	<b>778</b> (671-913)	<b>1520</b> (1090-1920)	<b>2340</b> (1610-2990)	679
	03-04	<b>275</b> (239-316)	<b>376</b> (316-435)	<b>849</b> (744-958)	<b>1560</b> (1320-1860)	<b>2240</b> (1860-3100)	653
	05-06	<b>359</b> (311-415)	<b>420</b> (364-515)	<b>914</b> (750-1080)	<b>1710</b> (1340-2060)	<b>2660</b> (1950-3180)	634
	07-08	<b>227</b> (182-283)	<b>320</b> (240-385)	<b>747</b> (634-876)	<b>1520</b> (1300-1740)	<b>2070</b> (1650-2840)	520
	09-10	<b>198</b> (166-237)	<b>265</b> (215-303)	<b>642</b> (524-752)	<b>1290</b> (981-1640)	<b>1930</b> (1380-2280)	604
Non-Hispanic blacks	99-00	<b>262</b> (196-349)	<b>363</b> (293-440)	<b>759</b> (629-925)	<b>1730</b> (1000-2420)	<b>2500</b> (1870-3280)	605
	01-02	<b>278</b> (226-342)	<b>418</b> (341-479)	<b>769</b> (686-853)	<b>1450</b> (1160-1840)	<b>2000</b> (1540-2420)	706
	03-04	<b>328</b> (285-378)	<b>437</b> (362-526)	<b>942</b> (768-1110)	<b>1580</b> (1360-1820)	<b>2280</b> (1880-2640)	699
	05-06	<b>276</b> (237-322)	<b>411</b> (346-483)	<b>924</b> (827-1050)	<b>1660</b> (1430-2040)	<b>2620</b> (2220-3080)	662
	07-08	<b>252</b> (185-343)	<b>362</b> (272-452)	<b>902</b> (700-1120)	<b>1820</b> (1320-2100)	<b>2350</b> (1920-3160)	562
	09-10	<b>187</b> (140-250)	<b>267</b> (180-346)	<b>777</b> (543-945)	<b>1410</b> (1150-1810)	<b>1920</b> (1580-2340)	534
Non-Hispanic whites	99-00	<b>247</b> (196-311)	<b>317</b> (240-403)	<b>752</b> (616-955)	<b>2040</b> (1600-2450)	<b>3000</b> (2460-3880)	917
	01-02	<b>267</b> (235-303)	<b>357</b> (307-397)	<b>834</b> (750-923)	<b>1630</b> (1420-1890)	<b>2780</b> (1820-3740)	1222
	03-04	<b>299</b> (254-352)	<b>396</b> (299-488)	<b>900</b> (789-996)	<b>1810</b> (1510-2140)	<b>2680</b> (2310-3230)	1079
	05-06	<b>274</b> (228-329)	<b>373</b> (318-460)	<b>923</b> (745-1080)	<b>1800</b> (1610-2020)	<b>2910</b> (2360-3220)	1039
	07-08	<b>265</b> (218-322)	<b>328</b> (266-409)	<b>926</b> (733-1130)	<b>1790</b> (1420-2580)	<b>3030</b> (2050-4310)	993
	09-10	<b>236</b> (210-265)	<b>293</b> (244-334)	<b>765</b> (660-899)	<b>1900</b> (1590-2310)	<b>2990</b> (2210-4300)	1186

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.6, 1.9, 0.3, 0.1, 0.1, and 0.1 respectively.

‡Not measured after Survey years 2009-2010

### Biomonitoring Summary

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## Urinary Enterolactone (creatinine corrected) (1999 – 2010) ‡

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	218 (184-260)	284 (247-336)	733 (613-869)	1580 (1290-1830)	2250 (1860-2830)	2548
	01-02	243 (220-268)	324 (293-360)	756 (668-858)	1430 (1250-1580)	2120 (1720-2450)	2794
	03-04	279 (245-317)	371 (324-430)	810 (697-911)	1590 (1350-1910)	2400 (2000-2890)	2594
	05-06	276 (237-321)	382 (329-448)	856 (775-975)	1640 (1480-1840)	2650 (2240-3380)	2528
	07-08	243 (211-281)	345 (292-402)	826 (733-946)	1650 (1390-2050)	2730 (2080-3510)	2424
	09-10	230 (206-258)	301 (268-342)	779 (695-882)	1800 (1540-2090)	2820 (2400-3420)	2791
	Age group 6-11 years	99-00	315 (238-416)	384 (266-435)	704 (495-1110)	1580 (1110-2010)	2100 (1580-3040)
01-02		327 (274-391)	349 (263-478)	738 (603-994)	1420 (1140-1800)	2020 (1420-2940)	396
03-04		409 (310-540)	470 (354-632)	904 (669-1150)	1480 (1090-2420)	2300 (1480-2690)	341
05-06		331 (268-408)	459 (325-528)	778 (637-1010)	1480 (1130-1750)	1820 (1430-2510)	351
07-08		313 (255-384)	402 (309-484)	766 (725-824)	1310 (1020-1590)	1650 (1310-2220)	360
09-10		346 (283-424)	416 (323-471)	753 (607-904)	1440 (1100-2000)	2290 (1440-3340)	370
12-19 years		99-00	169 (133-214)	210 (172-264)	486 (371-615)	1150 (742-1540)	1850 (1310-2350)
	01-02	206 (178-239)	255 (223-293)	619 (466-753)	1110 (869-1480)	1500 (1140-2080)	744
	03-04	235 (202-273)	285 (255-307)	631 (533-744)	1230 (993-1350)	1510 (1240-2230)	729
	05-06	216 (184-254)	297 (255-336)	627 (514-701)	1010 (853-1170)	1410 (1150-1700)	693
	07-08	192 (149-248)	273 (197-373)	540 (477-676)	936 (708-1220)	1620 (936-3420)	375
	09-10	182 (147-226)	228 (176-295)	514 (362-809)	1140 (817-1530)	1740 (1140-3160)	447
	20 years and older	99-00	217 (181-261)	288 (249-350)	785 (653-923)	1640 (1330-1890)	2310 (1890-3110)
01-02		240 (213-271)	331 (300-375)	786 (672-915)	1460 (1300-1630)	2180 (1890-2470)	1654
03-04		274 (236-318)	377 (316-448)	823 (697-937)	1700 (1430-1980)	2480 (2040-3100)	1524
05-06		281 (236-335)	399 (326-491)	942 (831-1040)	1730 (1570-2200)	2930 (2350-3530)	1484
07-08		246 (210-287)	350 (291-418)	906 (784-1040)	1810 (1420-2360)	2820 (2320-3570)	1689
09-10		229 (203-257)	300 (271-346)	828 (727-939)	1920 (1640-2350)	3070 (2530-3760)	1974
Gender Males		99-00	199 (170-234)	263 (228-309)	664 (490-828)	1380 (1200-1710)	2030 (1780-2480)
	01-02	213 (191-238)	287 (255-316)	682 (601-764)	1350 (1090-1580)	1980 (1570-2550)	1375
	03-04	245 (215-280)	330 (288-372)	729 (676-808)	1330 (1160-1580)	2040 (1590-2380)	1244
	05-06	243 (196-300)	336 (279-418)	800 (707-897)	1500 (1270-1680)	2200 (1890-2480)	1252
	07-08	206 (176-241)	303 (251-358)	715 (594-859)	1410 (1080-1850)	2140 (1560-3060)	1198
	09-10	192 (157-235)	261 (210-310)	650 (543-766)	1440 (1170-1670)	2300 (1540-3220)	1376
	Females	99-00	238 (191-297)	303 (260-379)	819 (662-968)	1720 (1390-2010)	2550 (1940-3390)
01-02		274 (241-312)	356 (313-407)	833 (710-1000)	1490 (1320-1670)	2150 (1890-2410)	1419
03-04		314 (257-385)	414 (327-510)	866 (704-1090)	1840 (1460-2280)	2840 (2220-3910)	1350
05-06		313 (261-375)	419 (337-529)	954 (809-1060)	1840 (1550-2320)	3100 (2350-4580)	1276
07-08		285 (234-346)	396 (327-469)	966 (843-1060)	1910 (1560-2410)	3040 (2730-3740)	1226
09-10		274 (244-309)	362 (305-416)	907 (789-1100)	2200 (1730-2810)	3570 (2800-4200)	1415

‡Not measured after Survey years 2009-2010

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Phytoestrogens\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Phytoestrogens_BiomonitoringSummary.html)



## Urinary Enterolactone (creatinine corrected) (1999 – 2010) ‡

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Race/ethnicity</b>							
Mexican Americans	99-00	<b>194</b> (165-228)	<b>254</b> (225-282)	<b>605</b> (519-695)	<b>1340</b> (969-1740)	<b>2100</b> (1620-2790)	813
	01-02	<b>259</b> (213-314)	<b>362</b> (296-409)	<b>730</b> (586-905)	<b>1240</b> (1010-1490)	<b>1630</b> (1240-2540)	679
	03-04	<b>248</b> (217-282)	<b>350</b> (310-403)	<b>724</b> (657-826)	<b>1320</b> (1020-1560)	<b>1820</b> (1460-2170)	653
	05-06	<b>324</b> (267-393)	<b>379</b> (315-471)	<b>773</b> (679-953)	<b>1560</b> (1290-1680)	<b>2060</b> (1630-2560)	634
	07-08	<b>223</b> (185-268)	<b>312</b> (267-379)	<b>733</b> (642-871)	<b>1330</b> (1110-1580)	<b>1860</b> (1620-2160)	520
	09-10	<b>208</b> (174-249)	<b>284</b> (214-322)	<b>624</b> (505-728)	<b>1270</b> (1090-1460)	<b>1870</b> (1460-2130)	604
Non-Hispanic blacks	99-00	<b>168</b> (125-226)	<b>214</b> (173-274)	<b>546</b> (411-732)	<b>1130</b> (874-1450)	<b>1590</b> (1120-2560)	605
	01-02	<b>195</b> (155-245)	<b>302</b> (257-331)	<b>562</b> (470-629)	<b>985</b> (821-1130)	<b>1490</b> (1080-1730)	706
	03-04	<b>233</b> (197-274)	<b>303</b> (276-347)	<b>621</b> (512-707)	<b>1050</b> (917-1350)	<b>1550</b> (1170-2220)	699
	05-06	<b>193</b> (167-223)	<b>286</b> (252-331)	<b>630</b> (556-729)	<b>1120</b> (967-1230)	<b>1490</b> (1220-1650)	662
	07-08	<b>195</b> (144-264)	<b>291</b> (191-408)	<b>659</b> (564-741)	<b>1220</b> (993-1360)	<b>1480</b> (1350-2060)	562
	09-10	<b>150</b> (113-200)	<b>256</b> (183-328)	<b>539</b> (457-659)	<b>927</b> (757-1160)	<b>1310</b> (1000-1720)	533
Non-Hispanic whites	99-00	<b>241</b> (194-300)	<b>323</b> (279-388)	<b>828</b> (674-997)	<b>1780</b> (1390-2020)	<b>2490</b> (1930-3340)	917
	01-02	<b>264</b> (232-301)	<b>339</b> (299-393)	<b>833</b> (719-944)	<b>1530</b> (1340-1880)	<b>2410</b> (1940-2800)	1222
	03-04	<b>294</b> (246-353)	<b>399</b> (326-488)	<b>836</b> (707-980)	<b>1660</b> (1330-2040)	<b>2500</b> (1990-3350)	1079
	05-06	<b>288</b> (238-347)	<b>403</b> (326-500)	<b>926</b> (809-1050)	<b>1700</b> (1500-2200)	<b>2930</b> (2230-3710)	1039
	07-08	<b>276</b> (225-337)	<b>386</b> (318-467)	<b>911</b> (736-1100)	<b>1870</b> (1370-2730)	<b>2850</b> (2200-3640)	993
	09-10	<b>264</b> (233-299)	<b>329</b> (290-385)	<b>895</b> (779-1030)	<b>2140</b> (1640-2780)	<b>3420</b> (2740-3990)	1186

‡Not measured after Survey years 2009-2010

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Phytoestrogens\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Phytoestrogens_BiomonitoringSummary.html)

## Urinary Equol (1999 – 2010) ‡

Metabolite of Daidzein

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	<b>8.37</b> (7.21-9.72)	<b>8.02</b> (6.27-9.90)	<b>17.2</b> (15.2-19.8)	<b>35.0</b> (28.9-41.6)	<b>53.7</b> (40.1-74.2)	2182
	01-02	<b>9.17</b> (7.76-10.8)	<b>9.00</b> (7.40-10.5)	<b>19.6</b> (16.6-23.5)	<b>42.1</b> (34.3-51.5)	<b>73.5</b> (53.6-89.2)	2794
	03-04	<b>8.02</b> (7.07-9.10)	<b>8.00</b> (6.80-9.40)	<b>18.2</b> (15.2-20.8)	<b>36.6</b> (31.3-40.0)	<b>64.9</b> (45.4-97.9)	2590
	05-06	<b>8.40</b> (7.63-9.24)	<b>8.61</b> (7.89-9.17)	<b>18.1</b> (16.4-20.4)	<b>37.6</b> (33.9-41.8)	<b>64.5</b> (54.8-85.3)	2527
	07-08	<b>7.29</b> (6.21-8.57)	<b>7.18</b> (6.18-8.44)	<b>15.3</b> (12.5-18.5)	<b>30.7</b> (24.5-43.2)	<b>65.9</b> (50.7-131)	2424
	09-10	<b>7.82</b> (6.91-8.85)	<b>7.39</b> (6.59-8.34)	<b>17.1</b> (14.9-18.9)	<b>38.0</b> (33.9-42.4)	<b>68.6</b> (52.4-95.6)	2792
Age group 6-11 years	99-00	<b>10.5</b> (7.65-14.3)	<b>11.7</b> (5.43-18.6)	<b>24.9</b> (17.5-29.5)	<b>34.4</b> (29.5-53.3)	<b>56.1</b> (30.1-149)	272
	01-02	<b>12.2</b> (10.2-14.6)	<b>13.7</b> (11.1-16.2)	<b>26.2</b> (17.9-37.9)	<b>50.4</b> (35.0-84.3)	<b>85.4</b> (50.4-159)	396
	03-04	<b>12.4</b> (9.71-15.8)	<b>12.1</b> (8.40-17.8)	<b>24.4</b> (20.1-31.2)	<b>46.7</b> (33.5-82.3)	<b>85.8</b> (44.9-118)	341
	05-06	<b>13.3</b> (11.3-15.7)	<b>13.5</b> (12.1-16.8)	<b>26.5</b> (20.8-34.1)	<b>45.6</b> (39.3-69.6)	<b>70.3</b> (44.7-144)	351
	07-08	<b>10.9</b> (8.38-14.3)	<b>11.3</b> (8.60-13.2)	<b>22.0</b> (15.8-27.5)	<b>55.9</b> (24.2-77.8)	<b>73.3</b> (59.5-115)	360
	09-10	<b>13.4</b> (9.85-18.4)	<b>12.7</b> (9.01-16.7)	<b>28.5</b> (22.6-41.8)	<b>68.0</b> (45.3-179)	<b>242</b> (68.0-598)	371
12-19 years	99-00	<b>10.9</b> (8.64-13.8)	<b>10.8</b> (8.52-13.4)	<b>22.3</b> (16.0-34.9)	<b>42.9</b> (34.1-71.3)	<b>71.6</b> (48.1-210)	657
	01-02	<b>10.2</b> (8.50-12.1)	<b>10.5</b> (8.20-12.5)	<b>20.5</b> (16.8-24.8)	<b>43.1</b> (30.1-56.1)	<b>70.0</b> (46.3-99.2)	744
	03-04	<b>10.6</b> (8.97-12.4)	<b>10.5</b> (8.70-12.2)	<b>22.6</b> (19.3-26.4)	<b>39.9</b> (34.8-45.1)	<b>61.9</b> (45.1-113)	729
	05-06	<b>11.6</b> (10.3-13.0)	<b>11.4</b> (9.25-12.3)	<b>23.2</b> (20.3-28.8)	<b>46.3</b> (37.2-64.0)	<b>81.8</b> (50.1-146)	693
	07-08	<b>8.47</b> (7.19-9.98)	<b>7.91</b> (6.79-9.30)	<b>16.0</b> (12.8-19.0)	<b>32.7</b> (24.5-43.2)	<b>65.6</b> (33.6-148)	375
	09-10	<b>11.4</b> (8.90-14.6)	<b>9.60</b> (7.57-14.1)	<b>24.6</b> (19.6-29.6)	<b>48.0</b> (35.9-112)	<b>220</b> (69.4-701)	447
20 years and older	99-00	<b>7.79</b> (6.79-8.94)	<b>7.43</b> (5.71-8.85)	<b>16.0</b> (13.6-18.1)	<b>33.1</b> (24.4-39.7)	<b>52.2</b> (36.3-93.9)	1253
	01-02	<b>8.70</b> (7.29-10.4)	<b>8.00</b> (6.20-10.2)	<b>18.6</b> (15.0-22.3)	<b>41.3</b> (34.1-47.4)	<b>73.5</b> (53.9-89.0)	1654
	03-04	<b>7.28</b> (6.37-8.33)	<b>7.20</b> (6.00-8.70)	<b>16.0</b> (14.2-19.2)	<b>33.9</b> (28.2-38.9)	<b>63.0</b> (41.3-121)	1520
	05-06	<b>7.58</b> (6.82-8.42)	<b>7.57</b> (7.01-8.30)	<b>16.6</b> (14.9-18.2)	<b>33.6</b> (29.1-42.6)	<b>58.1</b> (50.6-89.0)	1483
	07-08	<b>6.82</b> (5.70-8.17)	<b>6.75</b> (5.70-7.98)	<b>14.3</b> (11.6-18.3)	<b>28.9</b> (23.6-41.9)	<b>65.8</b> (47.7-135)	1689
	09-10	<b>6.97</b> (6.07-8.00)	<b>6.72</b> (5.78-7.75)	<b>15.0</b> (13.1-17.1)	<b>33.2</b> (28.4-38.3)	<b>57.7</b> (44.6-75.4)	1974
Gender Males	99-00	<b>9.15</b> (7.37-11.4)	<b>8.44</b> (6.36-11.2)	<b>19.0</b> (15.9-24.0)	<b>35.6</b> (29.2-54.8)	<b>71.3</b> (39.7-166)	1042
	01-02	<b>9.41</b> (7.99-11.1)	<b>9.20</b> (7.70-10.8)	<b>20.1</b> (16.7-26.1)	<b>43.1</b> (32.4-53.1)	<b>61.7</b> (51.8-81.5)	1375
	03-04	<b>8.56</b> (7.54-9.72)	<b>8.70</b> (7.20-10.2)	<b>19.0</b> (15.9-21.6)	<b>38.0</b> (31.9-44.2)	<b>72.6</b> (45.4-100)	1240
	05-06	<b>9.13</b> (7.99-10.4)	<b>9.42</b> (8.16-10.8)	<b>20.0</b> (16.7-23.8)	<b>39.4</b> (33.8-45.3)	<b>63.1</b> (52.0-88.1)	1252
	07-08	<b>7.58</b> (6.40-8.97)	<b>7.74</b> (6.62-8.80)	<b>15.5</b> (12.5-18.2)	<b>32.7</b> (24.5-41.9)	<b>65.6</b> (47.7-133)	1198
	09-10	<b>8.20</b> (7.14-9.42)	<b>8.18</b> (6.86-9.67)	<b>18.4</b> (15.2-21.3)	<b>39.3</b> (31.4-48.0)	<b>70.7</b> (53.4-112)	1377
Females	99-00	<b>7.70</b> (6.79-8.75)	<b>7.57</b> (5.79-9.04)	<b>15.6</b> (12.7-18.9)	<b>33.6</b> (26.7-37.7)	<b>48.2</b> (37.1-62.9)	1140
	01-02	<b>8.94</b> (7.38-10.8)	<b>8.60</b> (6.70-10.7)	<b>19.0</b> (15.6-22.9)	<b>41.6</b> (33.3-51.5)	<b>79.8</b> (56.6-122)	1419
	03-04	<b>7.55</b> (6.44-8.84)	<b>7.30</b> (6.20-9.00)	<b>16.9</b> (14.7-19.8)	<b>33.8</b> (28.3-40.0)	<b>60.3</b> (42.5-116)	1350
	05-06	<b>7.75</b> (6.85-8.78)	<b>7.57</b> (6.87-8.37)	<b>16.7</b> (15.0-18.0)	<b>35.6</b> (30.9-43.1)	<b>69.2</b> (51.7-125)	1275
	07-08	<b>7.03</b> (5.84-8.47)	<b>6.75</b> (5.85-7.85)	<b>15.1</b> (12.3-19.0)	<b>30.0</b> (24.4-48.3)	<b>76.3</b> (49.5-163)	1226
	09-10	<b>7.47</b> (6.33-8.81)	<b>6.75</b> (5.70-7.85)	<b>15.4</b> (13.1-18.5)	<b>36.4</b> (29.4-45.3)	<b>65.2</b> (46.4-130)	1415

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 3.0, 3.3, 0.3, 0.06, 0.06, and 0.06 respectively.

‡Not measured after Survey years 2009-2010

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Phytoestrogens\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Phytoestrogens_BiomonitoringSummary.html)



## Urinary Equol (1999 – 2010) ‡

*Metabolite of Daidzein*

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Race/ethnicity</b>							
Mexican Americans	99-00	<b>5.24</b> (4.77-5.76)	<b>4.51</b> (3.65-5.18)	<b>9.48</b> (7.96-10.3)	<b>18.5</b> (14.5-22.6)	<b>30.9</b> (21.6-48.4)	726
	01-02	<b>7.22</b> (6.04-8.62)	<b>6.50</b> (4.40-9.10)	<b>14.2</b> (11.3-20.1)	<b>31.4</b> (21.1-41.0)	<b>42.4</b> (38.1-60.2)	679
	03-04	<b>6.08</b> (5.08-7.28)	<b>5.70</b> (4.70-6.80)	<b>12.5</b> (9.80-15.4)	<b>26.1</b> (18.1-39.7)	<b>43.6</b> (34.3-88.2)	653
	05-06	<b>6.04</b> (5.31-6.87)	<b>6.13</b> (5.28-7.35)	<b>13.3</b> (11.2-14.7)	<b>25.2</b> (19.6-33.4)	<b>47.6</b> (33.6-67.1)	634
	07-08	<b>5.52</b> (5.02-6.07)	<b>5.15</b> (4.71-5.86)	<b>11.4</b> (10.1-14.0)	<b>23.2</b> (20.2-30.3)	<b>39.9</b> (30.7-60.9)	520
	09-10	<b>5.07</b> (4.51-5.71)	<b>5.13</b> (4.45-5.74)	<b>11.1</b> (8.72-13.0)	<b>20.2</b> (17.1-29.7)	<b>46.3</b> (29.7-75.4)	604
Non-Hispanic blacks	99-00	<b>6.73</b> (5.20-8.71)	<b>6.24</b> (3.86-10.0)	<b>15.1</b> (12.7-17.6)	<b>27.6</b> (19.4-35.6)	<b>36.4</b> (28.9-49.4)	514
	01-02	<b>7.15</b> (6.06-8.43)	<b>6.10</b> (4.70-7.60)	<b>14.7</b> (12.0-18.7)	<b>30.9</b> (22.8-41.9)	<b>45.7</b> (36.1-90.5)	706
	03-04	<b>7.35</b> (6.16-8.79)	<b>7.90</b> (6.00-9.60)	<b>16.5</b> (14.2-18.3)	<b>32.0</b> (25.1-37.5)	<b>47.0</b> (37.8-68.2)	696
	05-06	<b>6.96</b> (5.89-8.22)	<b>6.37</b> (5.44-7.95)	<b>15.1</b> (11.7-20.2)	<b>30.1</b> (23.8-39.4)	<b>48.8</b> (38.7-64.9)	662
	07-08	<b>6.73</b> (5.28-8.59)	<b>6.69</b> (5.17-8.19)	<b>15.2</b> (11.9-18.5)	<b>31.3</b> (21.7-50.7)	<b>72.0</b> (36.1-402)	562
	09-10	<b>5.59</b> (4.98-6.27)	<b>5.98</b> (5.37-6.48)	<b>12.2</b> (10.8-14.2)	<b>25.0</b> (21.6-31.0)	<b>43.3</b> (32.4-53.7)	534
Non-Hispanic whites	99-00	<b>9.26</b> (7.80-11.0)	<b>8.98</b> (6.73-11.9)	<b>19.0</b> (16.1-22.8)	<b>36.2</b> (30.1-45.4)	<b>56.1</b> (42.1-89.4)	758
	01-02	<b>9.91</b> (7.95-12.4)	<b>10.0</b> (7.30-12.6)	<b>22.0</b> (17.4-27.4)	<b>44.4</b> (35.1-57.5)	<b>74.4</b> (55.1-107)	1222
	03-04	<b>8.52</b> (7.26-10.0)	<b>8.80</b> (7.10-10.3)	<b>19.3</b> (15.4-23.0)	<b>37.7</b> (31.7-44.2)	<b>73.1</b> (46.7-120)	1078
	05-06	<b>9.05</b> (8.08-10.1)	<b>9.49</b> (8.47-10.4)	<b>19.4</b> (16.6-23.2)	<b>39.2</b> (33.9-45.1)	<b>69.2</b> (52.2-130)	1038
	07-08	<b>8.01</b> (6.45-9.93)	<b>8.19</b> (6.59-9.49)	<b>16.1</b> (12.5-21.7)	<b>32.7</b> (24.1-55.9)	<b>79.5</b> (47.7-152)	993
	09-10	<b>9.45</b> (8.04-11.1)	<b>9.15</b> (7.87-10.2)	<b>19.3</b> (17.5-22.4)	<b>41.3</b> (35.4-48.7)	<b>75.4</b> (52.4-189)	1186

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 3.0, 3.3, 0.3, 0.06, 0.06, and 0.06 respectively.

‡Not measured after Survey years 2009-2010

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Phytoestrogens\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Phytoestrogens_BiomonitoringSummary.html)

## Urinary Equol (creatinine corrected) (1999 – 2010) ‡

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	<b>7.70</b> (6.82-8.70)	<b>7.96</b> (6.87-9.35)	<b>16.2</b> (13.2-18.6)	<b>30.6</b> (26.9-35.1)	<b>50.3</b> (41.8-67.3)	2182
	01-02	<b>8.60</b> (7.26-10.2)	<b>7.98</b> (6.62-9.76)	<b>17.6</b> (14.8-21.8)	<b>37.8</b> (30.3-46.3)	<b>62.6</b> (50.0-85.0)	2794
	03-04	<b>7.52</b> (6.83-8.29)	<b>7.29</b> (6.56-8.18)	<b>14.6</b> (13.3-15.7)	<b>27.8</b> (24.7-31.9)	<b>50.6</b> (39.9-75.0)	2590
	05-06	<b>8.18</b> (7.33-9.14)	<b>7.92</b> (7.01-8.76)	<b>15.9</b> (14.2-17.4)	<b>32.7</b> (29.9-35.1)	<b>69.1</b> (48.4-105)	2527
	07-08	<b>7.33</b> (6.34-8.48)	<b>6.91</b> (6.13-7.86)	<b>14.4</b> (12.2-16.7)	<b>28.9</b> (23.5-37.4)	<b>60.9</b> (40.5-93.1)	2424
	09-10	<b>8.38</b> (7.52-9.33)	<b>7.70</b> (6.80-8.69)	<b>16.6</b> (15.3-18.1)	<b>36.3</b> (30.5-44.5)	<b>73.4</b> (54.2-122)	2791
Age group 6-11 years	99-00	<b>10.3</b> (7.83-13.5)	<b>11.4</b> (7.46-16.3)	<b>22.6</b> (14.7-27.2)	<b>32.7</b> (25.5-46.0)	<b>47.8</b> (32.7-150)	272
	01-02	<b>13.9</b> (11.2-17.2)	<b>14.0</b> (10.6-17.0)	<b>28.8</b> (19.6-39.8)	<b>54.4</b> (34.9-99.8)	<b>88.2</b> (56.8-186)	396
	03-04	<b>13.2</b> (10.9-15.9)	<b>13.2</b> (9.19-17.5)	<b>24.2</b> (20.6-28.0)	<b>41.6</b> (35.2-64.1)	<b>93.5</b> (45.4-117)	341
	05-06	<b>14.7</b> (12.6-17.1)	<b>15.3</b> (13.8-17.4)	<b>26.2</b> (21.2-34.4)	<b>48.0</b> (40.6-70.3)	<b>88.9</b> (55.4-267)	351
	07-08	<b>13.4</b> (10.8-16.6)	<b>13.1</b> (10.6-15.2)	<b>22.6</b> (16.9-32.8)	<b>45.2</b> (28.8-84.4)	<b>72.8</b> (45.8-199)	360
	09-10	<b>18.3</b> (13.5-24.7)	<b>15.7</b> (11.5-19.3)	<b>42.0</b> (28.1-54.1)	<b>84.1</b> (63.5-183)	<b>232</b> (98.4-498)	370
12-19 years	99-00	<b>7.61</b> (6.17-9.39)	<b>8.02</b> (6.72-9.29)	<b>14.0</b> (11.4-20.4)	<b>27.5</b> (20.8-38.3)	<b>47.4</b> (27.5-149)	657
	01-02	<b>7.83</b> (6.68-9.17)	<b>7.77</b> (6.29-9.13)	<b>17.4</b> (14.9-19.2)	<b>31.9</b> (25.3-41.7)	<b>54.3</b> (33.0-76.7)	744
	03-04	<b>7.91</b> (6.59-9.49)	<b>8.11</b> (6.80-9.09)	<b>14.5</b> (11.8-17.5)	<b>30.1</b> (21.0-38.2)	<b>40.6</b> (32.6-66.9)	729
	05-06	<b>8.61</b> (7.54-9.83)	<b>8.03</b> (7.00-9.21)	<b>16.3</b> (13.4-19.0)	<b>31.8</b> (25.3-37.6)	<b>62.0</b> (37.0-129)	693
	07-08	<b>6.51</b> (5.69-7.46)	<b>5.83</b> (4.78-6.71)	<b>12.6</b> (10.5-16.4)	<b>28.7</b> (20.8-35.3)	<b>50.4</b> (30.7-72.7)	375
	09-10	<b>10.7</b> (8.50-13.5)	<b>8.95</b> (7.40-10.3)	<b>20.6</b> (15.9-23.3)	<b>46.3</b> (31.3-101)	<b>215</b> (58.9-919)	447
20 years and older	99-00	<b>7.45</b> (6.60-8.41)	<b>7.63</b> (6.35-9.22)	<b>15.3</b> (12.7-17.7)	<b>30.8</b> (25.0-37.2)	<b>53.2</b> (41.2-71.8)	1253
	01-02	<b>8.23</b> (6.93-9.79)	<b>7.52</b> (5.97-9.56)	<b>16.6</b> (14.0-20.7)	<b>36.4</b> (29.3-42.9)	<b>58.7</b> (47.9-85.0)	1654
	03-04	<b>6.98</b> (6.30-7.73)	<b>6.76</b> (6.05-7.65)	<b>13.6</b> (12.5-14.8)	<b>24.6</b> (21.9-29.4)	<b>42.8</b> (35.7-81.6)	1520
	05-06	<b>7.60</b> (6.72-8.59)	<b>7.43</b> (6.63-8.21)	<b>14.1</b> (12.4-16.4)	<b>30.1</b> (23.9-34.9)	<b>65.9</b> (42.7-123)	1483
	07-08	<b>7.00</b> (5.90-8.31)	<b>6.64</b> (5.73-7.57)	<b>13.2</b> (11.2-16.2)	<b>26.4</b> (21.6-38.4)	<b>57.7</b> (38.4-97.0)	1689
	09-10	<b>7.43</b> (6.61-8.34)	<b>6.97</b> (6.09-8.08)	<b>15.0</b> (13.5-16.7)	<b>29.2</b> (25.3-34.5)	<b>54.7</b> (41.4-75.7)	1974
Gender Males	99-00	<b>7.01</b> (5.93-8.29)	<b>7.32</b> (5.63-8.78)	<b>13.8</b> (11.7-17.6)	<b>29.3</b> (21.4-41.8)	<b>54.1</b> (35.8-81.0)	1042
	01-02	<b>7.66</b> (6.39-9.18)	<b>7.43</b> (5.81-9.16)	<b>16.2</b> (14.0-19.4)	<b>32.9</b> (27.9-40.4)	<b>54.3</b> (37.8-67.1)	1375
	03-04	<b>6.71</b> (6.02-7.47)	<b>6.63</b> (5.78-7.29)	<b>13.3</b> (11.9-15.5)	<b>25.7</b> (23.1-30.3)	<b>51.1</b> (37.1-76.7)	1240
	05-06	<b>7.35</b> (6.40-8.43)	<b>7.03</b> (5.90-8.67)	<b>14.9</b> (12.0-18.3)	<b>31.4</b> (26.8-34.0)	<b>57.6</b> (42.7-83.5)	1252
	07-08	<b>6.39</b> (5.52-7.41)	<b>6.10</b> (5.28-6.85)	<b>12.2</b> (10.6-14.3)	<b>25.7</b> (20.4-33.0)	<b>48.4</b> (35.3-77.1)	1198
	09-10	<b>7.49</b> (6.54-8.59)	<b>6.90</b> (5.98-8.20)	<b>15.7</b> (14.1-17.3)	<b>32.4</b> (25.3-44.1)	<b>73.4</b> (44.2-130)	1376
Females	99-00	<b>8.41</b> (7.33-9.66)	<b>8.71</b> (7.33-10.1)	<b>17.7</b> (15.1-20.0)	<b>31.6</b> (27.5-37.2)	<b>46.3</b> (41.0-56.5)	1140
	01-02	<b>9.60</b> (7.99-11.5)	<b>8.66</b> (6.97-10.6)	<b>19.2</b> (15.7-23.7)	<b>41.7</b> (32.3-55.9)	<b>85.0</b> (61.7-115)	1419
	03-04	<b>8.38</b> (7.39-9.51)	<b>8.29</b> (7.03-9.28)	<b>15.1</b> (14.0-16.6)	<b>30.6</b> (25.0-32.5)	<b>45.4</b> (38.7-102)	1350
	05-06	<b>9.07</b> (8.04-10.2)	<b>8.49</b> (7.90-9.22)	<b>16.7</b> (15.3-18.1)	<b>34.3</b> (29.9-40.7)	<b>85.1</b> (48.4-144)	1275
	07-08	<b>8.35</b> (6.98-9.99)	<b>7.97</b> (6.83-9.31)	<b>16.0</b> (13.4-20.0)	<b>32.8</b> (23.7-46.1)	<b>67.5</b> (41.6-167)	1226
	09-10	<b>9.34</b> (7.98-10.9)	<b>8.44</b> (7.24-9.76)	<b>17.4</b> (15.1-20.4)	<b>39.6</b> (30.7-54.2)	<b>72.9</b> (51.6-158)	1415

‡Not measured after Survey years 2009-2010

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Phytoestrogens\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Phytoestrogens_BiomonitoringSummary.html)

## Urinary Equol (creatinine corrected) (1999 – 2010) ‡

*Metabolite of Daidzein*

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Race/ethnicity</b>							
Mexican Americans	99-00	<b>4.89</b> (4.36-5.47)	<b>4.73</b> (3.90-5.27)	<b>8.85</b> (8.18-9.91)	<b>22.3</b> (16.5-26.8)	<b>37.1</b> (25.3-57.6)	726
	01-02	<b>6.79</b> (5.82-7.92)	<b>6.81</b> (5.55-8.04)	<b>14.9</b> (11.7-17.8)	<b>29.1</b> (22.9-36.0)	<b>41.3</b> (31.4-47.1)	679
	03-04	<b>5.48</b> (4.60-6.54)	<b>4.72</b> (3.95-5.78)	<b>10.1</b> (7.76-13.4)	<b>24.4</b> (17.2-30.9)	<b>35.6</b> (27.6-102)	653
	05-06	<b>5.45</b> (4.84-6.14)	<b>5.00</b> (4.37-5.85)	<b>9.94</b> (8.80-12.4)	<b>22.3</b> (19.3-30.0)	<b>39.4</b> (30.0-61.9)	634
	07-08	<b>5.42</b> (4.82-6.09)	<b>4.87</b> (4.28-5.66)	<b>10.9</b> (9.21-12.2)	<b>20.9</b> (17.0-26.9)	<b>34.9</b> (26.9-60.9)	520
	09-10	<b>5.33</b> (4.60-6.18)	<b>5.00</b> (4.17-6.16)	<b>9.49</b> (8.54-11.2)	<b>19.6</b> (15.1-35.6)	<b>48.5</b> (30.3-126)	604
Non-Hispanic blacks	99-00	<b>4.36</b> (3.41-5.57)	<b>4.57</b> (2.94-6.23)	<b>10.2</b> (7.96-12.0)	<b>17.1</b> (14.8-19.8)	<b>26.0</b> (19.6-32.0)	514
	01-02	<b>5.01</b> (4.26-5.89)	<b>4.48</b> (3.80-5.42)	<b>11.0</b> (8.80-13.0)	<b>22.7</b> (16.5-29.3)	<b>35.4</b> (24.8-46.7)	706
	03-04	<b>5.23</b> (4.44-6.16)	<b>5.28</b> (4.67-6.10)	<b>10.3</b> (8.61-12.3)	<b>20.2</b> (17.1-23.8)	<b>29.4</b> (23.9-42.3)	696
	05-06	<b>4.88</b> (4.11-5.78)	<b>4.72</b> (3.55-6.00)	<b>9.40</b> (7.54-12.0)	<b>21.5</b> (16.8-24.4)	<b>31.6</b> (24.4-51.4)	662
	07-08	<b>5.21</b> (4.11-6.61)	<b>4.73</b> (3.77-6.22)	<b>9.81</b> (7.77-12.7)	<b>19.3</b> (14.7-28.8)	<b>50.6</b> (24.2-314)	562
	09-10	<b>4.50</b> (4.03-5.01)	<b>4.57</b> (3.80-5.29)	<b>9.76</b> (8.00-11.3)	<b>18.4</b> (15.6-22.3)	<b>26.8</b> (22.8-29.7)	533
Non-Hispanic whites	99-00	<b>9.13</b> (7.85-10.6)	<b>9.51</b> (7.63-11.2)	<b>18.0</b> (15.2-21.6)	<b>35.4</b> (29.5-41.3)	<b>56.5</b> (46.0-73.0)	758
	01-02	<b>9.81</b> (7.93-12.1)	<b>9.17</b> (7.06-12.2)	<b>19.8</b> (15.4-25.6)	<b>41.3</b> (30.7-55.9)	<b>66.4</b> (56.8-85.0)	1222
	03-04	<b>8.40</b> (7.50-9.41)	<b>8.17</b> (7.13-9.19)	<b>15.6</b> (14.1-17.1)	<b>30.6</b> (25.0-32.8)	<b>56.8</b> (38.0-107)	1078
	05-06	<b>9.51</b> (8.48-10.7)	<b>9.17</b> (8.06-10.5)	<b>17.1</b> (15.0-19.4)	<b>34.5</b> (31.0-40.6)	<b>77.7</b> (48.4-129)	1038
	07-08	<b>8.33</b> (6.76-10.3)	<b>7.94</b> (6.62-9.61)	<b>15.7</b> (12.5-20.4)	<b>30.7</b> (23.4-46.1)	<b>65.2</b> (38.9-144)	993
	09-10	<b>10.6</b> (9.17-12.2)	<b>9.69</b> (8.74-10.8)	<b>20.5</b> (17.8-22.5)	<b>44.2</b> (33.4-60.8)	<b>84.1</b> (60.3-187)	1186

‡Not measured after Survey years 2009-2010

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Phytoestrogens\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Phytoestrogens_BiomonitoringSummary.html)

## Urinary Genistein (1999 – 2010) ‡

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	24.4 (19.7-30.3)	27.0 (22.5-32.8)	93.6 (75.8-118)	284 (244-331)	563 (413-709)	2557
	01-02	33.0 (30.1-36.2)	29.0 (26.8-31.8)	92.5 (77.9-109)	306 (240-372)	619 (523-719)	2794
	03-04	31.1 (29.0-33.3)	26.2 (23.9-29.7)	87.8 (78.8-102)	286 (239-313)	528 (402-610)	2594
	05-06	28.7 (25.8-32.0)	26.0 (20.9-29.7)	81.0 (73.3-92.4)	261 (232-308)	523 (422-591)	2528
	07-08	31.3 (27.3-35.8)	25.7 (22.8-28.9)	89.7 (73.4-109)	309 (227-411)	665 (527-999)	2424
	09-10	32.5 (29.3-36.2)	28.2 (23.2-33.1)	102 (88.8-120)	356 (295-428)	691 (530-1060)	2792
	Age group 6-11 years	99-00	27.6 (21.1-36.1)	31.9 (18.1-42.6)	104 (67.6-151)	220 (151-315)	376 (272-725)
01-02		39.2 (33.4-46.0)	31.7 (25.8-39.6)	94.1 (62.3-158)	258 (190-426)	502 (258-830)	396
03-04		33.6 (27.8-40.6)	29.3 (23.1-37.8)	79.4 (56.7-111)	193 (146-274)	351 (207-376)	341
05-06		38.6 (29.8-49.9)	34.6 (25.3-42.5)	109 (76.6-181)	367 (252-568)	629 (367-2390)	351
07-08		43.7 (32.6-58.5)	34.3 (22.1-56.4)	139 (82.5-194)	505 (251-763)	840 (505-2200)	360
09-10		46.1 (37.8-56.3)	38.4 (30.7-46.9)	167 (96.9-253)	467 (280-616)	958 (528-1210)	371
12-19 years		99-00	43.7 (34.2-55.7)	45.4 (34.3-60.5)	138 (93.7-179)	319 (245-464)	547 (321-777)
	01-02	34.1 (27.2-42.8)	29.0 (26.1-32.9)	90.6 (71.5-113)	278 (216-363)	470 (360-687)	744
	03-04	34.7 (29.3-41.0)	29.0 (23.4-37.6)	111 (69.3-141)	304 (206-376)	530 (358-671)	729
	05-06	34.1 (28.8-40.5)	26.9 (20.5-35.6)	90.5 (76.1-115)	307 (209-394)	486 (372-982)	693
	07-08	35.2 (28.5-43.5)	28.4 (23.7-34.5)	111 (63.7-138)	279 (160-483)	538 (320-954)	375
	09-10	39.2 (29.5-52.0)	34.4 (23.5-47.1)	141 (77.0-188)	373 (242-520)	620 (445-1160)	447
	20 years and older	99-00	21.9 (17.6-27.2)	24.0 (21.7-28.4)	86.2 (67.5-108)	293 (235-343)	566 (412-744)
01-02		32.1 (28.8-35.8)	28.8 (25.4-33.4)	93.4 (77.3-110)	312 (235-389)	627 (537-790)	1654
03-04		30.2 (27.8-32.8)	25.9 (22.3-29.8)	87.8 (77.9-103)	296 (239-321)	557 (412-653)	1524
05-06		27.0 (23.9-30.6)	25.0 (19.8-28.8)	77.4 (66.7-89.5)	244 (190-308)	518 (413-591)	1484
07-08		29.6 (25.4-34.5)	24.7 (21.3-28.4)	84.1 (68.0-98.0)	278 (207-422)	671 (512-1150)	1689
09-10		30.5 (26.7-34.8)	26.3 (20.3-31.7)	97.5 (77.3-115)	327 (281-425)	691 (523-1110)	1974
Gender Males		99-00	29.8 (22.2-40.0)	31.9 (26.3-37.2)	108 (79.1-151)	335 (257-440)	709 (437-981)
	01-02	32.2 (27.9-37.2)	29.5 (25.4-33.7)	91.2 (73.4-103)	239 (190-331)	474 (335-719)	1375
	03-04	33.7 (29.6-38.4)	27.3 (23.4-33.0)	92.6 (68.6-124)	310 (228-351)	562 (443-653)	1244
	05-06	32.1 (28.6-36.0)	29.1 (22.7-33.8)	90.2 (77.5-101)	269 (216-340)	494 (394-591)	1252
	07-08	33.3 (27.7-40.0)	26.2 (22.3-31.2)	98.0 (71.9-119)	316 (220-477)	723 (501-1510)	1198
	09-10	33.5 (29.3-38.2)	28.8 (23.6-35.5)	89.8 (74.7-114)	351 (286-425)	623 (476-967)	1377
	Females	99-00	20.3 (17.0-24.2)	23.1 (20.1-26.3)	84.7 (59.6-105)	242 (203-288)	446 (339-619)
01-02		33.7 (30.9-36.8)	28.7 (26.0-32.3)	97.0 (79.9-118)	387 (253-500)	666 (598-807)	1419
03-04		28.7 (25.5-32.4)	25.0 (22.4-28.4)	85.0 (71.2-106)	256 (218-308)	467 (356-620)	1350
05-06		25.9 (22.3-29.9)	22.4 (17.9-27.4)	74.5 (61.0-87.0)	246 (195-329)	526 (398-657)	1276
07-08		29.5 (25.1-34.6)	24.6 (22.2-28.4)	83.5 (63.7-109)	296 (194-432)	661 (448-964)	1226
09-10		31.7 (27.6-36.4)	27.0 (21.8-32.1)	115 (101-129)	371 (290-489)	826 (523-1530)	1415

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.3, 0.8, 0.3, 1.0, 0.2, and 0.2 respectively.

‡Not measured after Survey years 2009-2010

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Phytoestrogens\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Phytoestrogens_BiomonitoringSummary.html)

## Urinary Genistein (1999 – 2010) ‡

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Race/ethnicity</b>							
Mexican Americans	99-00	<b>31.1</b> (25.1-38.5)	<b>30.0</b> (25.1-37.3)	<b>117</b> (82.9-179)	<b>328</b> (248-494)	<b>573</b> (419-1180)	819
	01-02	<b>28.3</b> (22.0-36.4)	<b>25.6</b> (19.6-32.5)	<b>74.8</b> (48.8-111)	<b>225</b> (174-314)	<b>424</b> (323-523)	679
	03-04	<b>31.1</b> (27.5-35.2)	<b>25.2</b> (19.1-32.6)	<b>83.2</b> (63.6-120)	<b>319</b> (252-537)	<b>653</b> (537-851)	653
	05-06	<b>27.6</b> (24.4-31.2)	<b>26.6</b> (21.5-30.2)	<b>77.0</b> (63.3-87.3)	<b>255</b> (187-319)	<b>412</b> (320-568)	634
	07-08	<b>30.5</b> (24.3-38.4)	<b>24.0</b> (18.9-30.2)	<b>86.8</b> (68.0-123)	<b>318</b> (210-414)	<b>603</b> (414-1130)	520
	09-10	<b>28.7</b> (23.7-34.7)	<b>24.2</b> (18.4-32.3)	<b>84.8</b> (57.8-120)	<b>257</b> (197-327)	<b>484</b> (334-623)	604
Non-Hispanic blacks	99-00	<b>26.7</b> (19.2-37.0)	<b>32.9</b> (24.4-41.5)	<b>103</b> (84.8-137)	<b>257</b> (213-367)	<b>495</b> (329-926)	608
	01-02	<b>37.6</b> (27.4-51.6)	<b>35.3</b> (23.6-49.5)	<b>95.5</b> (71.1-142)	<b>378</b> (192-530)	<b>598</b> (375-1120)	706
	03-04	<b>32.3</b> (24.0-43.4)	<b>27.4</b> (18.8-44.9)	<b>84.8</b> (60.5-113)	<b>279</b> (163-412)	<b>514</b> (323-852)	699
	05-06	<b>31.0</b> (26.7-36.1)	<b>27.9</b> (23.0-34.9)	<b>92.3</b> (69.3-106)	<b>265</b> (187-355)	<b>458</b> (371-643)	662
	07-08	<b>36.2</b> (29.3-44.7)	<b>27.3</b> (22.6-36.8)	<b>124</b> (84.3-157)	<b>395</b> (310-530)	<b>912</b> (567-1490)	562
	09-10	<b>33.5</b> (29.0-38.6)	<b>27.8</b> (23.2-36.4)	<b>99.6</b> (79.3-120)	<b>321</b> (218-392)	<b>625</b> (410-1010)	534
Non-Hispanic whites	99-00	<b>23.6</b> (19.1-29.3)	<b>25.6</b> (21.7-32.0)	<b>91.4</b> (68.0-122)	<b>288</b> (227-353)	<b>566</b> (395-734)	917
	01-02	<b>30.9</b> (27.8-34.4)	<b>27.6</b> (24.6-30.8)	<b>89.7</b> (71.1-105)	<b>278</b> (226-365)	<b>626</b> (485-755)	1222
	03-04	<b>30.8</b> (28.2-33.6)	<b>26.2</b> (22.6-31.0)	<b>93.6</b> (78.8-112)	<b>279</b> (225-313)	<b>504</b> (376-610)	1079
	05-06	<b>26.9</b> (23.6-30.6)	<b>23.8</b> (19.0-29.1)	<b>77.2</b> (66.2-87.9)	<b>244</b> (198-316)	<b>518</b> (391-609)	1039
	07-08	<b>29.3</b> (25.2-34.0)	<b>25.2</b> (22.1-28.5)	<b>84.1</b> (65.8-102)	<b>235</b> (182-346)	<b>620</b> (446-840)	993
	09-10	<b>31.9</b> (27.4-37.2)	<b>28.3</b> (21.3-34.6)	<b>102</b> (75.4-125)	<b>334</b> (280-450)	<b>691</b> (501-1060)	1186

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.3, 0.8, 0.3, 1.0, 0.2, and 0.2 respectively.

‡Not measured after Survey years 2009-2010

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Phytoestrogens\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Phytoestrogens_BiomonitoringSummary.html)

## Urinary Genistein (creatinine corrected) (1999 – 2010) ‡

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	22.3 (17.7-28.1)	23.8 (18.8-28.9)	84.7 (67.2-105)	222 (182-279)	381 (334-497)	2557
	01-02	30.9 (28.5-33.6)	25.9 (23.4-29.2)	83.3 (72.2-96.3)	256 (211-296)	427 (375-490)	2794
	03-04	29.1 (27.3-31.0)	24.5 (21.3-27.4)	77.7 (67.3-90.9)	231 (203-279)	510 (388-619)	2594
	05-06	28.0 (25.3-31.0)	23.2 (20.3-26.4)	72.0 (63.1-85.2)	242 (197-280)	577 (406-734)	2528
	07-08	31.4 (27.3-36.1)	23.7 (21.0-27.7)	85.2 (70.3-99.5)	264 (214-375)	751 (464-1130)	2424
	09-10	34.9 (31.6-38.4)	25.4 (22.8-30.0)	100 (83.3-124)	367 (313-424)	863 (612-1090)	2791
	Age group 6-11 years	99-00	28.3 (21.1-37.9)	27.8 (15.8-41.3)	94.3 (60.5-145)	209 (148-317)	490 (279-895)
01-02		44.5 (37.0-53.5)	37.9 (29.7-49.0)	112 (76.5-146)	252 (173-371)	504 (252-713)	396
03-04		35.8 (29.7-43.0)	35.4 (24.9-43.2)	78.6 (60.9-119)	172 (130-243)	297 (168-618)	341
05-06		42.5 (33.1-54.6)	34.1 (23.7-41.9)	138 (89.5-195)	414 (256-850)	1040 (429-1590)	351
07-08		53.5 (41.5-69.0)	44.2 (33.0-63.9)	149 (83.2-224)	451 (236-937)	940 (411-1800)	360
09-10		62.8 (52.5-75.1)	47.8 (36.7-63.0)	200 (144-249)	493 (405-644)	875 (551-1140)	370
12-19 years		99-00	29.4 (22.3-38.8)	32.0 (23.8-41.6)	83.2 (64.1-104)	184 (130-295)	336 (184-816)
	01-02	26.3 (21.3-32.5)	21.0 (17.8-26.5)	66.2 (47.9-91.5)	200 (149-298)	321 (261-435)	744
	03-04	25.9 (21.8-30.9)	21.8 (17.0-29.1)	65.6 (51.0-83.1)	201 (145-313)	366 (297-455)	729
	05-06	25.3 (22.1-29.0)	19.6 (16.4-24.0)	76.5 (51.4-91.6)	164 (130-249)	368 (213-520)	693
	07-08	27.1 (23.1-31.7)	23.7 (17.8-29.3)	77.7 (56.2-95.3)	159 (125-264)	324 (214-568)	375
	09-10	36.8 (28.5-47.7)	27.6 (20.4-40.1)	102 (67.5-174)	371 (234-455)	848 (424-1100)	447
	20 years and older	99-00	20.6 (16.3-26.2)	21.6 (17.7-26.2)	83.1 (64.9-107)	234 (190-287)	381 (325-562)
01-02		30.4 (27.6-33.4)	24.8 (21.9-30.0)	83.1 (68.5-99.0)	269 (208-328)	435 (374-518)	1654
03-04		28.9 (26.7-31.3)	24.0 (20.1-27.4)	78.5 (66.1-92.9)	253 (209-302)	542 (399-673)	1524
05-06		27.1 (24.3-30.3)	23.0 (19.7-26.8)	70.3 (61.2-81.3)	233 (184-275)	575 (349-762)	1484
07-08		30.4 (25.8-35.8)	22.8 (19.9-25.9)	81.2 (63.2-99.5)	263 (205-423)	842 (464-1310)	1689
09-10		32.5 (28.9-36.5)	23.1 (20.5-28.2)	91.9 (72.8-116)	340 (295-409)	863 (590-1150)	1974
Gender							
Males	99-00	23.3 (16.8-32.3)	23.8 (17.5-32.2)	86.2 (64.7-115)	236 (178-330)	523 (323-889)	1222
	01-02	26.2 (23.1-29.8)	22.0 (19.4-26.0)	67.6 (57.4-78.1)	186 (144-237)	350 (278-418)	1375
	03-04	26.4 (22.8-30.5)	21.5 (17.3-26.2)	70.0 (51.1-90.5)	203 (159-235)	415 (346-600)	1244
	05-06	25.8 (23.4-28.4)	22.8 (19.3-26.4)	65.0 (54.6-82.2)	207 (154-261)	431 (305-628)	1252
	07-08	28.1 (23.4-33.7)	20.9 (17.6-24.8)	76.1 (58.9-92.9)	249 (174-369)	634 (370-1130)	1198
	09-10	30.6 (27.3-34.3)	23.5 (20.7-27.5)	78.7 (63.0-101)	313 (241-370)	631 (453-1020)	1376
	Females	99-00	21.3 (17.5-26.0)	23.2 (17.5-29.3)	83.1 (57.2-106)	211 (154-283)	357 (283-398)
01-02		36.2 (32.8-39.9)	29.6 (25.2-34.3)	107 (88.4-129)	321 (269-355)	547 (427-729)	1419
03-04		31.9 (28.7-35.5)	27.1 (23.6-31.6)	87.1 (71.1-102)	278 (209-324)	548 (363-763)	1350
05-06		30.3 (25.8-35.5)	23.5 (19.8-29.1)	81.3 (67.4-104)	271 (208-406)	658 (444-894)	1276
07-08		35.0 (30.1-40.8)	27.7 (23.0-34.7)	95.6 (80.3-107)	290 (220-506)	842 (506-1350)	1226
09-10		39.6 (35.2-44.5)	29.4 (23.9-35.5)	131 (101-151)	430 (340-542)	944 (670-1540)	1415

‡Not measured after Survey years 2009-2010

### Biomonitoring Summary

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## Urinary Genistein (creatinine corrected) (1999 – 2010) ‡

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Race/ethnicity</b>							
Mexican Americans	99-00	<b>28.4</b> (23.3-34.7)	<b>27.9</b> (22.5-35.0)	<b>109</b> (91.5-137)	<b>257</b> (209-380)	<b>562</b> (257-981)	819
	01-02	<b>26.6</b> (21.6-32.9)	<b>21.0</b> (16.1-28.9)	<b>61.6</b> (50.6-76.8)	<b>205</b> (147-270)	<b>372</b> (271-479)	679
	03-04	<b>28.0</b> (24.8-31.8)	<b>23.5</b> (18.5-28.1)	<b>69.2</b> (52.3-92.8)	<b>254</b> (187-390)	<b>608</b> (417-764)	653
	05-06	<b>24.9</b> (22.1-28.0)	<b>21.7</b> (17.8-23.8)	<b>72.4</b> (56.2-90.2)	<b>202</b> (140-274)	<b>338</b> (275-648)	634
	07-08	<b>30.0</b> (23.2-38.8)	<b>22.5</b> (16.5-30.5)	<b>88.3</b> (55.4-127)	<b>287</b> (210-373)	<b>583</b> (385-921)	520
	09-10	<b>30.1</b> (25.4-35.7)	<b>23.2</b> (19.0-30.5)	<b>79.2</b> (60.6-108)	<b>262</b> (192-353)	<b>601</b> (371-818)	604
Non-Hispanic blacks	99-00	<b>17.1</b> (12.4-23.7)	<b>19.5</b> (15.7-26.1)	<b>59.5</b> (43.1-93.7)	<b>179</b> (132-245)	<b>299</b> (222-446)	608
	01-02	<b>26.4</b> (19.3-36.1)	<b>22.7</b> (16.4-33.6)	<b>69.4</b> (42.2-115)	<b>217</b> (139-317)	<b>384</b> (217-747)	706
	03-04	<b>22.8</b> (18.1-28.8)	<b>19.6</b> (14.3-27.1)	<b>55.0</b> (39.6-78.1)	<b>182</b> (107-240)	<b>311</b> (210-514)	699
	05-06	<b>21.7</b> (18.8-25.1)	<b>18.6</b> (14.9-21.6)	<b>55.3</b> (42.6-78.7)	<b>157</b> (124-235)	<b>351</b> (235-543)	662
	07-08	<b>28.0</b> (22.5-34.9)	<b>20.8</b> (15.9-25.9)	<b>91.2</b> (63.7-112)	<b>252</b> (184-413)	<b>668</b> (310-1530)	562
	09-10	<b>26.9</b> (23.7-30.6)	<b>19.5</b> (17.6-23.1)	<b>78.0</b> (58.1-107)	<b>245</b> (158-341)	<b>505</b> (341-879)	533
Non-Hispanic whites	99-00	<b>23.2</b> (18.5-29.0)	<b>24.9</b> (19.0-31.7)	<b>86.1</b> (68.4-105)	<b>232</b> (178-295)	<b>381</b> (325-523)	917
	01-02	<b>30.6</b> (28.2-33.2)	<b>25.4</b> (22.7-29.5)	<b>82.0</b> (68.3-96.3)	<b>248</b> (207-320)	<b>427</b> (365-518)	1222
	03-04	<b>30.4</b> (27.9-33.0)	<b>26.2</b> (21.5-31.4)	<b>79.6</b> (69.1-99.6)	<b>238</b> (195-321)	<b>534</b> (352-688)	1079
	05-06	<b>28.2</b> (25.1-31.8)	<b>23.5</b> (19.8-29.0)	<b>71.7</b> (58.9-89.6)	<b>242</b> (192-305)	<b>615</b> (423-802)	1039
	07-08	<b>30.5</b> (25.8-36.0)	<b>23.7</b> (20.2-28.3)	<b>80.1</b> (63.4-96.6)	<b>256</b> (185-369)	<b>651</b> (412-1010)	993
	09-10	<b>35.8</b> (31.2-41.0)	<b>25.6</b> (22.5-32.7)	<b>107</b> (78.5-140)	<b>398</b> (304-448)	<b>881</b> (576-1300)	1186

‡Not measured after Survey years 2009-2010

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Phytoestrogens\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Phytoestrogens_BiomonitoringSummary.html)



## Urinary O-Desmethylangolensin (1999 – 2010) †

Metabolite of Daidzein

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	<b>4.39</b> (3.37-5.73)	<b>4.98</b> (3.65-6.77)	<b>22.7</b> (18.7-30.1)	<b>100</b> (74.8-141)	<b>222</b> (182-250)	2271
	01-02	<b>4.08</b> (3.53-4.73)	<b>3.30</b> (2.70-4.20)	<b>19.8</b> (16.7-24.6)	<b>96.0</b> (70.1-135)	<b>260</b> (161-437)	2794
	03-04	<b>4.91</b> (4.34-5.55)	<b>4.60</b> (4.00-5.20)	<b>23.6</b> (18.6-27.2)	<b>95.9</b> (70.7-122)	<b>230</b> (185-342)	2581
	05-06	<b>4.71</b> (4.17-5.31)	<b>3.80</b> (3.10-4.30)	<b>22.5</b> (19.7-26.6)	<b>101</b> (86.4-124)	<b>266</b> (200-385)	2528
	07-08	<b>4.65</b> (4.02-5.39)	<b>3.40</b> (2.90-4.20)	<b>23.0</b> (17.9-29.8)	<b>132</b> (98.2-181)	<b>328</b> (236-501)	2424
	09-10	<b>4.73</b> (4.08-5.48)	<b>3.60</b> (2.90-4.30)	<b>21.8</b> (16.8-28.4)	<b>125</b> (99.2-156)	<b>394</b> (237-615)	2792
Age group 6-11 years	99-00	<b>5.60</b> (3.85-8.15)	<b>7.52</b> (3.43-15.2)	<b>36.2</b> (20.3-45.0)	<b>78.7</b> (43.4-191)	<b>176</b> (74.8-264)	287
	01-02	<b>6.19</b> (4.51-8.49)	<b>5.90</b> (3.80-9.30)	<b>26.9</b> (15.7-52.1)	<b>122</b> (61.5-215)	<b>281</b> (161-466)	396
	03-04	<b>6.33</b> (4.30-9.30)	<b>6.10</b> (3.50-10.6)	<b>24.0</b> (17.0-33.8)	<b>70.8</b> (51.4-122)	<b>138</b> (80.9-256)	341
	05-06	<b>7.20</b> (5.20-9.96)	<b>6.20</b> (4.00-11.0)	<b>37.8</b> (24.2-55.2)	<b>145</b> (83.9-295)	<b>386</b> (201-516)	351
	07-08	<b>7.50</b> (5.43-10.4)	<b>5.40</b> (3.90-9.70)	<b>34.5</b> (16.5-52.6)	<b>133</b> (79.9-275)	<b>490</b> (133-3020)	360
	09-10	<b>7.85</b> (6.20-9.94)	<b>7.00</b> (4.30-11.7)	<b>34.9</b> (27.7-49.6)	<b>153</b> (89.1-199)	<b>263</b> (167-467)	371
12-19 years	99-00	<b>6.04</b> (3.76-9.70)	<b>7.60</b> (5.13-13.5)	<b>36.6</b> (22.0-57.3)	<b>107</b> (63.4-165)	<b>194</b> (107-238)	667
	01-02	<b>5.92</b> (4.46-7.87)	<b>5.20</b> (3.70-7.60)	<b>33.6</b> (18.0-56.8)	<b>125</b> (91.2-172)	<b>299</b> (172-435)	744
	03-04	<b>6.37</b> (4.95-8.18)	<b>5.30</b> (3.80-8.10)	<b>33.9</b> (18.2-50.5)	<b>110</b> (82.2-198)	<b>257</b> (175-415)	729
	05-06	<b>8.50</b> (6.48-11.2)	<b>8.10</b> (5.50-11.6)	<b>41.3</b> (33.6-49.6)	<b>105</b> (80.2-213)	<b>385</b> (139-829)	693
	07-08	<b>4.74</b> (3.00-7.48)	<b>3.80</b> (2.20-7.20)	<b>20.6</b> (11.2-34.6)	<b>105</b> (29.5-357)	<b>328</b> (78.1-638)	375
	09-10	<b>6.40</b> (4.93-8.31)	<b>5.30</b> (4.00-7.70)	<b>26.8</b> (16.6-47.8)	<b>117</b> (77.8-165)	<b>377</b> (156-965)	447
20 years and older	99-00	<b>4.05</b> (3.12-5.26)	<b>4.46</b> (3.31-5.64)	<b>19.8</b> (16.0-26.5)	<b>101</b> (80.8-150)	<b>228</b> (179-259)	1317
	01-02	<b>3.65</b> (3.08-4.32)	<b>2.80</b> (2.30-3.70)	<b>17.0</b> (13.9-22.4)	<b>81.5</b> (63.0-128)	<b>260</b> (135-526)	1654
	03-04	<b>4.56</b> (4.02-5.17)	<b>4.40</b> (3.60-4.90)	<b>22.0</b> (17.8-25.6)	<b>94.0</b> (67.6-131)	<b>230</b> (187-398)	1511
	05-06	<b>4.09</b> (3.51-4.77)	<b>3.20</b> (2.60-4.00)	<b>17.9</b> (14.9-22.3)	<b>91.2</b> (72.3-124)	<b>248</b> (182-302)	1484
	07-08	<b>4.41</b> (3.72-5.22)	<b>3.20</b> (2.40-4.20)	<b>23.0</b> (17.5-30.7)	<b>133</b> (93.3-187)	<b>320</b> (206-589)	1689
	09-10	<b>4.28</b> (3.59-5.11)	<b>3.00</b> (2.40-3.90)	<b>19.3</b> (14.9-27.0)	<b>127</b> (95.2-159)	<b>438</b> (225-681)	1974
Gender Males	99-00	<b>4.97</b> (3.71-6.66)	<b>5.62</b> (4.12-8.73)	<b>29.1</b> (19.8-42.9)	<b>121</b> (74.1-190)	<b>235</b> (177-332)	1087
	01-02	<b>3.81</b> (3.08-4.71)	<b>3.30</b> (2.60-4.50)	<b>17.4</b> (13.2-24.6)	<b>82.8</b> (58.4-116)	<b>194</b> (123-324)	1375
	03-04	<b>4.90</b> (3.93-6.12)	<b>4.60</b> (3.40-5.50)	<b>23.0</b> (16.6-30.1)	<b>92.9</b> (70.7-129)	<b>222</b> (159-332)	1240
	05-06	<b>4.93</b> (4.13-5.89)	<b>4.00</b> (3.40-5.50)	<b>22.3</b> (16.7-28.1)	<b>90.8</b> (63.5-137)	<b>235</b> (171-311)	1252
	07-08	<b>4.49</b> (3.67-5.49)	<b>3.10</b> (2.50-4.10)	<b>22.1</b> (14.5-33.7)	<b>117</b> (81.4-194)	<b>293</b> (195-589)	1198
	09-10	<b>4.39</b> (3.46-5.59)	<b>3.30</b> (2.40-4.40)	<b>18.1</b> (14.5-24.3)	<b>99.2</b> (65.2-142)	<b>293</b> (153-615)	1377
Females	99-00	<b>3.92</b> (2.97-5.16)	<b>4.22</b> (3.18-5.51)	<b>19.4</b> (14.1-26.1)	<b>83.8</b> (61.1-114)	<b>192</b> (123-250)	1184
	01-02	<b>4.36</b> (3.64-5.23)	<b>3.40</b> (2.50-4.60)	<b>21.3</b> (16.8-29.2)	<b>107</b> (70.6-199)	<b>394</b> (230-746)	1419
	03-04	<b>4.91</b> (4.26-5.66)	<b>4.60</b> (3.90-5.50)	<b>23.9</b> (18.1-27.4)	<b>99.3</b> (63.5-155)	<b>283</b> (160-433)	1341
	05-06	<b>4.50</b> (3.90-5.20)	<b>3.30</b> (2.70-4.30)	<b>22.8</b> (17.9-28.3)	<b>121</b> (83.2-168)	<b>284</b> (182-499)	1276
	07-08	<b>4.82</b> (4.03-5.75)	<b>3.90</b> (2.90-5.30)	<b>24.6</b> (18.1-33.9)	<b>137</b> (99.3-195)	<b>362</b> (236-468)	1226
	09-10	<b>5.09</b> (4.19-6.18)	<b>3.90</b> (2.70-5.00)	<b>28.5</b> (18.4-42.8)	<b>152</b> (110-230)	<b>494</b> (309-766)	1415

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.2, 0.4, 0.2, 0.2, 0.2, and 0.2 respectively.

‡Not measured after Survey years 2009-2010

### Biomonitoring Summary

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## Urinary O-Desmethylangolensin (1999 – 2010) †

Metabolite of Daidzein

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00	<b>2.41</b> (1.55-3.73)	<b>2.14</b> (1.31-3.37)	<b>21.0</b> (10.6-30.5)	<b>97.6</b> (59.7-140)	<b>191</b> (122-320)	721
	01-02	<b>2.44</b> (1.51-3.94)	<b>1.40</b> (.500-3.40)	<b>13.1</b> (5.80-27.6)	<b>66.4</b> (33.5-102)	<b>152</b> (75.8-265)	679
	03-04	<b>2.54</b> (1.86-3.48)	<b>1.90</b> (1.00-3.40)	<b>14.4</b> (9.00-18.1)	<b>62.3</b> (40.3-99.5)	<b>146</b> (99.5-254)	652
	05-06	<b>3.04</b> (2.29-4.05)	<b>2.10</b> (1.40-2.90)	<b>14.5</b> (8.20-24.7)	<b>62.8</b> (39.1-104)	<b>158</b> (87.0-246)	634
	07-08	<b>3.16</b> (2.40-4.15)	<b>2.50</b> (1.50-3.30)	<b>14.7</b> (10.5-20.7)	<b>84.9</b> (52.1-152)	<b>211</b> (159-340)	520
	09-10	<b>3.44</b> (2.78-4.27)	<b>2.70</b> (2.10-3.50)	<b>15.2</b> (10.6-21.2)	<b>93.1</b> (63.5-114)	<b>216</b> (127-294)	604
Non-Hispanic blacks	99-00	<b>5.74</b> (4.55-7.24)	<b>8.71</b> (5.82-10.9)	<b>33.5</b> (22.1-52.4)	<b>108</b> (78.3-156)	<b>192</b> (149-255)	538
	01-02	<b>5.35</b> (4.00-7.14)	<b>5.30</b> (2.90-7.30)	<b>32.7</b> (22.0-52.4)	<b>128</b> (75.9-216)	<b>308</b> (150-436)	706
	03-04	<b>5.49</b> (4.05-7.46)	<b>4.20</b> (3.30-6.10)	<b>26.1</b> (13.4-49.0)	<b>117</b> (86.2-166)	<b>221</b> (177-354)	698
	05-06	<b>5.83</b> (4.49-7.58)	<b>4.90</b> (3.90-6.30)	<b>32.6</b> (21.2-46.7)	<b>110</b> (72.4-189)	<b>297</b> (162-398)	662
	07-08	<b>6.63</b> (4.50-9.75)	<b>5.80</b> (3.90-9.10)	<b>40.8</b> (23.6-63.3)	<b>183</b> (119-230)	<b>347</b> (199-822)	562
	09-10	<b>5.03</b> (3.75-6.74)	<b>4.30</b> (2.90-6.00)	<b>27.0</b> (16.7-35.9)	<b>120</b> (80.5-168)	<b>293</b> (168-464)	534
Non-Hispanic whites	99-00	<b>4.50</b> (3.26-6.22)	<b>4.99</b> (3.43-7.10)	<b>22.5</b> (17.1-34.4)	<b>103</b> (72.0-152)	<b>228</b> (177-259)	826
	01-02	<b>4.13</b> (3.43-4.96)	<b>3.40</b> (2.60-4.40)	<b>17.9</b> (15.5-23.8)	<b>98.7</b> (67.4-153)	<b>260</b> (153-526)	1222
	03-04	<b>5.27</b> (4.63-5.99)	<b>5.30</b> (4.40-6.00)	<b>24.2</b> (18.8-28.5)	<b>99.5</b> (67.6-149)	<b>246</b> (183-409)	1070
	05-06	<b>4.72</b> (4.09-5.45)	<b>3.80</b> (3.20-4.70)	<b>21.9</b> (17.5-27.6)	<b>97.7</b> (72.3-142)	<b>246</b> (181-363)	1039
	07-08	<b>4.67</b> (3.88-5.62)	<b>3.50</b> (2.80-4.60)	<b>21.3</b> (16.9-27.8)	<b>113</b> (79.9-193)	<b>357</b> (193-628)	993
	09-10	<b>4.95</b> (4.20-5.84)	<b>3.70</b> (2.90-4.50)	<b>20.4</b> (16.0-30.1)	<b>139</b> (97.5-156)	<b>471</b> (206-766)	1186

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.2, 0.4, 0.2, 0.2, 0.2, and 0.2 respectively.

†Not measured after Survey years 2009-2010

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Phytoestrogens\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Phytoestrogens_BiomonitoringSummary.html)

## Urinary O-Desmethylangolensin (creatinine corrected) (1999 – 2010) ‡

Metabolite of Daidzein

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size	
Total	99-00	<b>4.03</b> (2.97-5.45)	<b>4.44</b> (3.10-6.35)	<b>21.8</b> (15.3-31.6)	<b>90.4</b> (62.9-122)	<b>167</b> (140-218)	2271	
	01-02	<b>3.83</b> (3.32-4.43)	<b>3.24</b> (2.55-4.12)	<b>18.9</b> (16.1-23.2)	<b>85.2</b> (65.1-117)	<b>281</b> (149-412)	2794	
	03-04	<b>4.58</b> (4.20-5.01)	<b>4.09</b> (3.53-4.59)	<b>19.6</b> (17.4-22.6)	<b>92.9</b> (76.5-120)	<b>201</b> (183-261)	2581	
	05-06	<b>4.59</b> (4.04-5.21)	<b>3.70</b> (3.12-4.42)	<b>20.7</b> (18.4-22.8)	<b>95.6</b> (78.0-129)	<b>215</b> (180-325)	2528	
	07-08	<b>4.68</b> (4.04-5.41)	<b>3.51</b> (3.06-4.02)	<b>22.5</b> (16.7-30.5)	<b>125</b> (94.8-164)	<b>350</b> (199-523)	2424	
	09-10	<b>5.07</b> (4.38-5.87)	<b>3.78</b> (3.06-4.61)	<b>23.6</b> (19.3-29.7)	<b>138</b> (101-185)	<b>433</b> (285-547)	2791	
	Age group 6-11 years	99-00	<b>6.00</b> (4.04-8.91)	<b>7.15</b> (3.94-16.6)	<b>28.8</b> (14.3-45.0)	<b>83.3</b> (45.0-167)	<b>179</b> (88.2-262)	287
01-02		<b>7.03</b> (5.05-9.77)	<b>6.49</b> (4.24-11.6)	<b>29.9</b> (16.3-54.1)	<b>101</b> (75.3-199)	<b>305</b> (134-464)	396	
03-04		<b>6.73</b> (4.55-9.97)	<b>5.97</b> (4.09-8.28)	<b>27.7</b> (15.6-42.3)	<b>86.1</b> (45.2-135)	<b>149</b> (84.3-189)	341	
05-06		<b>7.93</b> (5.73-11.0)	<b>7.15</b> (3.90-11.3)	<b>40.9</b> (27.5-55.9)	<b>164</b> (85.8-280)	<b>346</b> (215-497)	351	
07-08		<b>9.20</b> (6.70-12.6)	<b>6.81</b> (5.05-10.7)	<b>31.1</b> (20.1-58.9)	<b>164</b> (100-296)	<b>465</b> (175-2310)	360	
09-10		<b>10.7</b> (8.43-13.6)	<b>9.58</b> (5.71-13.9)	<b>43.0</b> (31.3-63.3)	<b>201</b> (111-260)	<b>330</b> (226-478)	370	
12-19 years		99-00	<b>4.13</b> (2.33-7.35)	<b>5.71</b> (2.82-11.5)	<b>26.0</b> (14.7-44.4)	<b>71.4</b> (40.8-122)	<b>122</b> (75.2-262)	667
	01-02	<b>4.57</b> (3.44-6.07)	<b>3.88</b> (2.82-5.32)	<b>26.0</b> (18.0-35.9)	<b>95.0</b> (61.4-129)	<b>259</b> (129-331)	744	
	03-04	<b>4.76</b> (3.71-6.11)	<b>4.26</b> (3.13-5.97)	<b>22.8</b> (14.3-39.2)	<b>86.4</b> (49.0-149)	<b>185</b> (101-261)	729	
	05-06	<b>6.30</b> (4.89-8.13)	<b>5.69</b> (3.44-8.40)	<b>28.0</b> (22.5-37.1)	<b>89.0</b> (58.5-138)	<b>258</b> (103-686)	693	
	07-08	<b>3.64</b> (2.28-5.83)	<b>2.99</b> (1.91-5.69)	<b>18.3</b> (7.73-24.0)	<b>75.3</b> (21.4-200)	<b>199</b> (69.4-664)	375	
	09-10	<b>6.02</b> (4.74-7.65)	<b>5.71</b> (3.30-7.53)	<b>23.6</b> (16.0-36.8)	<b>109</b> (59.2-189)	<b>287</b> (132-558)	447	
	20 years and older	99-00	<b>3.82</b> (2.84-5.13)	<b>3.90</b> (2.69-5.73)	<b>20.2</b> (12.9-29.2)	<b>96.5</b> (61.8-133)	<b>172</b> (140-252)	1317
01-02		<b>3.46</b> (2.95-4.04)	<b>2.74</b> (2.03-3.64)	<b>16.8</b> (13.7-20.3)	<b>78.9</b> (58.2-124)	<b>281</b> (143-467)	1654	
03-04		<b>4.35</b> (3.96-4.78)	<b>3.75</b> (3.23-4.35)	<b>18.6</b> (15.7-22.6)	<b>95.2</b> (76.5-131)	<b>228</b> (192-284)	1511	
05-06		<b>4.10</b> (3.51-4.79)	<b>3.35</b> (2.57-4.30)	<b>17.4</b> (14.0-20.6)	<b>89.3</b> (64.5-140)	<b>197</b> (160-332)	1484	
07-08		<b>4.52</b> (3.82-5.36)	<b>3.13</b> (2.55-3.92)	<b>22.7</b> (16.1-32.4)	<b>130</b> (89.1-183)	<b>353</b> (189-641)	1689	
09-10		<b>4.56</b> (3.83-5.42)	<b>3.29</b> (2.42-4.07)	<b>21.2</b> (16.2-26.8)	<b>139</b> (95.3-212)	<b>437</b> (246-634)	1974	
Gender		Males	99-00	<b>3.95</b> (2.79-5.58)	<b>4.50</b> (2.88-6.50)	<b>24.5</b> (13.8-40.5)	<b>96.5</b> (62.4-122)	<b>210</b> (125-265)
	01-02		<b>3.10</b> (2.48-3.86)	<b>2.87</b> (2.00-3.96)	<b>15.0</b> (10.4-19.7)	<b>60.7</b> (41.5-90.2)	<b>154</b> (96.4-301)	1375
	03-04		<b>3.83</b> (3.10-4.73)	<b>3.33</b> (2.41-4.35)	<b>15.6</b> (13.9-18.9)	<b>76.2</b> (51.1-99.5)	<b>193</b> (124-255)	1240
	05-06		<b>3.97</b> (3.33-4.72)	<b>3.49</b> (2.73-4.33)	<b>17.7</b> (14.1-21.4)	<b>68.3</b> (55.8-85.8)	<b>165</b> (140-216)	1252
	07-08		<b>3.79</b> (3.10-4.63)	<b>2.79</b> (2.33-3.49)	<b>18.2</b> (12.4-25.7)	<b>86.7</b> (59.2-153)	<b>264</b> (139-432)	1198
	09-10		<b>4.02</b> (3.10-5.19)	<b>3.19</b> (2.13-4.58)	<b>17.3</b> (12.3-21.7)	<b>86.2</b> (59.8-137)	<b>317</b> (140-485)	1376
	Females		99-00	<b>4.10</b> (3.00-5.61)	<b>4.17</b> (2.91-6.35)	<b>20.4</b> (14.4-27.2)	<b>86.0</b> (49.1-145)	<b>155</b> (100-205)
		01-02	<b>4.68</b> (3.87-5.68)	<b>3.74</b> (2.77-4.88)	<b>26.8</b> (18.7-34.0)	<b>111</b> (70.3-205)	<b>399</b> (175-739)	1419
		03-04	<b>5.45</b> (4.71-6.30)	<b>4.82</b> (4.09-5.92)	<b>24.3</b> (19.6-28.9)	<b>106</b> (78.5-163)	<b>255</b> (193-343)	1341
		05-06	<b>5.27</b> (4.56-6.09)	<b>4.00</b> (3.07-5.49)	<b>24.1</b> (19.8-31.1)	<b>140</b> (96.8-166)	<b>325</b> (197-613)	1276
		07-08	<b>5.72</b> (4.75-6.88)	<b>4.23</b> (3.33-5.71)	<b>29.0</b> (20.4-43.2)	<b>164</b> (105-213)	<b>394</b> (212-743)	1226
		09-10	<b>6.35</b> (5.34-7.57)	<b>4.42</b> (3.46-5.79)	<b>34.1</b> (25.4-43.5)	<b>199</b> (139-248)	<b>504</b> (350-761)	1415

‡Not measured after Survey years 2009-2010

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Phytoestrogens\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Phytoestrogens_BiomonitoringSummary.html)

## Urinary O-Desmethylangolensin (creatinine corrected) (1999 – 2010) †

Metabolite of Daidzein

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	99-00	<b>2.19</b> (1.49-3.24)	<b>1.88</b> (1.15-3.10)	<b>16.6</b> (11.3-25.8)	<b>71.2</b> (52.3-113)	<b>136</b> (90.5-251)	721
	01-02	<b>2.30</b> (1.48-3.57)	<b>1.45</b> (.769-3.37)	<b>11.8</b> (4.91-23.6)	<b>46.7</b> (31.4-87.8)	<b>108</b> (54.7-218)	679
	03-04	<b>2.30</b> (1.68-3.15)	<b>1.65</b> (.845-3.06)	<b>13.2</b> (6.63-21.2)	<b>51.6</b> (36.9-75.4)	<b>125</b> (84.1-165)	652
	05-06	<b>2.75</b> (1.92-3.93)	<b>1.69</b> (1.04-2.99)	<b>12.8</b> (7.27-24.9)	<b>53.0</b> (33.3-93.2)	<b>135</b> (72.6-204)	634
	07-08	<b>3.10</b> (2.26-4.27)	<b>2.22</b> (1.42-3.32)	<b>16.0</b> (8.84-23.8)	<b>82.0</b> (45.8-145)	<b>215</b> (98.9-467)	520
	09-10	<b>3.62</b> (2.92-4.50)	<b>2.71</b> (1.82-4.92)	<b>13.5</b> (10.8-19.6)	<b>76.5</b> (54.2-128)	<b>226</b> (113-461)	604
Non-Hispanic blacks	99-00	<b>3.65</b> (2.90-4.60)	<b>5.22</b> (3.59-6.75)	<b>23.8</b> (17.6-32.1)	<b>67.1</b> (52.1-79.7)	<b>116</b> (81.9-239)	538
	01-02	<b>3.75</b> (2.76-5.10)	<b>3.57</b> (2.14-5.48)	<b>22.8</b> (14.5-30.4)	<b>78.5</b> (46.5-175)	<b>218</b> (98.5-339)	706
	03-04	<b>3.89</b> (3.03-4.99)	<b>3.12</b> (1.96-4.96)	<b>16.9</b> (11.3-26.7)	<b>80.0</b> (58.6-104)	<b>159</b> (120-255)	698
	05-06	<b>4.09</b> (3.13-5.34)	<b>4.22</b> (2.49-5.71)	<b>20.1</b> (13.5-24.5)	<b>69.9</b> (44.8-151)	<b>225</b> (90.2-369)	662
	07-08	<b>5.13</b> (3.47-7.57)	<b>4.22</b> (2.84-7.71)	<b>27.0</b> (15.6-44.5)	<b>133</b> (81.9-182)	<b>308</b> (164-485)	562
	09-10	<b>4.06</b> (3.11-5.28)	<b>3.61</b> (2.41-5.07)	<b>22.4</b> (12.9-30.2)	<b>95.1</b> (59.2-142)	<b>208</b> (133-418)	533
Non-Hispanic whites	99-00	<b>4.42</b> (3.12-6.27)	<b>4.68</b> (3.05-7.23)	<b>22.3</b> (15.3-37.9)	<b>102</b> (57.6-148)	<b>177</b> (140-215)	826
	01-02	<b>4.08</b> (3.41-4.89)	<b>3.51</b> (2.45-4.57)	<b>21.2</b> (16.3-27.4)	<b>96.4</b> (69.8-126)	<b>300</b> (153-464)	1222
	03-04	<b>5.18</b> (4.70-5.70)	<b>4.58</b> (3.89-5.39)	<b>21.6</b> (17.4-27.7)	<b>103</b> (77.7-149)	<b>225</b> (185-271)	1070
	05-06	<b>4.96</b> (4.33-5.69)	<b>3.97</b> (3.26-4.67)	<b>21.5</b> (17.3-26.2)	<b>101</b> (74.5-142)	<b>227</b> (183-332)	1039
	07-08	<b>4.86</b> (4.00-5.91)	<b>3.85</b> (3.06-4.57)	<b>22.2</b> (15.1-32.4)	<b>124</b> (84.2-180)	<b>355</b> (175-728)	993
	09-10	<b>5.55</b> (4.77-6.47)	<b>3.88</b> (3.19-4.87)	<b>23.8</b> (19.2-32.5)	<b>146</b> (97.6-248)	<b>461</b> (330-739)	1186

†Not measured after Survey years 2009-2010

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Phytoestrogens\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Phytoestrogens_BiomonitoringSummary.html)

## Urinary 2-Hydroxyfluorene (2003 – 2010)

*Metabolite of Fluorene*

Geometric mean and selected percentiles of urine concentrations (in ng/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	<b>304</b> (262-354)	<b>280</b> (242-319)	<b>679</b> (561-815)	<b>1850</b> (1430-2190)	<b>2670</b> (2230-3130)	2521
	05-06	<b>316</b> (297-338)	<b>272</b> (243-296)	<b>661</b> (605-743)	<b>2060</b> (1600-2420)	<b>3150</b> (2670-3730)	2431
	07-08	<b>303</b> (271-338)	<b>259</b> (231-293)	<b>618</b> (489-817)	<b>1630</b> (1340-2020)	<b>2510</b> (2100-2890)	2581
	09-10	<b>240</b> (222-259)	<b>211</b> (195-227)	<b>480</b> (449-530)	<b>1190</b> (1040-1410)	<b>2200</b> (1880-2490)	2747
Age group 6-11 years	03-04	<b>209</b> (183-239)	<b>228</b> (189-259)	<b>341</b> (295-411)	<b>576</b> (423-728)	<b>763</b> (613-827)	338
	05-06	<b>201</b> (184-221)	<b>195</b> (170-223)	<b>352</b> (306-402)	<b>497</b> (436-618)	<b>709</b> (536-833)	343
	07-08	<b>233</b> (205-264)	<b>239</b> (194-280)	<b>400</b> (326-454)	<b>620</b> (484-714)	<b>851</b> (695-1000)	382
	09-10	<b>172</b> (153-192)	<b>170</b> (160-181)	<b>278</b> (251-320)	<b>458</b> (356-622)	<b>743</b> (486-966)	416
12-19 years	03-04	<b>281</b> (245-321)	<b>292</b> (259-323)	<b>502</b> (445-601)	<b>1000</b> (753-1320)	<b>1480</b> (1320-1930)	707
	05-06	<b>283</b> (258-311)	<b>272</b> (247-300)	<b>482</b> (425-540)	<b>1080</b> (843-1250)	<b>1750</b> (1100-2820)	670
	07-08	<b>287</b> (243-339)	<b>255</b> (217-293)	<b>541</b> (434-631)	<b>963</b> (774-1350)	<b>1510</b> (1050-2120)	395
	09-10	<b>231</b> (196-273)	<b>203</b> (179-235)	<b>418</b> (339-535)	<b>784</b> (645-1230)	<b>1880</b> (765-2410)	420
20 years and older	03-04	<b>323</b> (272-383)	<b>290</b> (247-334)	<b>832</b> (653-1020)	<b>2090</b> (1680-2460)	<b>2920</b> (2410-3650)	1476
	05-06	<b>340</b> (311-371)	<b>284</b> (252-317)	<b>813</b> (705-917)	<b>2410</b> (1880-2820)	<b>3460</b> (2820-4160)	1418
	07-08	<b>314</b> (276-357)	<b>267</b> (231-306)	<b>699</b> (518-1020)	<b>1790</b> (1470-2220)	<b>2700</b> (2190-3270)	1804
	09-10	<b>250</b> (230-272)	<b>220</b> (201-238)	<b>537</b> (476-599)	<b>1370</b> (1130-1650)	<b>2330</b> (1990-2700)	1911
Gender Males	03-04	<b>385</b> (333-446)	<b>338</b> (300-415)	<b>900</b> (739-1150)	<b>2120</b> (1770-2450)	<b>2930</b> (2490-3390)	1213
	05-06	<b>376</b> (345-410)	<b>332</b> (302-364)	<b>823</b> (658-1030)	<b>2160</b> (1660-2570)	<b>3120</b> (2570-3560)	1213
Females	07-08	<b>366</b> (334-402)	<b>306</b> (280-348)	<b>756</b> (613-983)	<b>1740</b> (1430-2130)	<b>2650</b> (2130-3270)	1280
	09-10	<b>275</b> (250-304)	<b>234</b> (215-259)	<b>536</b> (464-635)	<b>1390</b> (1130-1710)	<b>2350</b> (1990-2550)	1399
	03-04	<b>243</b> (204-290)	<b>226</b> (184-269)	<b>490</b> (405-617)	<b>1400</b> (907-1930)	<b>2310</b> (1740-3070)	1308
	05-06	<b>268</b> (234-307)	<b>227</b> (199-270)	<b>528</b> (445-638)	<b>1910</b> (1020-2830)	<b>3180</b> (2180-4590)	1218
	07-08	<b>252</b> (219-289)	<b>216</b> (192-236)	<b>505</b> (387-629)	<b>1470</b> (1050-1960)	<b>2330</b> (1770-2840)	1301
	09-10	<b>210</b> (189-232)	<b>189</b> (170-213)	<b>442</b> (389-506)	<b>1050</b> (849-1270)	<b>2090</b> (1370-2520)	1348

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08 and 09-10 are 5.0, 5.0, 5.0, and 10.0 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Fluorene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Fluorene_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PAHs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html)

## Urinary 2-Hydroxyfluorene (2003 – 2010)

*Metabolite of Fluorene*

Geometric mean and selected percentiles of urine concentrations (in ng/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b> Mexican Americans	03-04	<b>248</b> (215-286)	<b>235</b> (203-293)	<b>502</b> (412-580)	<b>1100</b> (771-1330)	<b>1640</b> (1250-2240)	629
	05-06	<b>233</b> (200-271)	<b>216</b> (180-247)	<b>413</b> (334-488)	<b>901</b> (704-1080)	<b>1360</b> (1060-1950)	615
	07-08	<b>248</b> (226-273)	<b>240</b> (215-261)	<b>418</b> (355-496)	<b>801</b> (643-979)	<b>1300</b> (933-1680)	523
	09-10	<b>214</b> (181-254)	<b>197</b> (156-245)	<b>385</b> (286-483)	<b>860</b> (635-1130)	<b>1800</b> (1070-2350)	566
Non-Hispanic blacks	03-04	<b>432</b> (360-519)	<b>380</b> (314-462)	<b>856</b> (695-1330)	<b>2200</b> (1830-2650)	<b>2970</b> (2310-4680)	666
	05-06	<b>404</b> (346-471)	<b>330</b> (307-377)	<b>805</b> (626-1090)	<b>2190</b> (1610-2930)	<b>3160</b> (2530-4330)	657
	07-08	<b>387</b> (333-450)	<b>325</b> (281-403)	<b>879</b> (724-1040)	<b>1940</b> (1500-2550)	<b>3170</b> (2290-5120)	590
	09-10	<b>371</b> (317-433)	<b>354</b> (314-401)	<b>808</b> (620-1080)	<b>1710</b> (1330-2280)	<b>2580</b> (2090-3390)	517
Non-Hispanic whites	03-04	<b>306</b> (254-369)	<b>274</b> (230-332)	<b>708</b> (555-878)	<b>1950</b> (1540-2390)	<b>2920</b> (2400-3500)	1035
	05-06	<b>319</b> (290-350)	<b>270</b> (237-315)	<b>705</b> (626-829)	<b>2180</b> (1700-2540)	<b>3390</b> (2670-4250)	972
	07-08	<b>307</b> (261-362)	<b>257</b> (221-308)	<b>629</b> (452-995)	<b>1720</b> (1260-2190)	<b>2580</b> (2070-3020)	1070
	09-10	<b>228</b> (206-252)	<b>199</b> (182-220)	<b>457</b> (409-506)	<b>1150</b> (921-1440)	<b>2120</b> (1650-2550)	1203

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08 and 09-10 are 5.0, 5.0, 5.0, and 10.0 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Fluorene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Fluorene_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PAHs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html)



## Urinary 2-Hydroxyfluorene (2011 - 2012)

*Metabolite of Fluorene*

Geometric mean and selected percentiles of urine concentrations (in ng/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Total</b>	11-12	<b>240</b> (219-263)	<b>215</b> (199-231)	<b>498</b> (444-576)	<b>1380</b> (1110-1570)	<b>2340</b> (1920-2620)	2492
<b>Age group</b>							
6-11 years	11-12	<b>161</b> (146-177)	<b>176</b> (166-194)	<b>301</b> (259-332)	<b>485</b> (390-595)	<b>615</b> (522-736)	397
12-19 years	11-12	<b>233</b> (198-274)	<b>224</b> (180-275)	<b>476</b> (386-567)	<b>888</b> (679-1100)	<b>1370</b> (1030-1950)	389
20 years and older	11-12	<b>252</b> (227-279)	<b>217</b> (201-242)	<b>574</b> (474-637)	<b>1530</b> (1320-1830)	<b>2420</b> (2180-2920)	1706
<b>Gender</b>							
Males	11-12	<b>280</b> (245-320)	<b>244</b> (210-286)	<b>584</b> (457-689)	<b>1460</b> (1180-1830)	<b>2390</b> (2050-3100)	1258
Females	11-12	<b>207</b> (182-236)	<b>180</b> (157-209)	<b>425</b> (360-525)	<b>1210</b> (810-1580)	<b>2260</b> (1620-2420)	1234
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>238</b> (184-307)	<b>220</b> (180-252)	<b>475</b> (306-747)	<b>1030</b> (584-1780)	<b>1510</b> (829-2920)	317
Non-Hispanic blacks	11-12	<b>342</b> (306-381)	<b>321</b> (304-349)	<b>641</b> (549-734)	<b>1480</b> (1150-1890)	<b>2390</b> (1970-3040)	664
Non-Hispanic whites	11-12	<b>227</b> (210-246)	<b>199</b> (173-221)	<b>480</b> (386-580)	<b>1410</b> (1110-1620)	<b>2350</b> (1790-2920)	814
All Hispanics	11-12	<b>251</b> (210-301)	<b>228</b> (204-260)	<b>514</b> (421-646)	<b>1050</b> (785-1510)	<b>1810</b> (1260-2410)	573
Asians	11-12	<b>154</b> (126-190)	<b>137</b> (111-175)	<b>326</b> (217-408)	<b>563</b> (467-903)	<b>1100</b> (691-1490)	352

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 10.0.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Fluorene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Fluorene_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PAHs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html)



## Urinary 2-Hydroxyfluorene (creatinine corrected) (2003 – 2010)

*Metabolite of Fluorene*

Geometric mean and selected percentiles of urine concentrations (in ng/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	<b>286</b> (256-320)	<b>221</b> (200-249)	<b>495</b> (429-629)	<b>1510</b> (1150-1800)	<b>2070</b> (1850-2390)	2521
	05-06	<b>308</b> (288-330)	<b>227</b> (209-245)	<b>567</b> (509-658)	<b>1730</b> (1540-1850)	<b>2450</b> (2020-2930)	2431
	07-08	<b>304</b> (272-339)	<b>234</b> (211-260)	<b>526</b> (403-711)	<b>1500</b> (1140-1780)	<b>2150</b> (1850-2500)	2581
	09-10	<b>250</b> (237-264)	<b>193</b> (179-208)	<b>392</b> (353-434)	<b>1170</b> (1050-1290)	<b>1840</b> (1620-1990)	2747
<b>Age group</b>							
6-11 years	03-04	<b>221</b> (199-246)	<b>217</b> (188-238)	<b>305</b> (270-356)	<b>462</b> (370-535)	<b>695</b> (465-807)	338
	05-06	<b>224</b> (207-243)	<b>219</b> (197-254)	<b>320</b> (288-365)	<b>451</b> (384-523)	<b>527</b> (450-720)	343
	07-08	<b>287</b> (255-324)	<b>262</b> (240-292)	<b>407</b> (355-503)	<b>721</b> (555-849)	<b>864</b> (757-956)	382
	09-10	<b>224</b> (207-242)	<b>208</b> (186-232)	<b>324</b> (296-336)	<b>448</b> (361-677)	<b>710</b> (448-1290)	416
12-19 years	03-04	<b>213</b> (189-240)	<b>189</b> (172-211)	<b>310</b> (275-377)	<b>649</b> (512-778)	<b>937</b> (762-1320)	707
	05-06	<b>214</b> (201-227)	<b>189</b> (178-197)	<b>286</b> (266-320)	<b>607</b> (516-769)	<b>1190</b> (803-1430)	670
	07-08	<b>223</b> (200-249)	<b>204</b> (176-236)	<b>351</b> (270-419)	<b>592</b> (504-683)	<b>900</b> (683-1080)	395
	09-10	<b>186</b> (168-206)	<b>154</b> (139-171)	<b>251</b> (214-320)	<b>569</b> (366-831)	<b>858</b> (605-1190)	420
20 years and older	03-04	<b>310</b> (274-350)	<b>233</b> (203-269)	<b>659</b> (494-835)	<b>1730</b> (1420-1940)	<b>2310</b> (1930-2590)	1476
	05-06	<b>339</b> (313-367)	<b>241</b> (216-262)	<b>754</b> (629-891)	<b>1870</b> (1750-2110)	<b>2830</b> (2250-3200)	1418
	07-08	<b>321</b> (282-365)	<b>234</b> (210-269)	<b>633</b> (438-873)	<b>1650</b> (1360-2060)	<b>2390</b> (2090-2690)	1804
	09-10	<b>265</b> (249-282)	<b>199</b> (185-215)	<b>463</b> (400-511)	<b>1360</b> (1190-1490)	<b>1970</b> (1750-2230)	1911
<b>Gender</b>							
Males	03-04	<b>302</b> (271-337)	<b>242</b> (218-272)	<b>635</b> (494-758)	<b>1510</b> (1200-1700)	<b>1940</b> (1700-2310)	1213
	05-06	<b>302</b> (278-328)	<b>233</b> (212-259)	<b>610</b> (510-744)	<b>1480</b> (1240-1680)	<b>1920</b> (1680-2390)	1213
	07-08	<b>308</b> (283-336)	<b>239</b> (218-261)	<b>615</b> (464-764)	<b>1480</b> (1200-1640)	<b>2120</b> (1780-2390)	1280
	09-10	<b>247</b> (229-266)	<b>188</b> (171-214)	<b>417</b> (350-491)	<b>1190</b> (955-1420)	<b>1770</b> (1400-2220)	1399
Females	03-04	<b>271</b> (235-314)	<b>208</b> (183-244)	<b>415</b> (352-521)	<b>1530</b> (991-1890)	<b>2220</b> (1730-2590)	1308
	05-06	<b>314</b> (284-347)	<b>217</b> (198-247)	<b>526</b> (437-622)	<b>1900</b> (1680-2240)	<b>2930</b> (2310-3280)	1218
	07-08	<b>300</b> (257-350)	<b>225</b> (201-265)	<b>461</b> (347-683)	<b>1510</b> (929-2100)	<b>2250</b> (1630-2770)	1301
	09-10	<b>253</b> (232-276)	<b>197</b> (178-217)	<b>369</b> (320-433)	<b>1130</b> (870-1380)	<b>1900</b> (1490-2430)	1348

### Biomonitoring Summary

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### Factsheet

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## Urinary 2-Hydroxyfluorene (creatinine corrected) (2003 – 2010)

*Metabolite of Fluorene*

Geometric mean and selected percentiles of urine concentrations (in ng/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Race/ethnicity</b>							
Mexican Americans	03-04	<b>224</b> (197-255)	<b>198</b> (178-227)	<b>370</b> (306-432)	<b>745</b> (562-1030)	<b>1200</b> (745-1730)	629
	05-06	<b>210</b> (190-232)	<b>179</b> (155-205)	<b>294</b> (250-368)	<b>624</b> (439-834)	<b>1000</b> (720-1190)	615
	07-08	<b>244</b> (216-275)	<b>214</b> (187-238)	<b>364</b> (301-438)	<b>718</b> (582-824)	<b>958</b> (775-1480)	523
	09-10	<b>213</b> (181-250)	<b>171</b> (150-207)	<b>316</b> (244-462)	<b>667</b> (534-852)	<b>1180</b> (846-1470)	566
Non-Hispanic blacks	03-04	<b>306</b> (259-360)	<b>245</b> (207-295)	<b>609</b> (430-756)	<b>1390</b> (939-1870)	<b>1880</b> (1510-2430)	666
	05-06	<b>284</b> (250-322)	<b>222</b> (202-245)	<b>502</b> (350-714)	<b>1230</b> (941-1760)	<b>1880</b> (1510-2440)	657
	07-08	<b>299</b> (254-351)	<b>237</b> (198-287)	<b>602</b> (468-768)	<b>1370</b> (1050-1910)	<b>2220</b> (1570-2990)	590
	09-10	<b>269</b> (241-300)	<b>214</b> (193-244)	<b>501</b> (383-653)	<b>1220</b> (1010-1410)	<b>1620</b> (1280-1950)	517
Non-Hispanic whites	03-04	<b>303</b> (265-346)	<b>225</b> (198-259)	<b>561</b> (450-765)	<b>1620</b> (1420-1940)	<b>2310</b> (1940-2540)	1035
	05-06	<b>335</b> (307-366)	<b>242</b> (216-270)	<b>687</b> (561-806)	<b>1840</b> (1650-2060)	<b>2800</b> (2070-3260)	972
	07-08	<b>319</b> (274-372)	<b>238</b> (205-290)	<b>579</b> (393-841)	<b>1620</b> (1180-2090)	<b>2340</b> (1940-2640)	1070
	09-10	<b>256</b> (242-271)	<b>196</b> (178-214)	<b>381</b> (338-451)	<b>1260</b> (1090-1490)	<b>1940</b> (1690-2220)	1203

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### Factsheet

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## Urinary 2-Hydroxyfluorene (creatinine corrected) (2011 - 2012)

*Metabolite of Fluorene*

Geometric mean and selected percentiles of urine concentrations (in ng/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Total</b>	11-12	<b>273</b> (255-292)	<b>211</b> (196-228)	<b>439</b> (374-495)	<b>1340</b> (1120-1570)	<b>2110</b> (1930-2250)	2490
<b>Age group</b>							
6-11 years	11-12	<b>231</b> (213-251)	<b>222</b> (201-243)	<b>309</b> (268-371)	<b>474</b> (379-567)	<b>584</b> (515-702)	396
12-19 years	11-12	<b>225</b> (205-248)	<b>205</b> (180-242)	<b>307</b> (266-368)	<b>733</b> (454-877)	<b>966</b> (733-1150)	389
20 years and older	11-12	<b>286</b> (266-309)	<b>211</b> (195-229)	<b>484</b> (420-615)	<b>1630</b> (1320-1820)	<b>2230</b> (2000-2630)	1705
<b>Gender</b>							
Males	11-12	<b>262</b> (233-296)	<b>201</b> (183-228)	<b>439</b> (342-576)	<b>1320</b> (1060-1630)	<b>2040</b> (1710-2200)	1257
Females	11-12	<b>284</b> (255-316)	<b>218</b> (199-242)	<b>439</b> (338-527)	<b>1370</b> (920-1820)	<b>2220</b> (1820-2570)	1233
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>267</b> (222-322)	<b>221</b> (183-264)	<b>440</b> (283-647)	<b>1020</b> (515-1500)	<b>1350</b> (937-2460)	317
Non-Hispanic blacks	11-12	<b>266</b> (241-294)	<b>228</b> (203-244)	<b>461</b> (339-619)	<b>971</b> (841-1090)	<b>1460</b> (1090-1930)	664
Non-Hispanic whites	11-12	<b>276</b> (260-293)	<b>208</b> (189-228)	<b>445</b> (374-501)	<b>1600</b> (1310-1820)	<b>2220</b> (1950-2630)	812
All Hispanics	11-12	<b>281</b> (248-319)	<b>225</b> (199-255)	<b>445</b> (337-553)	<b>1110</b> (642-1460)	<b>1550</b> (1170-2180)	573
Asians	11-12	<b>207</b> (174-246)	<b>185</b> (156-233)	<b>299</b> (262-351)	<b>532</b> (401-828)	<b>996</b> (643-1420)	352

### Biomonitoring Summary

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### Factsheet

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## Urinary 3-Hydroxyfluorene (2001 – 2010)

Metabolite of Fluorene

Geometric mean and selected percentiles of urine concentrations (in ng/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	<b>134</b> (115-155)	<b>111</b> (96.0-126)	<b>253</b> (207-349)	<b>959</b> (666-1300)	<b>1620</b> (1390-1900)	2745
	03-04	<b>126</b> (108-148)	<b>103</b> (90.4-118)	<b>302</b> (231-404)	<b>1090</b> (934-1270)	<b>1740</b> (1400-2070)	2502
	05-06	<b>124</b> (115-134)	<b>99.1</b> (88.5-110)	<b>304</b> (268-365)	<b>1060</b> (830-1210)	<b>1780</b> (1500-1910)	2398
	07-08	<b>116</b> (103-132)	<b>92.9</b> (85.7-100)	<b>258</b> (203-341)	<b>821</b> (681-1050)	<b>1380</b> (1170-1630)	2581
	09-10	<b>95.0</b> (87.9-103)	<b>78.0</b> (71.0-84.0)	<b>192</b> (174-208)	<b>623</b> (501-741)	<b>1050</b> (941-1270)	2744
Age group 6-11 years	01-02	<b>106</b> (94.8-119)	<b>106</b> (91.0-124)	<b>174</b> (145-200)	<b>287</b> (235-358)	<b>385</b> (306-455)	387
	03-04	<b>89.2</b> (77.3-103)	<b>92.3</b> (79.7-103)	<b>151</b> (113-172)	<b>238</b> (184-331)	<b>343</b> (241-423)	336
	05-06	<b>81.7</b> (73.6-90.7)	<b>80.6</b> (68.3-98.9)	<b>140</b> (122-174)	<b>235</b> (189-272)	<b>287</b> (242-345)	336
	07-08	<b>98.0</b> (85.8-112)	<b>94.2</b> (84.3-106)	<b>178</b> (149-198)	<b>302</b> (239-332)	<b>458</b> (247-752)	382
	09-10	<b>73.8</b> (66.7-81.7)	<b>74.0</b> (65.0-82.0)	<b>113</b> (103-129)	<b>194</b> (164-249)	<b>308</b> (202-453)	416
12-19 years	01-02	<b>129</b> (103-161)	<b>113</b> (97.0-137)	<b>222</b> (177-266)	<b>542</b> (325-1070)	<b>1210</b> (680-2130)	733
	03-04	<b>116</b> (100-134)	<b>114</b> (94.7-133)	<b>214</b> (181-269)	<b>476</b> (317-748)	<b>924</b> (609-1410)	701
	05-06	<b>119</b> (107-133)	<b>112</b> (94.4-126)	<b>212</b> (181-229)	<b>588</b> (436-659)	<b>986</b> (609-1800)	661
	07-08	<b>114</b> (95.5-136)	<b>93.7</b> (77.4-114)	<b>218</b> (168-258)	<b>494</b> (341-740)	<b>830</b> (725-1020)	400
	09-10	<b>96.0</b> (79.7-116)	<b>85.0</b> (65.0-104)	<b>178</b> (139-215)	<b>394</b> (257-643)	<b>798</b> (550-1030)	420
20 years and older	01-02	<b>138</b> (119-161)	<b>111</b> (94.0-129)	<b>311</b> (228-429)	<b>1130</b> (823-1400)	<b>1850</b> (1470-2080)	1625
	03-04	<b>134</b> (112-160)	<b>105</b> (86.5-125)	<b>408</b> (300-537)	<b>1240</b> (1050-1480)	<b>1910</b> (1620-2290)	1465
	05-06	<b>131</b> (118-145)	<b>101</b> (86.2-117)	<b>394</b> (308-448)	<b>1220</b> (968-1510)	<b>1900</b> (1620-2050)	1401
	07-08	<b>119</b> (103-138)	<b>91.4</b> (83.5-100)	<b>302</b> (205-449)	<b>992</b> (745-1200)	<b>1550</b> (1230-1820)	1799
	09-10	<b>97.5</b> (90.1-106)	<b>79.0</b> (71.0-84.0)	<b>217</b> (185-253)	<b>711</b> (542-820)	<b>1230</b> (978-1490)	1908
Gender Males	01-02	<b>163</b> (137-194)	<b>134</b> (115-155)	<b>352</b> (242-481)	<b>1110</b> (721-1500)	<b>1850</b> (1390-2190)	1346
	03-04	<b>165</b> (140-194)	<b>133</b> (108-162)	<b>458</b> (313-681)	<b>1270</b> (1030-1530)	<b>1920</b> (1580-2120)	1205
	05-06	<b>155</b> (138-174)	<b>127</b> (118-136)	<b>420</b> (304-510)	<b>1130</b> (887-1330)	<b>1810</b> (1440-2050)	1196
	07-08	<b>146</b> (131-162)	<b>115</b> (103-132)	<b>330</b> (262-450)	<b>944</b> (748-1190)	<b>1530</b> (1160-1940)	1284
	09-10	<b>111</b> (99.3-124)	<b>87.0</b> (75.0-102)	<b>214</b> (183-272)	<b>718</b> (549-806)	<b>1190</b> (982-1390)	1397
Females	01-02	<b>111</b> (95.0-130)	<b>94.0</b> (83.0-108)	<b>204</b> (169-250)	<b>796</b> (498-1040)	<b>1390</b> (1250-1670)	1399
	03-04	<b>98.2</b> (81.2-119)	<b>80.5</b> (66.7-101)	<b>195</b> (163-272)	<b>842</b> (530-1200)	<b>1590</b> (1180-1800)	1297
	05-06	<b>99.9</b> (87.0-115)	<b>78.2</b> (68.3-88.3)	<b>225</b> (176-278)	<b>961</b> (558-1390)	<b>1720</b> (1300-2020)	1202
	07-08	<b>93.9</b> (81.2-109)	<b>77.2</b> (70.4-83.8)	<b>192</b> (134-276)	<b>688</b> (457-1090)	<b>1280</b> (1030-1590)	1297
	09-10	<b>82.0</b> (74.7-90.0)	<b>69.0</b> (62.0-77.0)	<b>174</b> (155-194)	<b>514</b> (388-677)	<b>958</b> (757-1370)	1347

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, 07-08, and 09-10 are 2.0, 5.0, 5.0, 5.0, and 10.0 respectively.

### Biomonitoring Summary

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### Factsheet

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## Urinary 3-Hydroxyfluorene (2001 – 2010)

*Metabolite of Fluorene*

Geometric mean and selected percentiles of urine concentrations (in ng/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Race/ethnicity</b>							
Mexican Americans	01-02	<b>108</b> (87.1-134)	<b>99.0</b> (81.0-119)	<b>190</b> (144-255)	<b>476</b> (302-641)	<b>718</b> (476-1140)	662
	03-04	<b>93.4</b> (79.6-110)	<b>83.4</b> (67.0-96.9)	<b>190</b> (150-252)	<b>520</b> (388-726)	<b>1030</b> (688-1320)	622
	05-06	<b>82.5</b> (71.0-95.8)	<b>71.8</b> (60.2-83.9)	<b>143</b> (116-173)	<b>435</b> (265-716)	<b>763</b> (565-1020)	596
	07-08	<b>90.4</b> (79.6-103)	<b>81.2</b> (74.5-92.4)	<b>160</b> (136-192)	<b>363</b> (259-513)	<b>674</b> (454-1180)	529
	09-10	<b>77.8</b> (67.1-90.1)	<b>65.0</b> (51.0-80.0)	<b>149</b> (108-207)	<b>390</b> (296-470)	<b>750</b> (464-1020)	564
Non-Hispanic blacks	01-02	<b>203</b> (169-244)	<b>162</b> (135-188)	<b>449</b> (308-830)	<b>1420</b> (1130-1780)	<b>2350</b> (1520-3000)	692
	03-04	<b>194</b> (156-242)	<b>156</b> (124-184)	<b>466</b> (297-869)	<b>1480</b> (1170-1810)	<b>2180</b> (1620-2830)	665
	05-06	<b>170</b> (143-202)	<b>134</b> (121-149)	<b>345</b> (246-558)	<b>1300</b> (929-1760)	<b>1880</b> (1550-2370)	652
	07-08	<b>164</b> (142-190)	<b>133</b> (112-157)	<b>393</b> (303-494)	<b>1290</b> (963-1420)	<b>1770</b> (1330-2660)	587
	09-10	<b>163</b> (134-198)	<b>144</b> (120-167)	<b>389</b> (255-670)	<b>1100</b> (804-1360)	<b>1670</b> (1230-2010)	517
Non-Hispanic whites	01-02	<b>130</b> (108-157)	<b>108</b> (93.0-127)	<b>246</b> (202-352)	<b>948</b> (621-1320)	<b>1620</b> (1320-1990)	1207
	03-04	<b>128</b> (106-155)	<b>104</b> (86.2-124)	<b>311</b> (233-452)	<b>1210</b> (1010-1410)	<b>1870</b> (1430-2290)	1025
	05-06	<b>123</b> (111-137)	<b>96.8</b> (85.4-112)	<b>343</b> (275-420)	<b>1060</b> (760-1260)	<b>1870</b> (1390-2050)	966
	07-08	<b>118</b> (98.0-141)	<b>91.6</b> (81.6-103)	<b>274</b> (195-403)	<b>857</b> (646-1190)	<b>1370</b> (1050-1740)	1066
	09-10	<b>89.5</b> (80.7-99.4)	<b>73.0</b> (64.0-84.0)	<b>174</b> (156-194)	<b>545</b> (403-732)	<b>973</b> (806-1280)	1202

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, 07-08, and 09-10 are 2.0, 5.0, 5.0, 5.0, and 10.0 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Fluorene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Fluorene_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PAHs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html)

## Urinary 3-Hydroxyfluorene (2011 - 2012)

*Metabolite of Fluorene*

Geometric mean and selected percentiles of urine concentrations (in ng/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Total</b>	11-12	<b>93.6</b> (85.2-103)	<b>77.0</b> (70.0-85.0)	<b>195</b> (166-226)	<b>688</b> (505-851)	<b>1240</b> (946-1690)	2488
<b>Age group</b>							
6-11 years	11-12	<b>69.9</b> (63.1-77.3)	<b>77.0</b> (66.0-91.0)	<b>132</b> (118-145)	<b>203</b> (178-229)	<b>244</b> (224-270)	397
12-19 years	11-12	<b>91.7</b> (77.7-108)	<b>86.0</b> (73.0-109)	<b>182</b> (153-208)	<b>398</b> (269-681)	<b>801</b> (473-1050)	389
20 years and older	11-12	<b>97.0</b> (87.0-108)	<b>76.0</b> (67.0-85.0)	<b>221</b> (172-271)	<b>809</b> (614-968)	<b>1410</b> (1090-1810)	1702
<b>Gender</b>							
Males	11-12	<b>112</b> (95.1-132)	<b>92.0</b> (78.0-108)	<b>225</b> (167-302)	<b>857</b> (517-1030)	<b>1630</b> (969-1990)	1257
Females	11-12	<b>78.8</b> (68.1-91.1)	<b>66.0</b> (58.0-76.0)	<b>166</b> (135-205)	<b>556</b> (399-715)	<b>1030</b> (804-1340)	1231
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>86.4</b> (64.9-115)	<b>75.0</b> (58.0-95.0)	<b>176</b> (114-289)	<b>426</b> (229-949)	<b>835</b> (311-1640)	315
Non-Hispanic blacks	11-12	<b>143</b> (128-159)	<b>122</b> (109-137)	<b>281</b> (220-335)	<b>879</b> (639-1140)	<b>1600</b> (1190-1980)	663
Non-Hispanic whites	11-12	<b>88.9</b> (82.3-96.0)	<b>70.0</b> (63.0-78.0)	<b>183</b> (155-223)	<b>700</b> (515-837)	<b>1220</b> (857-1930)	813
All Hispanics	11-12	<b>92.6</b> (75.9-113)	<b>77.0</b> (68.0-97.0)	<b>199</b> (148-258)	<b>473</b> (300-835)	<b>946</b> (543-1330)	571
Asians	11-12	<b>57.8</b> (47.9-69.8)	<b>49.0</b> (41.0-64.0)	<b>126</b> (96.0-151)	<b>230</b> (184-373)	<b>555</b> (295-781)	352

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 10.0.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Fluorene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Fluorene_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PAHs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html)

## Urinary 3-Hydroxyfluorene (creatinine corrected) (2001 – 2010)

*Metabolite of Fluorene*

Geometric mean and selected percentiles of urine concentrations (in ng/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	125 (108-144)	94.4 (83.3-106)	220 (174-303)	754 (622-873)	1060 (909-1290)	2745
	03-04	119 (106-134)	86.6 (76.8-97.3)	256 (201-337)	856 (668-1060)	1330 (1130-1590)	2502
	05-06	121 (111-131)	84.5 (77.5-93.4)	245 (203-297)	930 (806-1020)	1280 (1150-1400)	2398
	07-08	117 (104-132)	84.6 (76.8-98.5)	226 (177-310)	789 (601-1000)	1230 (1040-1410)	2581
	09-10	99.2 (93.0-106)	76.0 (69.7-84.0)	157 (144-180)	568 (521-662)	988 (914-1070)	2744
Age group	6-11 years						
	01-02	119 (103-137)	110 (96.7-121)	153 (135-197)	265 (206-377)	382 (254-631)	387
	03-04	94.6 (84.3-106)	92.4 (83.1-98.5)	130 (115-154)	202 (168-282)	311 (197-435)	336
	05-06	90.7 (82.6-99.6)	90.3 (80.1-99.7)	130 (119-142)	210 (167-242)	290 (237-353)	336
	07-08	120 (105-138)	108 (92.3-127)	186 (150-215)	330 (231-401)	419 (304-918)	382
	09-10	96.3 (89.9-103)	89.5 (82.4-96.5)	130 (120-145)	228 (173-262)	304 (235-430)	416
	12-19 years						
	01-02	99.3 (81.6-121)	81.9 (74.2-92.6)	144 (109-197)	390 (214-700)	711 (372-1380)	733
	03-04	88.1 (78.0-99.6)	79.0 (72.5-83.2)	137 (114-170)	319 (225-440)	586 (356-880)	701
	05-06	90.1 (84.3-96.3)	73.8 (70.0-81.7)	133 (112-153)	381 (323-426)	618 (437-819)	661
	07-08	88.5 (78.9-99.2)	74.8 (65.2-84.6)	141 (118-185)	317 (242-449)	515 (338-656)	400
	09-10	77.2 (68.4-87.1)	64.1 (57.0-72.7)	103 (87.0-138)	257 (211-368)	475 (355-600)	420
	20 years and older						
	01-02	131 (113-151)	94.4 (81.0-108)	279 (195-367)	862 (727-923)	1210 (1010-1350)	1625
	03-04	128 (113-146)	88.2 (76.8-104)	364 (242-484)	1020 (828-1240)	1500 (1290-1710)	1465
05-06	131 (119-144)	85.9 (77.1-98.5)	334 (251-476)	1020 (931-1180)	1380 (1220-1550)	1401	
07-08	122 (106-142)	83.9 (76.0-99.9)	276 (186-389)	926 (710-1110)	1320 (1150-1500)	1799	
09-10	103 (96.3-111)	76.2 (69.6-85.9)	185 (157-213)	710 (600-779)	1070 (966-1120)	1908	
Gender	Males						
	01-02	132 (111-156)	100 (88.5-117)	260 (194-361)	745 (560-914)	1130 (862-1380)	1346
	03-04	129 (114-147)	95.8 (82.5-111)	338 (226-456)	833 (672-1010)	1220 (980-1510)	1205
	05-06	125 (112-139)	92.4 (84.3-103)	272 (215-404)	784 (660-936)	1100 (874-1310)	1196
	07-08	123 (111-136)	92.3 (80.8-105)	282 (227-354)	791 (675-969)	1110 (989-1330)	1284
	09-10	99.4 (90.3-110)	74.3 (65.3-85.9)	167 (149-199)	616 (494-739)	948 (736-1140)	1397
	Females						
	01-02	119 (104-136)	88.9 (78.6-103)	179 (156-227)	777 (604-888)	1030 (923-1270)	1399
	03-04	110 (93.4-129)	81.7 (69.5-91.5)	183 (132-285)	920 (488-1270)	1460 (1130-1750)	1297
	05-06	117 (105-130)	77.6 (71.9-90.2)	203 (160-290)	1040 (836-1240)	1400 (1220-1780)	1202
	07-08	112 (95.7-131)	82.1 (72.7-96.8)	180 (132-265)	789 (450-1140)	1240 (1050-1500)	1297
	09-10	98.9 (90.8-108)	76.4 (69.7-86.8)	149 (134-179)	529 (441-728)	1040 (801-1200)	1347

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Fluorene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Fluorene_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PAHs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html)



## Urinary 3-Hydroxyfluorene (creatinine corrected) (2001 – 2010)

*Metabolite of Fluorene*

Geometric mean and selected percentiles of urine concentrations (in ng/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Race/ethnicity</b>							
Mexican Americans	01-02	<b>101</b> (84.2-121)	<b>84.0</b> (74.8-97.2)	<b>159</b> (124-214)	<b>364</b> (227-598)	<b>604</b> (357-1230)	662
	03-04	<b>84.8</b> (73.1-98.4)	<b>68.8</b> (60.0-80.2)	<b>170</b> (119-213)	<b>353</b> (319-435)	<b>668</b> (353-1050)	622
	05-06	<b>74.0</b> (66.0-83.1)	<b>59.9</b> (52.5-69.7)	<b>112</b> (88.0-136)	<b>282</b> (217-410)	<b>585</b> (320-763)	596
	07-08	<b>88.1</b> (75.3-103)	<b>72.7</b> (62.2-84.1)	<b>141</b> (107-184)	<b>366</b> (232-536)	<b>568</b> (397-722)	529
	09-10	<b>77.3</b> (67.1-89.1)	<b>61.6</b> (52.6-72.6)	<b>126</b> (96.0-160)	<b>344</b> (252-479)	<b>609</b> (373-905)	564
Non-Hispanic blacks	01-02	<b>143</b> (118-173)	<b>110</b> (90.7-133)	<b>316</b> (186-525)	<b>849</b> (622-1230)	<b>1240</b> (882-1430)	692
	03-04	<b>138</b> (114-167)	<b>106</b> (91.7-117)	<b>316</b> (203-475)	<b>948</b> (554-1310)	<b>1310</b> (963-1710)	665
	05-06	<b>119</b> (103-138)	<b>87.4</b> (78.4-97.0)	<b>214</b> (154-388)	<b>711</b> (523-1000)	<b>1100</b> (838-1380)	652
	07-08	<b>128</b> (109-150)	<b>94.1</b> (82.2-110)	<b>309</b> (204-433)	<b>829</b> (715-981)	<b>1310</b> (981-1640)	587
	09-10	<b>118</b> (102-137)	<b>87.1</b> (73.8-104)	<b>260</b> (173-397)	<b>729</b> (559-860)	<b>958</b> (784-1190)	517
Non-Hispanic whites	01-02	<b>128</b> (108-152)	<b>94.7</b> (83.4-109)	<b>223</b> (171-323)	<b>816</b> (642-914)	<b>1150</b> (910-1410)	1207
	03-04	<b>127</b> (110-145)	<b>89.8</b> (79.5-103)	<b>305</b> (211-403)	<b>975</b> (768-1170)	<b>1460</b> (1270-1700)	1025
	05-06	<b>130</b> (117-144)	<b>91.1</b> (81.0-104)	<b>290</b> (229-426)	<b>973</b> (836-1180)	<b>1380</b> (1130-1570)	966
	07-08	<b>122</b> (103-145)	<b>89.3</b> (76.2-108)	<b>244</b> (166-377)	<b>895</b> (579-1110)	<b>1250</b> (1080-1470)	1066
	09-10	<b>101</b> (93.2-109)	<b>76.6</b> (68.9-88.4)	<b>154</b> (140-184)	<b>627</b> (516-739)	<b>1070</b> (918-1140)	1202

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Fluorene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Fluorene_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PAHs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html)

## Urinary 3-Hydroxyfluorene (creatinine corrected) (2011 - 2012)

*Metabolite of Fluorene*

Geometric mean and selected percentiles of urine concentrations (in ng/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Total</b>	11-12	<b>107</b> (99.8-114)	<b>80.6</b> (76.7-83.3)	<b>185</b> (155-225)	<b>753</b> (588-826)	<b>1170</b> (1040-1330)	2486
<b>Age group</b>							
6-11 years	11-12	<b>100</b> (90.6-111)	<b>93.3</b> (86.2-106)	<b>138</b> (120-168)	<b>210</b> (176-256)	<b>281</b> (220-349)	396
12-19 years	11-12	<b>88.6</b> (78.9-99.5)	<b>79.4</b> (70.0-88.4)	<b>122</b> (109-173)	<b>273</b> (223-392)	<b>519</b> (329-698)	389
20 years and older	11-12	<b>110</b> (102-119)	<b>78.3</b> (73.1-83.1)	<b>220</b> (177-262)	<b>832</b> (754-1030)	<b>1230</b> (1100-1530)	1701
<b>Gender</b>							
Males	11-12	<b>105</b> (90.1-122)	<b>78.7</b> (70.5-86.7)	<b>195</b> (137-279)	<b>754</b> (493-1010)	<b>1200</b> (894-1470)	1256
Females	11-12	<b>108</b> (94.7-123)	<b>81.8</b> (75.0-88.9)	<b>181</b> (144-235)	<b>702</b> (439-964)	<b>1130</b> (960-1380)	1230
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>96.7</b> (77.8-120)	<b>78.0</b> (63.7-91.3)	<b>149</b> (121-220)	<b>535</b> (219-765)	<b>765</b> (510-1110)	315
Non-Hispanic blacks	11-12	<b>111</b> (101-121)	<b>86.8</b> (81.3-95.1)	<b>217</b> (183-267)	<b>610</b> (456-758)	<b>932</b> (753-1100)	663
Non-Hispanic whites	11-12	<b>108</b> (102-114)	<b>80.0</b> (75.0-85.4)	<b>199</b> (163-230)	<b>822</b> (644-1040)	<b>1230</b> (1100-1560)	811
All Hispanics	11-12	<b>103</b> (89.2-120)	<b>82.9</b> (73.1-94.6)	<b>163</b> (130-219)	<b>554</b> (301-749)	<b>839</b> (610-1110)	571
Asians	11-12	<b>77.5</b> (65.6-91.5)	<b>71.0</b> (60.6-77.8)	<b>114</b> (93.8-143)	<b>236</b> (178-363)	<b>474</b> (317-694)	352

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Fluorene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Fluorene_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PAHs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html)

## Urinary 9-Hydroxyfluorene (2003 – 2010)

Metabolite of Fluorene

Geometric mean and selected percentiles of urine concentrations (in ng/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	<b>267</b> (234-305)	<b>269</b> (233-313)	<b>541</b> (463-620)	<b>929</b> (839-1060)	<b>1390</b> (1130-1600)	2504
	05-06	<b>308</b> (289-328)	<b>300</b> (271-325)	<b>609</b> (563-652)	<b>1270</b> (1090-1420)	<b>1820</b> (1560-2110)	2422
	07-08	<b>337</b> (310-367)	<b>327</b> (295-367)	<b>677</b> (582-769)	<b>1300</b> (1060-1490)	<b>1960</b> (1670-2420)	2608
	09-10	<b>255</b> (239-272)	<b>253</b> (229-273)	<b>514</b> (464-557)	<b>981</b> (911-1060)	<b>1510</b> (1290-1700)	2747
Age group 6-11 years	03-04	<b>209</b> (184-238)	<b>216</b> (173-240)	<b>331</b> (267-458)	<b>594</b> (446-809)	<b>853</b> (553-1500)	333
	05-06	<b>184</b> (162-209)	<b>190</b> (153-210)	<b>324</b> (261-397)	<b>657</b> (448-783)	<b>823</b> (671-1220)	342
	07-08	<b>242</b> (208-282)	<b>229</b> (196-280)	<b>449</b> (326-580)	<b>791</b> (565-1040)	<b>1090</b> (787-1610)	389
	09-10	<b>164</b> (144-186)	<b>150</b> (132-182)	<b>291</b> (254-351)	<b>518</b> (424-727)	<b>809</b> (522-1220)	416
12-19 years	03-04	<b>253</b> (216-297)	<b>271</b> (215-324)	<b>506</b> (413-560)	<b>894</b> (773-988)	<b>1210</b> (929-1510)	698
	05-06	<b>266</b> (245-290)	<b>278</b> (253-314)	<b>528</b> (454-574)	<b>842</b> (738-1020)	<b>1290</b> (1070-1510)	668
	07-08	<b>308</b> (255-371)	<b>295</b> (241-374)	<b>583</b> (459-736)	<b>1050</b> (829-1290)	<b>1400</b> (1080-1870)	401
	09-10	<b>237</b> (203-278)	<b>235</b> (186-303)	<b>475</b> (398-544)	<b>813</b> (663-954)	<b>1100</b> (846-1580)	420
20 years and older	03-04	<b>277</b> (240-320)	<b>279</b> (237-335)	<b>583</b> (476-656)	<b>979</b> (842-1140)	<b>1490</b> (1140-1770)	1473
	05-06	<b>335</b> (309-363)	<b>323</b> (292-349)	<b>653</b> (593-729)	<b>1360</b> (1180-1610)	<b>1950</b> (1650-2530)	1412
	07-08	<b>355</b> (323-390)	<b>352</b> (311-384)	<b>716</b> (629-835)	<b>1410</b> (1170-1670)	<b>2160</b> (1770-2780)	1818
	09-10	<b>271</b> (251-291)	<b>267</b> (245-296)	<b>546</b> (496-596)	<b>1060</b> (960-1130)	<b>1590</b> (1340-1900)	1911
Gender							
Males	03-04	<b>330</b> (291-374)	<b>330</b> (285-372)	<b>632</b> (583-709)	<b>1090</b> (898-1370)	<b>1720</b> (1360-2250)	1208
	05-06	<b>355</b> (325-387)	<b>334</b> (296-387)	<b>693</b> (608-783)	<b>1310</b> (1150-1620)	<b>2000</b> (1670-2560)	1208
	07-08	<b>401</b> (365-441)	<b>394</b> (356-442)	<b>778</b> (661-897)	<b>1420</b> (1260-1580)	<b>2120</b> (1770-2820)	1294
	09-10	<b>286</b> (261-313)	<b>283</b> (255-317)	<b>555</b> (492-632)	<b>985</b> (900-1060)	<b>1580</b> (1320-1750)	1399
Females	03-04	<b>218</b> (188-253)	<b>226</b> (191-253)	<b>439</b> (357-521)	<b>833</b> (697-973)	<b>1100</b> (955-1310)	1296
	05-06	<b>269</b> (242-299)	<b>257</b> (230-297)	<b>503</b> (426-580)	<b>1090</b> (845-1400)	<b>1610</b> (1400-1920)	1214
	07-08	<b>286</b> (260-313)	<b>271</b> (246-299)	<b>557</b> (474-671)	<b>1110</b> (914-1400)	<b>1830</b> (1400-2400)	1314
	09-10	<b>228</b> (213-244)	<b>223</b> (208-244)	<b>464</b> (432-501)	<b>964</b> (850-1080)	<b>1470</b> (1240-1700)	1348

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08 and 09-10 are 5.0, 5.0, 5.0, and 10.0 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Fluorene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Fluorene_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PAHs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html)

## Urinary 9-Hydroxyfluorene (2003 – 2010)

*Metabolite of Fluorene*

Geometric mean and selected percentiles of urine concentrations (in ng/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	03-04	<b>229</b> (200-261)	<b>232</b> (197-274)	<b>435</b> (362-492)	<b>773</b> (561-1010)	<b>1030</b> (849-1170)	614
	05-06	<b>232</b> (204-264)	<b>221</b> (186-262)	<b>407</b> (361-435)	<b>738</b> (596-840)	<b>1030</b> (788-1470)	614
	07-08	<b>267</b> (246-288)	<b>259</b> (236-285)	<b>476</b> (430-515)	<b>859</b> (732-1100)	<b>1470</b> (1070-1980)	532
	09-10	<b>214</b> (187-246)	<b>197</b> (158-245)	<b>416</b> (331-495)	<b>854</b> (723-1040)	<b>1520</b> (1040-2060)	566
Non-Hispanic blacks	03-04	<b>382</b> (310-471)	<b>357</b> (287-478)	<b>717</b> (549-843)	<b>1260</b> (1050-1600)	<b>1880</b> (1540-2330)	661
	05-06	<b>416</b> (360-481)	<b>406</b> (366-450)	<b>716</b> (593-943)	<b>1430</b> (1010-2250)	<b>2310</b> (1590-3410)	655
	07-08	<b>426</b> (376-482)	<b>423</b> (356-477)	<b>817</b> (693-978)	<b>1490</b> (1200-1950)	<b>2260</b> (1870-3040)	597
	09-10	<b>377</b> (339-419)	<b>363</b> (339-421)	<b>745</b> (626-878)	<b>1240</b> (1110-1460)	<b>2120</b> (1430-2680)	517
Non-Hispanic whites	03-04	<b>265</b> (225-312)	<b>265</b> (227-324)	<b>558</b> (452-660)	<b>939</b> (826-1130)	<b>1450</b> (1090-1770)	1038
	05-06	<b>306</b> (279-335)	<b>296</b> (257-331)	<b>613</b> (548-669)	<b>1290</b> (1150-1450)	<b>1730</b> (1530-2140)	966
	07-08	<b>345</b> (302-394)	<b>338</b> (286-398)	<b>700</b> (564-849)	<b>1380</b> (1030-1690)	<b>2040</b> (1570-2650)	1080
	09-10	<b>252</b> (232-273)	<b>254</b> (225-274)	<b>485</b> (448-544)	<b>934</b> (833-1060)	<b>1480</b> (1220-1700)	1203

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08 and 09-10 are 5.0, 5.0, 5.0, and 10.0 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Fluorene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Fluorene_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PAHs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html)

## Urinary 9-Hydroxyfluorene (2011 - 2012)

*Metabolite of Fluorene*

Geometric mean and selected percentiles of urine concentrations (in ng/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Total</b>	11-12	<b>245</b> (226-265)	<b>244</b> (226-259)	<b>501</b> (447-560)	<b>1080</b> (934-1190)	<b>1550</b> (1310-1840)	2491
<b>Age group</b>							
6-11 years	11-12	<b>147</b> (124-176)	<b>140</b> (119-161)	<b>308</b> (235-441)	<b>661</b> (471-845)	<b>1030</b> (684-1350)	397
12-19 years	11-12	<b>210</b> (176-249)	<b>213</b> (163-270)	<b>428</b> (318-576)	<b>796</b> (619-961)	<b>1010</b> (856-1340)	388
20 years and older	11-12	<b>265</b> (244-287)	<b>257</b> (236-284)	<b>537</b> (472-613)	<b>1180</b> (1040-1310)	<b>1700</b> (1330-2140)	1706
<b>Gender</b>							
Males	11-12	<b>278</b> (254-304)	<b>270</b> (248-296)	<b>566</b> (481-672)	<b>1150</b> (978-1310)	<b>1650</b> (1310-2280)	1258
Females	11-12	<b>217</b> (193-244)	<b>212</b> (187-243)	<b>438</b> (386-511)	<b>966</b> (786-1220)	<b>1440</b> (1140-1860)	1233
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>204</b> (155-268)	<b>194</b> (152-228)	<b>391</b> (277-508)	<b>853</b> (528-1620)	<b>1650</b> (538-14400)	317
Non-Hispanic blacks	11-12	<b>356</b> (311-406)	<b>357</b> (310-398)	<b>677</b> (579-847)	<b>1350</b> (1030-1660)	<b>1940</b> (1570-2420)	664
Non-Hispanic whites	11-12	<b>238</b> (219-260)	<b>244</b> (221-262)	<b>492</b> (436-564)	<b>1070</b> (886-1190)	<b>1400</b> (1230-1710)	814
All Hispanics	11-12	<b>225</b> (190-267)	<b>208</b> (184-239)	<b>455</b> (373-528)	<b>914</b> (719-1310)	<b>1560</b> (940-2090)	572
Asians	11-12	<b>168</b> (135-209)	<b>164</b> (127-197)	<b>304</b> (230-427)	<b>762</b> (469-988)	<b>1200</b> (790-1820)	352

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 10.0.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Fluorene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Fluorene_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PAHs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html)

## Urinary 9-Hydroxyfluorene (creatinine corrected) (2003 – 2010)

*Metabolite of Fluorene*

Geometric mean and selected percentiles of urine concentrations (in ng/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	<b>252</b> (230-276)	<b>233</b> (205-266)	<b>412</b> (371-461)	<b>729</b> (609-905)	<b>1100</b> (918-1390)	2504
	05-06	<b>301</b> (281-322)	<b>270</b> (252-290)	<b>511</b> (460-575)	<b>1040</b> (908-1230)	<b>1510</b> (1360-1750)	2422
	07-08	<b>339</b> (309-372)	<b>303</b> (277-333)	<b>562</b> (493-645)	<b>1110</b> (908-1300)	<b>1660</b> (1430-1960)	2608
	09-10	<b>266</b> (254-279)	<b>242</b> (224-262)	<b>442</b> (417-466)	<b>838</b> (775-894)	<b>1250</b> (1160-1360)	2747
<b>Age group</b>							
6-11 years	03-04	<b>223</b> (200-247)	<b>208</b> (176-264)	<b>343</b> (299-389)	<b>548</b> (433-689)	<b>866</b> (533-958)	333
	05-06	<b>205</b> (180-234)	<b>195</b> (176-209)	<b>309</b> (272-371)	<b>590</b> (402-668)	<b>866</b> (620-1300)	342
	07-08	<b>298</b> (256-346)	<b>280</b> (249-331)	<b>463</b> (399-576)	<b>817</b> (576-1130)	<b>1130</b> (862-1230)	389
	09-10	<b>214</b> (192-237)	<b>185</b> (169-203)	<b>331</b> (275-365)	<b>568</b> (400-848)	<b>1020</b> (539-1650)	416
12-19 years	03-04	<b>192</b> (172-215)	<b>182</b> (161-200)	<b>323</b> (286-360)	<b>484</b> (412-696)	<b>738</b> (571-1110)	698
	05-06	<b>201</b> (183-220)	<b>194</b> (173-223)	<b>325</b> (283-343)	<b>511</b> (397-666)	<b>848</b> (521-941)	668
	07-08	<b>239</b> (204-280)	<b>235</b> (190-283)	<b>381</b> (312-462)	<b>596</b> (479-722)	<b>768</b> (660-1090)	401
	09-10	<b>191</b> (175-207)	<b>181</b> (162-199)	<b>293</b> (257-338)	<b>521</b> (376-604)	<b>691</b> (534-938)	420
20 years and older	03-04	<b>267</b> (242-294)	<b>243</b> (219-280)	<b>446</b> (392-490)	<b>788</b> (641-994)	<b>1280</b> (991-1560)	1473
	05-06	<b>336</b> (314-358)	<b>304</b> (284-323)	<b>573</b> (506-650)	<b>1200</b> (1000-1360)	<b>1720</b> (1490-1900)	1412
	07-08	<b>363</b> (330-399)	<b>314</b> (293-351)	<b>618</b> (533-738)	<b>1200</b> (1030-1450)	<b>1770</b> (1570-2040)	1818
	09-10	<b>287</b> (272-302)	<b>265</b> (243-288)	<b>484</b> (450-514)	<b>909</b> (832-986)	<b>1340</b> (1230-1460)	1911
<b>Gender</b>							
Males	03-04	<b>260</b> (238-283)	<b>236</b> (209-269)	<b>429</b> (382-480)	<b>739</b> (591-952)	<b>1300</b> (916-1800)	1208
	05-06	<b>286</b> (266-308)	<b>258</b> (235-291)	<b>498</b> (422-576)	<b>993</b> (858-1180)	<b>1410</b> (1240-1730)	1208
	07-08	<b>338</b> (308-372)	<b>303</b> (269-338)	<b>575</b> (516-626)	<b>1150</b> (987-1300)	<b>1690</b> (1420-1940)	1294
	09-10	<b>257</b> (240-275)	<b>228</b> (206-258)	<b>445</b> (402-489)	<b>816</b> (747-932)	<b>1260</b> (1070-1420)	1399
Females	03-04	<b>244</b> (217-275)	<b>227</b> (198-269)	<b>396</b> (342-467)	<b>717</b> (569-905)	<b>1020</b> (905-1280)	1296
	05-06	<b>316</b> (287-348)	<b>278</b> (253-303)	<b>532</b> (466-623)	<b>1100</b> (840-1370)	<b>1610</b> (1360-1840)	1214
	07-08	<b>340</b> (306-377)	<b>303</b> (274-335)	<b>555</b> (451-683)	<b>1030</b> (852-1330)	<b>1620</b> (1330-2040)	1314
	09-10	<b>275</b> (260-291)	<b>256</b> (229-279)	<b>442</b> (396-507)	<b>849</b> (732-950)	<b>1230</b> (1070-1380)	1348

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Fluorene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Fluorene_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PAHs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html)

## Urinary 9-Hydroxyfluorene (creatinine corrected) (2003 – 2010)

*Metabolite of Fluorene*

Geometric mean and selected percentiles of urine concentrations (in ng/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Race/ethnicity</b>							
Mexican Americans	03-04	<b>209</b> (188-232)	<b>195</b> (181-209)	<b>335</b> (293-379)	<b>541</b> (447-722)	<b>793</b> (569-1440)	614
	05-06	<b>208</b> (194-224)	<b>201</b> (180-220)	<b>304</b> (270-342)	<b>502</b> (425-584)	<b>663</b> (527-919)	614
	07-08	<b>260</b> (236-285)	<b>244</b> (226-259)	<b>388</b> (348-419)	<b>654</b> (527-858)	<b>1160</b> (775-1640)	532
	09-10	<b>213</b> (186-243)	<b>186</b> (161-214)	<b>312</b> (285-378)	<b>727</b> (524-1070)	<b>1410</b> (1030-2360)	566
Non-Hispanic blacks	03-04	<b>271</b> (225-326)	<b>258</b> (207-308)	<b>460</b> (344-562)	<b>777</b> (630-919)	<b>1040</b> (856-1300)	661
	05-06	<b>293</b> (258-332)	<b>261</b> (230-297)	<b>449</b> (377-554)	<b>851</b> (635-1080)	<b>1480</b> (925-2070)	655
	07-08	<b>331</b> (289-379)	<b>293</b> (257-333)	<b>542</b> (489-620)	<b>990</b> (805-1250)	<b>1550</b> (1160-2470)	597
	09-10	<b>273</b> (256-292)	<b>253</b> (224-279)	<b>445</b> (403-489)	<b>793</b> (626-887)	<b>1170</b> (887-1540)	517
Non-Hispanic whites	03-04	<b>263</b> (235-294)	<b>243</b> (211-285)	<b>438</b> (386-485)	<b>773</b> (607-1020)	<b>1300</b> (967-1710)	1038
	05-06	<b>323</b> (296-353)	<b>293</b> (266-322)	<b>570</b> (496-650)	<b>1180</b> (962-1360)	<b>1630</b> (1370-1840)	966
	07-08	<b>359</b> (316-407)	<b>314</b> (280-366)	<b>605</b> (497-750)	<b>1170</b> (935-1420)	<b>1740</b> (1460-2040)	1080
	09-10	<b>283</b> (269-298)	<b>261</b> (239-279)	<b>458</b> (427-500)	<b>891</b> (776-1000)	<b>1280</b> (1170-1420)	1203

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Fluorene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Fluorene_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PAHs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html)



## Urinary 9-Hydroxyfluorene (creatinine corrected) (2011 - 2012)

*Metabolite of Fluorene*

Geometric mean and selected percentiles of urine concentrations (in ng/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Total</b>	11-12	<b>279</b> (261-298)	<b>248</b> (229-270)	<b>490</b> (431-544)	<b>934</b> (875-1010)	<b>1370</b> (1140-1660)	2489
<b>Age group</b>							
6-11 years	11-12	<b>212</b> (183-247)	<b>191</b> (163-225)	<b>328</b> (274-365)	<b>544</b> (413-928)	<b>1000</b> (688-1450)	396
12-19 years	11-12	<b>203</b> (182-225)	<b>188</b> (173-207)	<b>323</b> (273-380)	<b>538</b> (430-644)	<b>804</b> (595-876)	388
20 years and older	11-12	<b>301</b> (279-325)	<b>271</b> (244-301)	<b>561</b> (480-620)	<b>1030</b> (918-1140)	<b>1480</b> (1180-2010)	1705
<b>Gender</b>							
Males	11-12	<b>260</b> (241-281)	<b>226</b> (205-251)	<b>450</b> (395-540)	<b>908</b> (794-1010)	<b>1260</b> (1000-1650)	1257
Females	11-12	<b>297</b> (269-329)	<b>270</b> (229-322)	<b>505</b> (436-581)	<b>984</b> (914-1100)	<b>1480</b> (1140-1850)	1232
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>229</b> (186-283)	<b>187</b> (162-235)	<b>376</b> (311-430)	<b>750</b> (430-1630)	<b>1480</b> (511-5650)	317
Non-Hispanic blacks	11-12	<b>277</b> (244-314)	<b>256</b> (231-294)	<b>447</b> (399-540)	<b>823</b> (640-1040)	<b>1240</b> (918-1460)	664
Non-Hispanic whites	11-12	<b>290</b> (268-314)	<b>257</b> (227-290)	<b>542</b> (451-614)	<b>961</b> (875-1080)	<b>1350</b> (1130-1660)	812
All Hispanics	11-12	<b>252</b> (217-293)	<b>220</b> (186-267)	<b>415</b> (343-492)	<b>1000</b> (520-1330)	<b>1390</b> (787-3250)	572
Asians	11-12	<b>224</b> (188-268)	<b>200</b> (166-273)	<b>381</b> (310-451)	<b>647</b> (500-865)	<b>914</b> (697-1430)	352

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Fluorene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Fluorene_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PAHs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html)

## Urinary 1-Hydroxyphenanthrene (2001 – 2010)

Metabolite of Phenanthrene

Geometric mean and selected percentiles of urine concentrations (in ng/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	140 (125-158)	141 (130-154)	266 (229-312)	476 (426-539)	684 (581-763)	2741
	03-04	156 (140-173)	166 (150-179)	287 (263-321)	464 (423-508)	625 (538-745)	2496
	05-06	152 (143-161)	151 (138-163)	275 (257-303)	493 (428-549)	669 (580-852)	2449
	07-08	139 (130-149)	140 (127-154)	252 (228-272)	442 (402-481)	683 (577-760)	2608
	09-10	131 (124-140)	133 (126-141)	235 (222-251)	402 (367-451)	567 (488-659)	2746
Age group 6-11 years	01-02	119 (104-137)	121 (98.0-142)	228 (182-249)	357 (265-501)	501 (367-661)	387
	03-04	138 (124-154)	131 (111-161)	222 (200-275)	397 (304-500)	615 (384-916)	328
	05-06	111 (101-123)	110 (96.9-121)	176 (150-240)	320 (251-375)	381 (329-540)	345
	07-08	121 (105-139)	120 (96.5-154)	200 (174-235)	334 (247-401)	405 (278-557)	389
	09-10	103 (90.7-116)	105 (89.0-119)	156 (142-172)	261 (226-320)	363 (283-628)	416
12-19 years	01-02	133 (110-162)	131 (110-153)	238 (198-303)	431 (376-546)	579 (439-820)	733
	03-04	158 (141-178)	171 (138-193)	300 (262-333)	470 (437-537)	654 (563-745)	692
	05-06	144 (132-157)	154 (130-175)	260 (236-286)	425 (383-496)	666 (496-845)	677
	07-08	136 (122-152)	144 (128-164)	219 (199-283)	374 (315-415)	503 (392-607)	401
	09-10	133 (117-151)	124 (106-142)	244 (212-269)	410 (296-510)	511 (414-742)	420
20 years and older	01-02	145 (127-164)	145 (133-164)	274 (237-329)	499 (440-565)	713 (595-819)	1621
	03-04	157 (141-176)	167 (152-182)	296 (264-337)	469 (430-513)	625 (534-783)	1476
	05-06	159 (147-172)	156 (141-172)	287 (265-328)	516 (438-615)	744 (580-996)	1427
	07-08	142 (132-153)	141 (125-158)	258 (241-280)	470 (417-531)	733 (622-856)	1818
	09-10	135 (126-144)	140 (131-148)	245 (223-265)	412 (377-462)	579 (497-672)	1910
Gender Males	01-02	150 (133-169)	145 (132-164)	284 (235-348)	501 (424-593)	713 (575-845)	1344
	03-04	176 (161-194)	182 (167-198)	321 (283-363)	492 (459-536)	662 (541-929)	1196
	05-06	169 (156-183)	166 (153-180)	289 (265-334)	519 (438-593)	791 (562-1080)	1222
	07-08	153 (140-167)	152 (137-171)	268 (251-292)	448 (406-488)	722 (566-813)	1294
	09-10	139 (129-149)	140 (127-153)	244 (222-260)	399 (363-457)	565 (469-664)	1398
Females	01-02	132 (115-152)	137 (121-151)	254 (221-297)	464 (390-520)	654 (538-769)	1397
	03-04	138 (122-156)	144 (126-164)	263 (240-294)	430 (404-469)	589 (489-680)	1300
	05-06	137 (123-152)	136 (117-153)	260 (234-297)	460 (391-553)	648 (540-809)	1227
	07-08	128 (120-136)	128 (117-139)	230 (205-258)	432 (373-500)	663 (527-740)	1314
	09-10	125 (116-135)	129 (119-136)	231 (214-246)	405 (332-489)	581 (470-689)	1348

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, 07-08, and 09-10 are 3.5, 5.0, 5.0, 5.0, and 10.0 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Phenanthrene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Phenanthrene_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PAHs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html)

## Urinary 1-Hydroxyphenanthrene (2001 – 2010)

*Metabolite of Phenanthrene*

Geometric mean and selected percentiles of urine concentrations (in ng/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Race/ethnicity</b>							
Mexican Americans	01-02	<b>117</b> (90.8-152)	<b>116</b> (88.0-147)	<b>214</b> (157-306)	<b>369</b> (254-583)	<b>549</b> (342-847)	664
	03-04	<b>138</b> (120-158)	<b>152</b> (129-175)	<b>246</b> (213-291)	<b>413</b> (311-492)	<b>518</b> (352-896)	611
	05-06	<b>125</b> (104-151)	<b>129</b> (107-151)	<b>223</b> (174-276)	<b>376</b> (298-460)	<b>523</b> (399-617)	621
	07-08	<b>118</b> (108-129)	<b>108</b> (103-119)	<b>194</b> (172-216)	<b>341</b> (271-437)	<b>491</b> (417-738)	532
	09-10	<b>116</b> (107-126)	<b>112</b> (100-126)	<b>195</b> (168-245)	<b>391</b> (294-509)	<b>603</b> (432-825)	565
Non-Hispanic blacks	01-02	<b>150</b> (127-179)	<b>145</b> (126-170)	<b>287</b> (243-327)	<b>493</b> (423-629)	<b>713</b> (568-975)	690
	03-04	<b>183</b> (152-219)	<b>178</b> (148-213)	<b>350</b> (268-423)	<b>551</b> (455-645)	<b>797</b> (588-1050)	661
	05-06	<b>162</b> (148-177)	<b>155</b> (141-173)	<b>307</b> (259-349)	<b>517</b> (408-695)	<b>753</b> (545-1110)	658
	07-08	<b>142</b> (129-158)	<b>141</b> (128-163)	<b>264</b> (234-302)	<b>448</b> (401-511)	<b>613</b> (522-722)	597
	09-10	<b>148</b> (130-167)	<b>161</b> (135-181)	<b>269</b> (234-312)	<b>410</b> (346-489)	<b>536</b> (435-658)	517
Non-Hispanic whites	01-02	<b>144</b> (125-166)	<b>144</b> (131-162)	<b>276</b> (241-330)	<b>489</b> (436-552)	<b>661</b> (550-793)	1204
	03-04	<b>159</b> (140-180)	<b>167</b> (151-185)	<b>296</b> (267-330)	<b>474</b> (421-534)	<b>641</b> (516-843)	1036
	05-06	<b>156</b> (143-170)	<b>155</b> (137-173)	<b>279</b> (251-322)	<b>500</b> (414-606)	<b>743</b> (570-1050)	982
	07-08	<b>146</b> (133-159)	<b>149</b> (132-174)	<b>261</b> (235-292)	<b>453</b> (405-503)	<b>725</b> (590-836)	1080
	09-10	<b>133</b> (123-144)	<b>136</b> (128-143)	<b>235</b> (214-259)	<b>409</b> (357-462)	<b>570</b> (470-689)	1203

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, 07-08, and 09-10 are 3.5, 5.0, 5.0, 5.0, and 10.0 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Phenanthrene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Phenanthrene_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PAHs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html)

## Urinary 1-Hydroxyphenanthrene (2011 - 2012)

*Metabolite of Phenanthrene*

Geometric mean and selected percentiles of urine concentrations (in ng/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>126</b> (117-135)	<b>126</b> (115-134)	<b>240</b> (219-254)	<b>426</b> (365-463)	<b>565</b> (493-682)	2492
<b>Age group</b>							
6-11 years	11-12	<b>98.6</b> (87.8-111)	<b>100</b> (89.0-115)	<b>199</b> (144-240)	<b>323</b> (270-405)	<b>473</b> (327-549)	397
12-19 years	11-12	<b>119</b> (103-138)	<b>132</b> (108-157)	<b>219</b> (192-252)	<b>332</b> (284-365)	<b>438</b> (344-505)	389
20 years and older	11-12	<b>130</b> (121-140)	<b>128</b> (119-138)	<b>248</b> (221-270)	<b>450</b> (372-499)	<b>589</b> (495-759)	1706
<b>Gender</b>							
Males	11-12	<b>133</b> (121-146)	<b>132</b> (115-149)	<b>246</b> (221-271)	<b>434</b> (365-476)	<b>589</b> (466-781)	1258
Females	11-12	<b>119</b> (109-131)	<b>117</b> (107-128)	<b>232</b> (212-249)	<b>408</b> (334-471)	<b>557</b> (465-682)	1234
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>115</b> (91.3-146)	<b>112</b> (94.0-131)	<b>214</b> (156-260)	<b>371</b> (260-572)	<b>572</b> (284-1390)	317
Non-Hispanic blacks	11-12	<b>141</b> (129-155)	<b>140</b> (129-156)	<b>244</b> (221-268)	<b>439</b> (366-503)	<b>609</b> (495-849)	664
Non-Hispanic whites	11-12	<b>126</b> (117-136)	<b>128</b> (114-141)	<b>245</b> (219-261)	<b>428</b> (352-475)	<b>557</b> (456-733)	814
All Hispanics	11-12	<b>125</b> (108-146)	<b>123</b> (105-138)	<b>239</b> (207-260)	<b>391</b> (321-502)	<b>544</b> (439-826)	573
Asians	11-12	<b>91.3</b> (75.3-111)	<b>88.0</b> (65.0-114)	<b>173</b> (134-238)	<b>303</b> (260-387)	<b>447</b> (315-597)	352

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 10.0.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Phenanthrene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Phenanthrene_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PAHs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html)

## Urinary 1-Hydroxyphenanthrene (creatinine corrected) (2001 – 2010)

Metabolite of Phenanthrene

Geometric mean and selected percentiles of urine concentrations (in ng/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	132 (118-147)	125 (113-141)	210 (191-231)	344 (310-385)	464 (404-539)	2741
	03-04	146 (138-155)	141 (133-150)	222 (205-244)	352 (330-384)	487 (416-546)	2496
	05-06	147 (138-157)	140 (130-148)	229 (211-247)	372 (339-406)	502 (446-600)	2449
	07-08	140 (130-151)	137 (124-151)	221 (207-236)	345 (319-372)	457 (407-522)	2608
	09-10	137 (132-143)	130 (125-136)	206 (194-221)	328 (304-346)	448 (395-489)	2746
<b>Age group</b>							
6-11 years	01-02	133 (116-153)	126 (110-147)	188 (165-225)	344 (245-437)	467 (364-598)	387
	03-04	145 (129-163)	138 (121-155)	205 (169-240)	315 (244-456)	477 (313-803)	328
	05-06	124 (114-134)	115 (103-133)	191 (162-210)	275 (230-340)	368 (321-396)	345
	07-08	149 (132-169)	139 (127-158)	221 (191-264)	334 (275-410)	424 (332-796)	389
	09-10	134 (121-148)	122 (113-133)	184 (161-209)	290 (241-437)	489 (290-845)	416
12-19 years	01-02	103 (87.9-121)	97.3 (81.4-117)	158 (131-192)	240 (198-322)	354 (235-531)	733
	03-04	119 (108-130)	115 (101-131)	176 (157-197)	275 (230-331)	345 (269-496)	692
	05-06	108 (97.5-119)	108 (95.9-116)	163 (148-180)	268 (199-330)	372 (262-609)	677
	07-08	106 (94.9-117)	106 (90.0-116)	158 (147-171)	243 (197-303)	324 (250-407)	401
	09-10	107 (99.6-115)	102 (94.4-112)	150 (130-164)	227 (190-273)	316 (228-491)	420
20 years and older	01-02	137 (122-153)	132 (117-145)	223 (200-243)	351 (319-395)	476 (421-541)	1621
	03-04	151 (142-161)	147 (134-157)	237 (212-253)	365 (335-397)	500 (422-580)	1476
	05-06	158 (147-170)	151 (137-163)	244 (224-265)	397 (362-420)	554 (478-666)	1427
	07-08	145 (135-157)	142 (127-156)	229 (214-251)	354 (336-383)	495 (420-560)	1818
	09-10	143 (137-149)	139 (132-144)	221 (203-235)	333 (316-356)	455 (407-500)	1910
<b>Gender</b>							
Males	01-02	122 (108-137)	116 (104-131)	194 (173-218)	321 (262-395)	455 (348-642)	1344
	03-04	138 (131-146)	130 (117-143)	201 (187-227)	335 (301-391)	437 (392-550)	1196
	05-06	135 (126-145)	125 (117-132)	208 (187-229)	341 (300-385)	498 (391-634)	1222
	07-08	129 (117-141)	126 (112-141)	207 (191-223)	327 (290-344)	410 (354-487)	1294
	09-10	125 (117-132)	118 (109-130)	188 (176-206)	288 (266-324)	397 (332-500)	1398
Females	01-02	142 (125-160)	136 (118-156)	226 (199-256)	355 (323-399)	473 (421-541)	1397
	03-04	154 (142-168)	150 (138-160)	241 (212-269)	364 (323-425)	505 (418-635)	1300
	05-06	160 (149-172)	152 (136-166)	251 (229-275)	398 (367-428)	509 (435-638)	1227
	07-08	152 (140-165)	148 (133-162)	231 (213-262)	373 (329-411)	478 (409-577)	1314
	09-10	151 (143-159)	142 (133-151)	226 (196-245)	350 (321-387)	468 (395-553)	1348

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Phenanthrene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Phenanthrene_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PAHs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html)

## Urinary 1-Hydroxyphenanthrene (creatinine corrected) (2001 – 2010)

*Metabolite of Phenanthrene*

Geometric mean and selected percentiles of urine concentrations (in ng/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Race/ethnicity</b>							
Mexican Americans	01-02	<b>110</b> (88.6-136)	<b>101</b> (85.5-131)	<b>162</b> (138-203)	<b>275</b> (187-452)	<b>400</b> (268-755)	664
	03-04	<b>124</b> (111-140)	<b>122</b> (107-136)	<b>183</b> (159-242)	<b>304</b> (246-392)	<b>392</b> (318-437)	611
	05-06	<b>112</b> (99.2-126)	<b>109</b> (87.1-129)	<b>170</b> (145-201)	<b>259</b> (228-307)	<b>353</b> (297-414)	621
	07-08	<b>115</b> (102-129)	<b>107</b> (96.7-118)	<b>159</b> (143-183)	<b>287</b> (218-344)	<b>424</b> (324-520)	532
	09-10	<b>116</b> (104-129)	<b>104</b> (93.1-114)	<b>163</b> (141-203)	<b>312</b> (225-471)	<b>502</b> (329-860)	565
Non-Hispanic blacks	01-02	<b>106</b> (88.7-127)	<b>102</b> (92.4-111)	<b>172</b> (141-203)	<b>274</b> (224-356)	<b>384</b> (308-598)	690
	03-04	<b>129</b> (112-148)	<b>125</b> (107-143)	<b>199</b> (173-239)	<b>337</b> (279-395)	<b>428</b> (374-536)	661
	05-06	<b>114</b> (106-121)	<b>107</b> (98.6-114)	<b>179</b> (163-189)	<b>301</b> (229-370)	<b>449</b> (321-771)	658
	07-08	<b>111</b> (98.8-124)	<b>109</b> (90.0-126)	<b>181</b> (153-201)	<b>293</b> (257-338)	<b>385</b> (338-446)	597
	09-10	<b>107</b> (102-113)	<b>98.5</b> (94.1-108)	<b>165</b> (149-179)	<b>258</b> (240-283)	<b>328</b> (283-386)	517
Non-Hispanic whites	01-02	<b>142</b> (126-161)	<b>137</b> (119-153)	<b>228</b> (206-247)	<b>363</b> (321-406)	<b>476</b> (411-552)	1204
	03-04	<b>156</b> (146-168)	<b>149</b> (138-158)	<b>239</b> (214-255)	<b>373</b> (335-426)	<b>515</b> (426-649)	1036
	05-06	<b>164</b> (152-176)	<b>154</b> (141-165)	<b>247</b> (228-268)	<b>398</b> (366-428)	<b>554</b> (466-739)	982
	07-08	<b>152</b> (139-166)	<b>152</b> (135-167)	<b>236</b> (217-258)	<b>354</b> (330-383)	<b>464</b> (407-551)	1080
	09-10	<b>150</b> (143-157)	<b>143</b> (135-152)	<b>225</b> (204-240)	<b>332</b> (310-365)	<b>451</b> (378-528)	1203

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Phenanthrene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Phenanthrene_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PAHs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html)

## Urinary 1-Hydroxyphenanthrene (creatinine corrected) (2011 - 2012)

*Metabolite of Phenanthrene*

Geometric mean and selected percentiles of urine concentrations (in ng/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Total</b>	11-12	<b>143</b> (134-153)	<b>134</b> (126-143)	<b>218</b> (200-247)	<b>357</b> (320-410)	<b>519</b> (473-554)	2490
<b>Age group</b>							
6-11 years	11-12	<b>142</b> (131-155)	<b>137</b> (123-150)	<b>206</b> (175-217)	<b>292</b> (255-363)	<b>450</b> (272-678)	396
12-19 years	11-12	<b>115</b> (101-132)	<b>117</b> (87.0-144)	<b>172</b> (153-213)	<b>254</b> (215-303)	<b>310</b> (254-359)	389
20 years and older	11-12	<b>148</b> (138-159)	<b>137</b> (128-146)	<b>232</b> (206-260)	<b>377</b> (337-459)	<b>543</b> (500-583)	1705
<b>Gender</b>							
Males	11-12	<b>125</b> (118-132)	<b>117</b> (107-124)	<b>188</b> (172-207)	<b>297</b> (272-360)	<b>437</b> (364-522)	1257
Females	11-12	<b>163</b> (148-180)	<b>152</b> (138-175)	<b>250</b> (217-281)	<b>406</b> (340-494)	<b>549</b> (500-664)	1233
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>130</b> (111-152)	<b>117</b> (102-133)	<b>191</b> (148-235)	<b>373</b> (231-676)	<b>497</b> (337-837)	317
Non-Hispanic blacks	11-12	<b>110</b> (100-121)	<b>110</b> (96.1-122)	<b>168</b> (147-197)	<b>273</b> (238-319)	<b>387</b> (322-453)	664
Non-Hispanic whites	11-12	<b>154</b> (143-165)	<b>143</b> (133-154)	<b>234</b> (207-265)	<b>368</b> (335-450)	<b>543</b> (478-593)	812
All Hispanics	11-12	<b>140</b> (125-157)	<b>128</b> (117-141)	<b>214</b> (184-244)	<b>357</b> (274-481)	<b>504</b> (383-792)	573
Asians	11-12	<b>122</b> (106-141)	<b>119</b> (100-136)	<b>191</b> (165-222)	<b>286</b> (260-341)	<b>429</b> (336-571)	352

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Phenanthrene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Phenanthrene_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PAHs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html)



## Urinary 2-Hydroxyphenanthrene (2001 – 2010)

Metabolite of Phenanthrene

Geometric mean and selected percentiles of urine concentrations (in ng/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	<b>54.0</b> (46.0-63.5)	<b>58.0</b> (50.0-68.0)	<b>117</b> (102-140)	<b>240</b> (201-271)	<b>332</b> (299-377)	2742
	03-04	<b>59.3</b> (52.5-66.9)	<b>62.2</b> (55.4-69.7)	<b>117</b> (105-129)	<b>206</b> (180-235)	<b>291</b> (252-336)	2512
	05-06	<b>65.3</b> (60.9-70.0)	<b>63.3</b> (58.5-68.6)	<b>126</b> (111-139)	<b>234</b> (203-254)	<b>314</b> (282-383)	2410
	07-08	<b>63.6</b> (58.8-68.7)	<b>62.9</b> (58.0-68.7)	<b>117</b> (104-130)	<b>204</b> (184-223)	<b>300</b> (256-367)	2572
	09-10	<b>64.1</b> (60.3-68.0)	<b>64.0</b> (58.0-69.0)	<b>114</b> (108-122)	<b>204</b> (185-228)	<b>281</b> (260-310)	2744
Age group 6-11 years	01-02	<b>40.5</b> (34.3-47.7)	<b>46.0</b> (37.0-57.0)	<b>87.0</b> (71.0-101)	<b>170</b> (133-207)	<b>257</b> (195-320)	387
	03-04	<b>45.3</b> (40.0-51.3)	<b>48.1</b> (41.9-56.8)	<b>72.7</b> (63.2-89.4)	<b>135</b> (104-176)	<b>225</b> (136-299)	337
	05-06	<b>42.1</b> (38.4-46.1)	<b>40.1</b> (36.4-47.2)	<b>70.4</b> (58.1-83.2)	<b>110</b> (89.2-132)	<b>152</b> (112-213)	341
	07-08	<b>48.1</b> (41.8-55.4)	<b>46.4</b> (41.7-54.6)	<b>80.3</b> (68.2-95.4)	<b>144</b> (98.8-184)	<b>184</b> (122-229)	382
	09-10	<b>44.6</b> (39.3-50.7)	<b>44.0</b> (39.0-51.0)	<b>71.0</b> (60.0-80.0)	<b>112</b> (89.0-131)	<b>167</b> (112-260)	416
12-19 years	01-02	<b>49.5</b> (37.3-65.7)	<b>52.0</b> (41.0-68.0)	<b>108</b> (93.0-122)	<b>210</b> (145-270)	<b>281</b> (214-524)	733
	03-04	<b>58.0</b> (50.7-66.2)	<b>62.5</b> (54.5-71.6)	<b>104</b> (88.8-132)	<b>198</b> (166-215)	<b>258</b> (199-318)	707
	05-06	<b>60.4</b> (55.4-65.8)	<b>62.4</b> (56.3-67.1)	<b>114</b> (93.8-133)	<b>175</b> (156-195)	<b>250</b> (198-291)	664
	07-08	<b>59.4</b> (52.9-66.7)	<b>60.5</b> (51.5-67.0)	<b>97.4</b> (81.2-121)	<b>160</b> (133-204)	<b>223</b> (175-264)	398
	09-10	<b>60.6</b> (53.0-69.3)	<b>62.0</b> (51.0-68.0)	<b>109</b> (90.0-126)	<b>170</b> (130-230)	<b>230</b> (155-443)	420
20 years and older	01-02	<b>56.8</b> (48.1-66.9)	<b>60.0</b> (52.0-73.0)	<b>126</b> (104-152)	<b>249</b> (207-292)	<b>342</b> (308-398)	1622
	03-04	<b>61.5</b> (53.7-70.4)	<b>64.9</b> (57.2-73.5)	<b>125</b> (111-138)	<b>216</b> (187-250)	<b>310</b> (259-389)	1468
	05-06	<b>69.6</b> (63.6-76.2)	<b>67.3</b> (61.5-75.3)	<b>137</b> (118-154)	<b>251</b> (215-280)	<b>348</b> (298-446)	1405
	07-08	<b>66.2</b> (60.8-72.1)	<b>65.9</b> (60.4-71.2)	<b>123</b> (109-136)	<b>218</b> (195-251)	<b>334</b> (272-412)	1792
	09-10	<b>67.3</b> (63.1-71.8)	<b>68.0</b> (61.0-75.0)	<b>120</b> (114-127)	<b>218</b> (199-244)	<b>296</b> (266-324)	1908
Gender Males	01-02	<b>62.1</b> (53.3-72.5)	<b>67.0</b> (58.0-80.0)	<b>136</b> (109-161)	<b>274</b> (245-303)	<b>367</b> (329-414)	1345
	03-04	<b>72.3</b> (64.4-81.3)	<b>71.6</b> (65.8-83.3)	<b>138</b> (123-150)	<b>240</b> (200-279)	<b>337</b> (279-428)	1211
	05-06	<b>76.5</b> (70.3-83.3)	<b>72.9</b> (67.4-81.3)	<b>141</b> (122-156)	<b>254</b> (219-296)	<b>383</b> (289-555)	1204
	07-08	<b>75.8</b> (70.3-81.8)	<b>73.5</b> (67.6-81.4)	<b>136</b> (126-149)	<b>229</b> (199-256)	<b>354</b> (276-408)	1277
	09-10	<b>72.1</b> (66.6-78.1)	<b>72.0</b> (62.0-79.0)	<b>124</b> (112-139)	<b>227</b> (198-253)	<b>310</b> (271-357)	1397
Females	01-02	<b>47.4</b> (39.1-57.5)	<b>50.0</b> (41.0-60.0)	<b>105</b> (88.0-129)	<b>200</b> (171-240)	<b>294</b> (236-357)	1397
	03-04	<b>49.0</b> (42.4-56.6)	<b>52.5</b> (45.3-58.7)	<b>95.4</b> (84.1-110)	<b>166</b> (146-202)	<b>247</b> (202-291)	1301
	05-06	<b>56.0</b> (50.2-62.5)	<b>54.4</b> (49.5-61.0)	<b>107</b> (94.7-125)	<b>206</b> (173-245)	<b>275</b> (248-343)	1206
	07-08	<b>53.7</b> (48.9-59.0)	<b>53.0</b> (48.9-59.2)	<b>97.0</b> (87.0-111)	<b>173</b> (146-207)	<b>280</b> (206-327)	1295
	09-10	<b>57.2</b> (53.2-61.4)	<b>57.0</b> (52.0-64.0)	<b>108</b> (98.0-114)	<b>189</b> (161-214)	<b>253</b> (214-301)	1347

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, 07-08, and 09-10 are 3.2, 5.0, 5.0, 5.0, and 10.0 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Phenanthrene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Phenanthrene_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PAHs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html)

## Urinary 2-Hydroxyphenanthrene (2001 – 2010)

*Metabolite of Phenanthrene*

Geometric mean and selected percentiles of urine concentrations (in ng/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	01-02	<b>46.8</b> (32.7-66.8)	<b>51.0</b> (36.0-73.0)	<b>97.0</b> (72.0-140)	<b>191</b> (122-332)	<b>303</b> (187-652)	665
	03-04	<b>53.9</b> (46.7-62.1)	<b>60.1</b> (50.8-68.6)	<b>104</b> (89.5-115)	<b>164</b> (144-187)	<b>200</b> (187-219)	627
	05-06	<b>54.6</b> (45.0-66.3)	<b>56.2</b> (47.1-67.7)	<b>96.2</b> (84.4-108)	<b>164</b> (120-202)	<b>213</b> (175-294)	612
	07-08	<b>58.2</b> (53.9-62.7)	<b>59.3</b> (50.8-63.0)	<b>98.6</b> (92.5-113)	<b>167</b> (141-193)	<b>252</b> (192-395)	528
	09-10	<b>57.6</b> (51.3-64.8)	<b>56.0</b> (45.0-64.0)	<b>95.0</b> (80.0-116)	<b>190</b> (153-234)	<b>303</b> (228-479)	566
Non-Hispanic blacks	01-02	<b>71.1</b> (58.0-87.1)	<b>74.0</b> (66.0-90.0)	<b>152</b> (124-182)	<b>262</b> (217-311)	<b>374</b> (284-560)	690
	03-04	<b>81.9</b> (68.2-98.3)	<b>74.1</b> (61.0-102)	<b>164</b> (125-199)	<b>282</b> (217-375)	<b>390</b> (289-574)	660
	05-06	<b>77.3</b> (69.0-86.6)	<b>75.3</b> (65.8-83.5)	<b>141</b> (114-172)	<b>267</b> (202-340)	<b>363</b> (275-546)	641
	07-08	<b>72.8</b> (65.2-81.3)	<b>70.7</b> (62.6-80.2)	<b>127</b> (115-149)	<b>251</b> (206-284)	<b>367</b> (284-455)	597
	09-10	<b>80.1</b> (71.2-90.0)	<b>86.0</b> (77.0-98.0)	<b>139</b> (123-164)	<b>224</b> (190-265)	<b>295</b> (252-367)	517
Non-Hispanic whites	01-02	<b>53.1</b> (43.6-64.6)	<b>57.0</b> (48.0-68.0)	<b>117</b> (99.0-144)	<b>242</b> (199-286)	<b>333</b> (303-385)	1204
	03-04	<b>58.1</b> (49.9-67.6)	<b>60.5</b> (52.1-71.0)	<b>115</b> (97.9-133)	<b>209</b> (172-259)	<b>299</b> (251-358)	1034
	05-06	<b>65.2</b> (59.4-71.5)	<b>63.7</b> (57.0-70.4)	<b>130</b> (109-144)	<b>244</b> (206-261)	<b>343</b> (282-439)	974
	07-08	<b>63.3</b> (56.6-70.8)	<b>64.0</b> (56.4-71.1)	<b>121</b> (102-135)	<b>203</b> (174-234)	<b>298</b> (238-410)	1050
	09-10	<b>62.9</b> (57.5-68.7)	<b>63.0</b> (55.0-69.0)	<b>112</b> (101-121)	<b>200</b> (165-242)	<b>279</b> (242-310)	1200

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, 07-08, and 09-10 are 3.2, 5.0, 5.0, 5.0, and 10.0 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Phenanthrene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Phenanthrene_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PAHs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html)

## Urinary 2-Hydroxyphenanthrene (2011 - 2012)

*Metabolite of Phenanthrene*

Geometric mean and selected percentiles of urine concentrations (in ng/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Total</b>	11-12	<b>60.8</b> (56.8-65.2)	<b>60.0</b> (56.0-65.0)	<b>113</b> (105-123)	<b>214</b> (187-242)	<b>288</b> (263-317)	2489
<b>Age group</b>							
6-11 years	11-12	<b>39.6</b> (34.3-45.6)	<b>39.0</b> (33.0-46.0)	<b>78.0</b> (61.0-96.0)	<b>133</b> (109-153)	<b>173</b> (133-237)	397
12-19 years	11-12	<b>56.5</b> (49.8-64.1)	<b>62.0</b> (53.0-70.0)	<b>105</b> (88.0-114)	<b>162</b> (134-183)	<b>212</b> (169-248)	389
20 years and older	11-12	<b>64.5</b> (60.0-69.4)	<b>64.0</b> (57.0-68.0)	<b>121</b> (107-132)	<b>233</b> (198-263)	<b>311</b> (271-340)	1703
<b>Gender</b>							
Males	11-12	<b>70.3</b> (63.9-77.4)	<b>69.0</b> (63.0-77.0)	<b>130</b> (115-143)	<b>246</b> (198-288)	<b>339</b> (277-384)	1257
Females	11-12	<b>53.0</b> (48.7-57.5)	<b>52.0</b> (50.0-56.0)	<b>100</b> (89.0-109)	<b>184</b> (158-210)	<b>259</b> (216-282)	1232
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>56.3</b> (43.9-72.1)	<b>56.0</b> (46.0-69.0)	<b>97.0</b> (79.0-140)	<b>180</b> (128-276)	<b>276</b> (175-508)	317
Non-Hispanic blacks	11-12	<b>78.9</b> (72.3-86.2)	<b>75.0</b> (68.0-81.0)	<b>145</b> (122-166)	<b>246</b> (212-297)	<b>368</b> (286-436)	663
Non-Hispanic whites	11-12	<b>58.3</b> (54.7-62.2)	<b>58.0</b> (53.0-64.0)	<b>109</b> (100-121)	<b>204</b> (169-243)	<b>282</b> (247-312)	812
All Hispanics	11-12	<b>62.2</b> (52.7-73.4)	<b>62.0</b> (53.0-75.0)	<b>112</b> (99.0-134)	<b>202</b> (175-248)	<b>268</b> (214-416)	573
Asians	11-12	<b>50.3</b> (40.5-62.4)	<b>50.0</b> (39.0-58.0)	<b>96.0</b> (78.0-118)	<b>187</b> (126-240)	<b>257</b> (193-338)	352

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 10.0.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Phenanthrene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Phenanthrene_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PAHs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html)

## Urinary 2-Hydroxyphenanthrene (creatinine corrected) (2001 – 2010)

*Metabolite of Phenanthrene*

Geometric mean and selected percentiles of urine concentrations (in ng/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	<b>50.6</b> (43.3-59.2)	<b>52.5</b> (46.4-59.6)	<b>91.4</b> (78.7-108)	<b>164</b> (138-200)	<b>233</b> (206-275)	2742
	03-04	<b>55.4</b> (51.1-60.0)	<b>52.3</b> (48.8-55.8)	<b>85.8</b> (79.4-97.0)	<b>150</b> (128-174)	<b>212</b> (180-252)	2512
	05-06	<b>63.1</b> (58.9-67.5)	<b>57.0</b> (53.3-61.9)	<b>101</b> (92.8-110)	<b>178</b> (157-194)	<b>245</b> (209-295)	2410
	07-08	<b>64.0</b> (58.9-69.4)	<b>60.3</b> (55.3-66.5)	<b>98.2</b> (87.5-108)	<b>163</b> (151-179)	<b>229</b> (199-248)	2572
	09-10	<b>66.9</b> (64.5-69.3)	<b>62.2</b> (58.9-65.2)	<b>97.7</b> (94.7-103)	<b>166</b> (155-176)	<b>228</b> (212-251)	2744
Age group 6-11 years	01-02	<b>45.3</b> (38.8-52.8)	<b>50.0</b> (40.0-57.8)	<b>85.9</b> (69.6-100)	<b>144</b> (105-217)	<b>234</b> (138-397)	387
	03-04	<b>47.9</b> (43.6-52.7)	<b>46.6</b> (41.0-51.4)	<b>66.3</b> (60.3-72.8)	<b>106</b> (81.0-125)	<b>183</b> (108-295)	337
	05-06	<b>45.9</b> (42.0-50.1)	<b>43.6</b> (38.4-48.7)	<b>65.8</b> (56.1-85.2)	<b>101</b> (85.4-110)	<b>116</b> (101-135)	341
	07-08	<b>59.7</b> (51.2-69.4)	<b>56.5</b> (49.4-65.2)	<b>85.1</b> (73.1-107)	<b>134</b> (105-187)	<b>187</b> (121-437)	382
	09-10	<b>58.2</b> (52.3-64.9)	<b>54.7</b> (49.3-60.5)	<b>76.6</b> (69.6-93.8)	<b>124</b> (104-145)	<b>170</b> (134-320)	416
12-19 years	01-02	<b>38.4</b> (29.6-49.7)	<b>38.5</b> (30.6-48.7)	<b>64.9</b> (52.4-84.0)	<b>117</b> (86.7-167)	<b>173</b> (128-305)	733
	03-04	<b>43.6</b> (39.3-48.5)	<b>40.8</b> (37.7-45.0)	<b>70.6</b> (55.8-84.7)	<b>106</b> (88.2-123)	<b>127</b> (115-176)	707
	05-06	<b>44.5</b> (39.9-49.7)	<b>42.7</b> (38.9-47.1)	<b>66.1</b> (58.0-73.7)	<b>111</b> (80.0-129)	<b>146</b> (115-232)	664
	07-08	<b>46.1</b> (42.0-50.5)	<b>47.0</b> (39.7-53.0)	<b>69.7</b> (62.0-78.0)	<b>100</b> (83.0-113)	<b>127</b> (105-188)	398
	09-10	<b>48.7</b> (45.1-52.6)	<b>46.5</b> (43.0-50.8)	<b>67.8</b> (59.2-73.3)	<b>97.0</b> (77.3-137)	<b>140</b> (103-186)	420
20 years and older	01-02	<b>53.7</b> (46.2-62.4)	<b>55.6</b> (49.4-62.7)	<b>94.6</b> (84.1-112)	<b>173</b> (145-201)	<b>241</b> (209-287)	1622
	03-04	<b>58.7</b> (53.6-64.2)	<b>54.8</b> (50.7-60.9)	<b>91.6</b> (83.5-105)	<b>164</b> (139-182)	<b>227</b> (183-291)	1468
	05-06	<b>69.1</b> (64.1-74.6)	<b>63.6</b> (58.4-67.8)	<b>111</b> (102-123)	<b>191</b> (168-216)	<b>267</b> (232-316)	1405
	07-08	<b>67.8</b> (62.4-73.8)	<b>64.1</b> (57.6-71.6)	<b>105</b> (95.5-119)	<b>177</b> (160-194)	<b>239</b> (211-255)	1792
	09-10	<b>71.2</b> (68.4-74.2)	<b>66.2</b> (61.9-72.5)	<b>107</b> (101-113)	<b>177</b> (164-195)	<b>237</b> (220-258)	1908
Gender Males	01-02	<b>50.4</b> (43.3-58.5)	<b>52.5</b> (47.2-59.2)	<b>91.4</b> (78.6-103)	<b>176</b> (140-208)	<b>245</b> (206-349)	1345
	03-04	<b>56.6</b> (52.5-61.0)	<b>52.3</b> (48.1-57.1)	<b>84.7</b> (79.2-96.4)	<b>157</b> (132-180)	<b>227</b> (184-284)	1211
	05-06	<b>61.2</b> (56.7-65.9)	<b>55.7</b> (50.0-59.3)	<b>102</b> (89.3-111)	<b>161</b> (137-194)	<b>244</b> (190-310)	1204
	07-08	<b>64.0</b> (59.3-69.1)	<b>59.8</b> (55.3-64.1)	<b>99.7</b> (90.5-108)	<b>172</b> (152-191)	<b>229</b> (211-243)	1277
	09-10	<b>64.7</b> (61.1-68.6)	<b>60.8</b> (55.1-66.7)	<b>97.7</b> (89.1-111)	<b>162</b> (150-179)	<b>229</b> (202-251)	1397
Females	01-02	<b>50.9</b> (42.7-60.7)	<b>52.8</b> (45.5-61.0)	<b>91.6</b> (75.0-115)	<b>158</b> (133-183)	<b>214</b> (200-245)	1397
	03-04	<b>54.3</b> (48.7-60.5)	<b>52.3</b> (47.0-57.2)	<b>88.1</b> (76.4-101)	<b>146</b> (118-179)	<b>202</b> (175-246)	1301
	05-06	<b>65.0</b> (60.0-70.3)	<b>60.5</b> (55.1-65.3)	<b>101</b> (91.6-113)	<b>184</b> (165-201)	<b>256</b> (224-312)	1206
	07-08	<b>63.9</b> (57.8-70.7)	<b>61.5</b> (54.0-69.3)	<b>95.8</b> (83.7-115)	<b>159</b> (140-189)	<b>229</b> (186-256)	1295
	09-10	<b>68.9</b> (65.8-72.2)	<b>62.9</b> (59.0-66.9)	<b>97.6</b> (91.5-106)	<b>168</b> (150-189)	<b>224</b> (203-260)	1347

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Phenanthrene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Phenanthrene_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PAHs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html)

## Urinary 2-Hydroxyphenanthrene (creatinine corrected) (2001 – 2010)

*Metabolite of Phenanthrene*

Geometric mean and selected percentiles of urine concentrations (in ng/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Race/ethnicity</b>							
Mexican Americans	01-02	<b>43.7</b> (31.9-59.8)	<b>44.0</b> (34.3-58.8)	<b>80.8</b> (59.8-115)	<b>146</b> (103-245)	<b>245</b> (144-394)	665
	03-04	<b>48.8</b> (42.5-55.9)	<b>50.1</b> (42.4-58.8)	<b>79.5</b> (68.1-86.1)	<b>124</b> (96.2-149)	<b>155</b> (127-206)	627
	05-06	<b>48.7</b> (43.0-55.2)	<b>46.0</b> (39.4-56.2)	<b>75.1</b> (62.9-85.8)	<b>111</b> (94.5-138)	<b>146</b> (121-178)	612
	07-08	<b>56.7</b> (51.1-62.8)	<b>55.0</b> (47.7-62.2)	<b>83.7</b> (76.2-90.4)	<b>133</b> (107-180)	<b>198</b> (145-233)	528
	09-10	<b>57.2</b> (50.0-65.4)	<b>49.7</b> (45.0-55.8)	<b>80.0</b> (65.2-103)	<b>162</b> (118-212)	<b>282</b> (195-402)	566
Non-Hispanic blacks	01-02	<b>50.2</b> (40.5-62.2)	<b>49.7</b> (44.3-56.0)	<b>87.7</b> (72.6-103)	<b>174</b> (127-224)	<b>257</b> (178-459)	690
	03-04	<b>57.7</b> (49.7-67.1)	<b>53.1</b> (45.7-63.5)	<b>90.2</b> (77.6-116)	<b>165</b> (131-189)	<b>224</b> (173-357)	660
	05-06	<b>54.3</b> (49.7-59.3)	<b>47.7</b> (45.4-51.3)	<b>84.8</b> (71.3-97.8)	<b>150</b> (116-192)	<b>211</b> (167-298)	641
	07-08	<b>56.6</b> (50.4-63.6)	<b>51.2</b> (46.6-55.9)	<b>95.5</b> (77.7-107)	<b>154</b> (136-178)	<b>212</b> (188-232)	597
	09-10	<b>58.1</b> (54.5-61.9)	<b>55.7</b> (51.4-59.7)	<b>87.6</b> (80.8-96.5)	<b>150</b> (135-164)	<b>191</b> (164-210)	517
Non-Hispanic whites	01-02	<b>52.5</b> (43.8-62.9)	<b>54.8</b> (47.7-61.9)	<b>92.7</b> (80.5-113)	<b>170</b> (140-204)	<b>233</b> (202-293)	1204
	03-04	<b>57.0</b> (51.6-62.9)	<b>52.7</b> (48.7-57.0)	<b>88.5</b> (79.0-102)	<b>159</b> (126-187)	<b>239</b> (180-296)	1034
	05-06	<b>67.9</b> (62.6-73.7)	<b>60.9</b> (56.5-66.5)	<b>111</b> (101-123)	<b>191</b> (162-224)	<b>274</b> (231-323)	974
	07-08	<b>65.9</b> (59.4-73.3)	<b>62.8</b> (55.1-72.0)	<b>100</b> (87.2-119)	<b>166</b> (147-190)	<b>229</b> (197-252)	1050
	09-10	<b>70.7</b> (67.2-74.3)	<b>65.4</b> (61.0-72.0)	<b>104</b> (95.2-112)	<b>166</b> (154-186)	<b>228</b> (212-252)	1200

### Biomonitoring Summary

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### Factsheet

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## Urinary 2-Hydroxyphenanthrene (creatinine corrected) (2011 - 2012)

*Metabolite of Phenanthrene*

Geometric mean and selected percentiles of urine concentrations (in ng/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Total</b>	11-12	<b>69.2</b> (65.5-73.1)	<b>62.2</b> (59.1-66.9)	<b>106</b> (97.4-116)	<b>182</b> (167-202)	<b>248</b> (218-293)	2487
<b>Age group</b>							
6-11 years	11-12	<b>56.8</b> (50.8-63.6)	<b>54.7</b> (48.8-60.0)	<b>78.9</b> (68.8-95.3)	<b>121</b> (105-148)	<b>180</b> (131-200)	396
12-19 years	11-12	<b>54.6</b> (49.9-59.6)	<b>52.4</b> (44.9-64.0)	<b>81.4</b> (70.8-92.6)	<b>112</b> (103-147)	<b>163</b> (121-203)	389
20 years and older	11-12	<b>73.3</b> (69.2-77.7)	<b>65.3</b> (60.9-70.0)	<b>116</b> (105-127)	<b>200</b> (178-215)	<b>280</b> (221-336)	1702
<b>Gender</b>							
Males	11-12	<b>65.9</b> (61.8-70.3)	<b>58.2</b> (54.6-61.2)	<b>104</b> (96.9-113)	<b>181</b> (159-202)	<b>248</b> (192-385)	1256
Females	11-12	<b>72.5</b> (66.9-78.6)	<b>67.9</b> (62.7-73.4)	<b>108</b> (94.7-125)	<b>187</b> (165-206)	<b>248</b> (213-293)	1231
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>63.3</b> (53.1-75.4)	<b>55.2</b> (47.3-66.7)	<b>93.2</b> (78.0-108)	<b>173</b> (116-237)	<b>243</b> (166-600)	317
Non-Hispanic blacks	11-12	<b>61.4</b> (56.1-67.1)	<b>59.2</b> (52.6-65.4)	<b>90.8</b> (84.4-98.9)	<b>162</b> (124-192)	<b>227</b> (187-272)	663
Non-Hispanic whites	11-12	<b>70.9</b> (67.0-74.9)	<b>64.0</b> (59.3-68.8)	<b>110</b> (101-120)	<b>187</b> (167-203)	<b>248</b> (206-293)	810
All Hispanics	11-12	<b>69.6</b> (61.1-79.3)	<b>61.2</b> (53.1-70.4)	<b>104</b> (91.3-123)	<b>180</b> (144-237)	<b>256</b> (202-455)	573
Asians	11-12	<b>67.4</b> (56.5-80.3)	<b>65.2</b> (50.0-82.4)	<b>105</b> (88.6-130)	<b>162</b> (140-200)	<b>231</b> (171-313)	352

### Biomonitoring Summary

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### Factsheet

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## Urinary 3-Hydroxyphenanthrene (2001 – 2010)

Metabolite of Phenanthrene

Geometric mean and selected percentiles of urine concentrations (in ng/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size	
Total	01-02	<b>105</b> (92.5-118)	<b>105</b> (92.0-118)	<b>200</b> (179-225)	<b>401</b> (336-480)	<b>649</b> (542-747)	2741	
	03-04	<b>115</b> (104-128)	<b>118</b> (107-129)	<b>219</b> (201-237)	<b>424</b> (351-487)	<b>647</b> (509-788)	2426	
	05-06	<b>103</b> (96.1-109)	<b>99.8</b> (90.3-107)	<b>200</b> (185-210)	<b>399</b> (365-429)	<b>593</b> (463-746)	2448	
	07-08	<b>97.6</b> (91.6-104)	<b>97.8</b> (90.9-106)	<b>178</b> (164-195)	<b>319</b> (283-353)	<b>490</b> (426-557)	2601	
	09-10	<b>71.7</b> (67.1-76.7)	<b>71.0</b> (67.0-76.0)	<b>130</b> (121-140)	<b>248</b> (225-265)	<b>354</b> (303-412)	2746	
Age group	6-11 years	01-02	<b>105</b> (91.1-122)	<b>109</b> (82.0-138)	<b>195</b> (160-231)	<b>298</b> (245-346)	<b>412</b> (319-545)	387
		03-04	<b>116</b> (99.9-134)	<b>107</b> (93.0-135)	<b>205</b> (170-223)	<b>333</b> (241-435)	<b>472</b> (322-881)	325
		05-06	<b>89.6</b> (79.6-101)	<b>84.0</b> (72.6-103)	<b>154</b> (123-176)	<b>245</b> (193-316)	<b>316</b> (245-569)	345
		07-08	<b>100</b> (85.9-117)	<b>102</b> (83.4-126)	<b>175</b> (144-183)	<b>251</b> (194-328)	<b>348</b> (239-862)	389
		09-10	<b>66.2</b> (58.1-75.4)	<b>69.0</b> (60.0-75.0)	<b>110</b> (98.0-126)	<b>198</b> (145-229)	<b>285</b> (198-417)	416
	12-19 years	01-02	<b>104</b> (87.3-125)	<b>107</b> (90.0-122)	<b>201</b> (165-231)	<b>329</b> (255-445)	<b>459</b> (331-631)	733
		03-04	<b>120</b> (103-141)	<b>127</b> (107-149)	<b>221</b> (195-262)	<b>366</b> (327-424)	<b>564</b> (391-730)	677
		05-06	<b>105</b> (96.5-113)	<b>104</b> (97.3-116)	<b>193</b> (166-217)	<b>323</b> (275-383)	<b>453</b> (377-604)	676
		07-08	<b>103</b> (92.9-114)	<b>103</b> (89.5-116)	<b>173</b> (146-195)	<b>293</b> (246-352)	<b>371</b> (323-436)	401
		09-10	<b>77.5</b> (67.2-89.3)	<b>75.0</b> (65.0-85.0)	<b>136</b> (115-168)	<b>237</b> (184-315)	<b>320</b> (243-452)	420
	20 years and older	01-02	<b>105</b> (91.7-119)	<b>105</b> (89.0-118)	<b>201</b> (180-231)	<b>433</b> (366-515)	<b>683</b> (597-806)	1621
		03-04	<b>114</b> (103-128)	<b>118</b> (105-130)	<b>221</b> (203-243)	<b>450</b> (353-505)	<b>696</b> (511-885)	1424
		05-06	<b>104</b> (95.3-113)	<b>101</b> (89.6-113)	<b>206</b> (188-223)	<b>419</b> (384-466)	<b>657</b> (481-832)	1427
		07-08	<b>96.5</b> (89.3-104)	<b>96.9</b> (87.3-106)	<b>183</b> (163-201)	<b>331</b> (285-393)	<b>535</b> (432-624)	1811
		09-10	<b>71.5</b> (66.8-76.6)	<b>71.0</b> (67.0-75.0)	<b>131</b> (121-147)	<b>250</b> (233-279)	<b>370</b> (308-435)	1910
Gender	Males	01-02	<b>122</b> (107-138)	<b>117</b> (106-132)	<b>224</b> (188-278)	<b>474</b> (372-597)	<b>734</b> (597-1010)	1344
		03-04	<b>137</b> (122-154)	<b>135</b> (119-157)	<b>251</b> (221-287)	<b>487</b> (398-579)	<b>754</b> (606-913)	1167
		05-06	<b>125</b> (114-137)	<b>119</b> (107-136)	<b>227</b> (204-261)	<b>427</b> (395-491)	<b>768</b> (520-951)	1222
		07-08	<b>117</b> (109-127)	<b>115</b> (103-130)	<b>209</b> (191-229)	<b>352</b> (322-390)	<b>557</b> (462-674)	1290
		09-10	<b>82.6</b> (76.0-89.7)	<b>79.0</b> (73.0-85.0)	<b>147</b> (126-169)	<b>263</b> (242-302)	<b>412</b> (344-466)	1399
	Females	01-02	<b>90.8</b> (77.7-106)	<b>93.0</b> (80.0-108)	<b>184</b> (155-207)	<b>328</b> (291-399)	<b>518</b> (434-649)	1397
		03-04	<b>97.7</b> (86.5-110)	<b>100</b> (86.6-114)	<b>193</b> (170-210)	<b>351</b> (287-445)	<b>531</b> (447-647)	1259
		05-06	<b>84.6</b> (75.6-94.5)	<b>82.4</b> (73.1-92.5)	<b>159</b> (143-176)	<b>363</b> (285-404)	<b>480</b> (421-577)	1226
		07-08	<b>81.9</b> (76.8-87.3)	<b>81.7</b> (74.7-91.0)	<b>148</b> (134-173)	<b>272</b> (237-326)	<b>439</b> (355-501)	1311
		09-10	<b>62.7</b> (57.9-67.8)	<b>64.0</b> (58.0-69.0)	<b>119</b> (109-131)	<b>223</b> (189-253)	<b>311</b> (255-379)	1347

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, 07-08, and 09-10 are 3.6, 5.0, 5.0, 5.0, and 10.0 respectively.

\*Not measured after Survey years 2011-2012.

### Biomonitoring Summary

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### Factsheet

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## Urinary 3-Hydroxyphenanthrene (2001 – 2010)

*Metabolite of Phenanthrene*

Geometric mean and selected percentiles of urine concentrations (in ng/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	01-02	<b>83.5</b> (64.1-109)	<b>84.0</b> (64.0-111)	<b>144</b> (117-198)	<b>259</b> (193-430)	<b>454</b> (253-1140)	664
	03-04	<b>92.7</b> (81.3-106)	<b>92.8</b> (84.1-111)	<b>164</b> (133-204)	<b>317</b> (236-374)	<b>436</b> (338-501)	576
	05-06	<b>77.0</b> (64.1-92.5)	<b>74.8</b> (60.0-90.8)	<b>138</b> (110-162)	<b>260</b> (191-312)	<b>366</b> (299-471)	620
	07-08	<b>79.1</b> (71.4-87.7)	<b>75.3</b> (66.4-85.2)	<b>133</b> (118-154)	<b>250</b> (176-330)	<b>414</b> (302-511)	529
	09-10	<b>56.9</b> (50.7-63.8)	<b>54.0</b> (45.0-63.0)	<b>96.0</b> (79.0-114)	<b>193</b> (145-244)	<b>317</b> (240-484)	566
Non-Hispanic blacks	01-02	<b>145</b> (122-172)	<b>135</b> (120-163)	<b>281</b> (228-346)	<b>516</b> (414-684)	<b>957</b> (609-1410)	690
	03-04	<b>167</b> (141-198)	<b>160</b> (136-198)	<b>315</b> (243-414)	<b>548</b> (457-688)	<b>870</b> (590-1220)	668
	05-06	<b>138</b> (120-159)	<b>125</b> (113-147)	<b>260</b> (211-329)	<b>466</b> (365-671)	<b>716</b> (491-1100)	658
	07-08	<b>129</b> (115-145)	<b>129</b> (112-148)	<b>237</b> (205-266)	<b>427</b> (349-514)	<b>657</b> (514-839)	596
	09-10	<b>103</b> (89.1-118)	<b>110</b> (94.0-123)	<b>196</b> (168-220)	<b>310</b> (248-422)	<b>456</b> (368-544)	517
Non-Hispanic whites	01-02	<b>104</b> (90.8-120)	<b>106</b> (92.0-120)	<b>199</b> (177-224)	<b>401</b> (331-495)	<b>649</b> (518-747)	1204
	03-04	<b>114</b> (100-129)	<b>117</b> (104-128)	<b>220</b> (201-235)	<b>443</b> (333-511)	<b>702</b> (505-915)	1000
	05-06	<b>101</b> (93.6-110)	<b>101</b> (89.3-112)	<b>200</b> (181-213)	<b>402</b> (368-434)	<b>657</b> (449-829)	982
	07-08	<b>97.0</b> (87.7-107)	<b>97.9</b> (87.3-111)	<b>179</b> (155-202)	<b>315</b> (270-355)	<b>468</b> (371-590)	1077
	09-10	<b>69.6</b> (63.3-76.5)	<b>70.0</b> (65.0-75.0)	<b>121</b> (110-137)	<b>235</b> (203-263)	<b>322</b> (255-410)	1203

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, 07-08, and 09-10 are 3.6, 5.0, 5.0, 5.0, and 10.0 respectively.

+Not measured after Survey years 2011-2012.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Phenanthrene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Phenanthrene_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PAHs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html)

## Urinary 3-Hydroxyphenanthrene (2011 - 2012)

*Metabolite of Phenanthrene*

Geometric mean and selected percentiles of urine concentrations (in ng/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Total</b>	11-12	<b>61.9</b> (57.2-67.0)	<b>62.0</b> (57.0-66.0)	<b>127</b> (115-136)	<b>235</b> (201-280)	<b>377</b> (289-479)	2491
<b>Age group</b>							
6-11 years	11-12	<b>55.3</b> (48.4-63.2)	<b>60.0</b> (48.0-73.0)	<b>104</b> (92.0-122)	<b>192</b> (169-248)	<b>287</b> (214-413)	397
12-19 years	11-12	<b>63.6</b> (55.1-73.5)	<b>65.0</b> (57.0-76.0)	<b>125</b> (115-144)	<b>198</b> (169-235)	<b>296</b> (200-389)	389
20 years and older	11-12	<b>62.4</b> (57.2-68.1)	<b>61.0</b> (54.0-67.0)	<b>130</b> (111-144)	<b>251</b> (206-296)	<b>413</b> (295-499)	1705
<b>Gender</b>							
Males	11-12	<b>72.3</b> (63.9-81.7)	<b>68.0</b> (60.0-78.0)	<b>145</b> (127-168)	<b>273</b> (205-392)	<b>475</b> (296-651)	1258
Females	11-12	<b>53.4</b> (48.3-59.0)	<b>55.0</b> (48.0-59.0)	<b>105</b> (93.0-126)	<b>207</b> (175-235)	<b>297</b> (251-364)	1233
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>54.8</b> (42.1-71.2)	<b>54.0</b> (46.0-69.0)	<b>103</b> (79.0-139)	<b>197</b> (128-364)	<b>308</b> (139-1270)	317
Non-Hispanic blacks	11-12	<b>92.6</b> (84.3-102)	<b>98.0</b> (84.0-105)	<b>185</b> (164-202)	<b>348</b> (261-441)	<b>519</b> (428-611)	664
Non-Hispanic whites	11-12	<b>58.2</b> (54.3-62.4)	<b>58.0</b> (50.0-64.0)	<b>119</b> (102-132)	<b>221</b> (184-265)	<b>325</b> (265-475)	813
All Hispanics	11-12	<b>61.3</b> (51.2-73.3)	<b>61.0</b> (54.0-72.0)	<b>123</b> (101-149)	<b>230</b> (172-308)	<b>377</b> (244-452)	573
Asians	11-12	<b>50.0</b> (39.8-62.9)	<b>47.0</b> (37.0-59.0)	<b>106</b> (69.0-141)	<b>213</b> (136-278)	<b>282</b> (215-400)	352

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 10.0.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Phenanthrene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Phenanthrene_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PAHs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html)

## Urinary 3-Hydroxyphenanthrene (creatinine corrected) (2001 – 2010)

*Metabolite of Phenanthrene*

Geometric mean and selected percentiles of urine concentrations (in ng/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	<b>98.0</b> (87.4-110)	<b>86.5</b> (78.8-97.1)	<b>158</b> (142-174)	<b>299</b> (252-342)	<b>428</b> (365-621)	2741
	03-04	<b>108</b> (101-115)	<b>99.5</b> (91.9-106)	<b>172</b> (158-189)	<b>321</b> (273-363)	<b>497</b> (406-566)	2426
	05-06	<b>99.5</b> (93.6-106)	<b>88.1</b> (83.8-93.5)	<b>164</b> (151-175)	<b>326</b> (273-364)	<b>443</b> (402-525)	2448
	07-08	<b>98.1</b> (91.3-106)	<b>91.3</b> (81.8-100)	<b>159</b> (141-174)	<b>273</b> (246-301)	<b>380</b> (333-442)	2601
	09-10	<b>74.9</b> (71.8-78.1)	<b>68.4</b> (63.8-73.1)	<b>114</b> (110-118)	<b>207</b> (192-224)	<b>281</b> (257-326)	2746
<b>Age group</b>							
6-11 years	01-02	<b>118</b> (103-135)	<b>114</b> (94.9-131)	<b>173</b> (150-201)	<b>289</b> (238-368)	<b>410</b> (308-544)	387
	03-04	<b>124</b> (110-138)	<b>119</b> (110-129)	<b>165</b> (145-202)	<b>283</b> (231-402)	<b>484</b> (269-710)	325
	05-06	<b>99.6</b> (89.4-111)	<b>93.5</b> (85.7-107)	<b>146</b> (118-165)	<b>232</b> (171-292)	<b>292</b> (232-352)	345
	07-08	<b>123</b> (107-142)	<b>120</b> (105-143)	<b>183</b> (159-200)	<b>230</b> (201-382)	<b>382</b> (222-948)	389
	09-10	<b>86.3</b> (77.7-95.9)	<b>77.9</b> (69.6-90.6)	<b>129</b> (110-136)	<b>194</b> (161-252)	<b>290</b> (193-484)	416
12-19 years	01-02	<b>81.1</b> (70.1-93.8)	<b>78.0</b> (66.7-89.4)	<b>116</b> (96.5-144)	<b>205</b> (153-275)	<b>283</b> (198-511)	733
	03-04	<b>90.3</b> (81.5-100)	<b>84.9</b> (76.1-93.9)	<b>139</b> (116-160)	<b>212</b> (193-231)	<b>295</b> (225-429)	677
	05-06	<b>78.2</b> (70.9-86.3)	<b>72.5</b> (66.7-82.1)	<b>111</b> (98.8-121)	<b>183</b> (141-262)	<b>291</b> (211-465)	676
	07-08	<b>80.0</b> (73.6-86.9)	<b>74.4</b> (67.0-87.5)	<b>117</b> (110-126)	<b>188</b> (151-223)	<b>243</b> (213-284)	401
	09-10	<b>62.3</b> (57.4-67.6)	<b>60.5</b> (55.7-64.1)	<b>88.8</b> (78.2-98.0)	<b>123</b> (105-182)	<b>190</b> (124-228)	420
20 years and older	01-02	<b>98.9</b> (88.3-111)	<b>85.3</b> (78.3-96.6)	<b>164</b> (147-183)	<b>320</b> (273-356)	<b>488</b> (379-774)	1621
	03-04	<b>109</b> (102-117)	<b>99.1</b> (91.7-106)	<b>180</b> (161-198)	<b>343</b> (282-385)	<b>523</b> (417-608)	1424
	05-06	<b>103</b> (96.3-111)	<b>90.3</b> (84.4-97.8)	<b>177</b> (161-200)	<b>350</b> (319-387)	<b>506</b> (426-538)	1427
	07-08	<b>98.8</b> (91.2-107)	<b>90.3</b> (80.2-100)	<b>163</b> (140-184)	<b>290</b> (262-321)	<b>388</b> (338-464)	1811
	09-10	<b>75.8</b> (72.4-79.3)	<b>69.0</b> (63.6-73.6)	<b>118</b> (113-124)	<b>220</b> (200-239)	<b>297</b> (260-341)	1910
<b>Gender</b>							
Males	01-02	<b>98.6</b> (87.7-111)	<b>87.1</b> (79.5-98.2)	<b>159</b> (138-188)	<b>310</b> (245-368)	<b>505</b> (356-761)	1344
	03-04	<b>107</b> (98.2-116)	<b>99.2</b> (87.4-109)	<b>169</b> (154-184)	<b>305</b> (261-343)	<b>491</b> (383-592)	1167
	05-06	<b>100</b> (92.6-109)	<b>89.2</b> (81.5-97.0)	<b>166</b> (147-184)	<b>326</b> (260-365)	<b>430</b> (364-553)	1222
	07-08	<b>98.9</b> (91.2-107)	<b>91.3</b> (81.3-101)	<b>166</b> (146-184)	<b>288</b> (263-310)	<b>382</b> (321-449)	1290
	09-10	<b>74.1</b> (69.7-78.8)	<b>66.4</b> (59.5-73.8)	<b>117</b> (108-126)	<b>217</b> (193-234)	<b>296</b> (245-351)	1399
Females	01-02	<b>97.5</b> (84.9-112)	<b>86.4</b> (76.9-100)	<b>158</b> (139-178)	<b>292</b> (245-333)	<b>410</b> (352-583)	1397
	03-04	<b>109</b> (99.6-119)	<b>100</b> (88.9-110)	<b>176</b> (155-202)	<b>328</b> (265-398)	<b>497</b> (380-594)	1259
	05-06	<b>98.7</b> (91.6-106)	<b>87.3</b> (80.4-95.1)	<b>160</b> (144-177)	<b>332</b> (284-375)	<b>446</b> (393-518)	1226
	07-08	<b>97.4</b> (89.6-106)	<b>90.9</b> (79.4-102)	<b>150</b> (131-181)	<b>262</b> (223-305)	<b>377</b> (299-446)	1311
	09-10	<b>75.6</b> (71.6-79.8)	<b>69.4</b> (64.7-75.0)	<b>113</b> (107-118)	<b>196</b> (182-219)	<b>274</b> (241-331)	1347

### Biomonitoring Summary

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### Factsheet

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## Urinary 3-Hydroxyphenanthrene (creatinine corrected) (2001 – 2010)

*Metabolite of Phenanthrene*

Geometric mean and selected percentiles of urine concentrations (in ng/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Race/ethnicity</b>							
Mexican Americans	01-02	<b>78.2</b> (62.4-98.0)	<b>70.8</b> (56.2-87.4)	<b>130</b> (92.9-171)	<b>224</b> (173-321)	<b>333</b> (224-656)	664
	03-04	<b>83.8</b> (75.1-93.6)	<b>79.5</b> (72.9-87.0)	<b>137</b> (111-165)	<b>224</b> (188-274)	<b>305</b> (247-406)	576
	05-06	<b>68.8</b> (61.0-77.7)	<b>61.3</b> (51.5-73.2)	<b>96.9</b> (82.9-122)	<b>175</b> (159-206)	<b>291</b> (200-387)	620
	07-08	<b>77.1</b> (68.5-86.7)	<b>71.6</b> (63.1-78.8)	<b>113</b> (99.6-133)	<b>200</b> (160-227)	<b>275</b> (230-334)	529
	09-10	<b>56.5</b> (49.6-64.3)	<b>48.4</b> (42.7-57.0)	<b>82.4</b> (67.4-97.4)	<b>170</b> (119-252)	<b>265</b> (201-417)	566
Non-Hispanic blacks	01-02	<b>102</b> (85.8-122)	<b>91.9</b> (79.8-108)	<b>160</b> (133-202)	<b>296</b> (234-475)	<b>673</b> (347-1260)	690
	03-04	<b>117</b> (102-135)	<b>106</b> (89.4-126)	<b>186</b> (157-217)	<b>346</b> (264-439)	<b>530</b> (373-772)	668
	05-06	<b>97.0</b> (86.6-109)	<b>85.7</b> (77.3-94.1)	<b>141</b> (125-172)	<b>271</b> (217-366)	<b>443</b> (283-623)	658
	07-08	<b>101</b> (88.7-114)	<b>91.3</b> (80.9-104)	<b>176</b> (143-208)	<b>297</b> (238-360)	<b>411</b> (344-512)	596
	09-10	<b>74.3</b> (67.8-81.5)	<b>69.4</b> (61.4-78.2)	<b>122</b> (103-140)	<b>194</b> (176-230)	<b>264</b> (223-330)	517
Non-Hispanic whites	01-02	<b>103</b> (91.5-117)	<b>89.4</b> (80.2-102)	<b>167</b> (148-193)	<b>324</b> (272-368)	<b>447</b> (365-738)	1204
	03-04	<b>112</b> (104-121)	<b>103</b> (97.2-108)	<b>183</b> (161-200)	<b>346</b> (276-402)	<b>544</b> (417-690)	1000
	05-06	<b>106</b> (98.8-114)	<b>93.6</b> (86.4-102)	<b>178</b> (160-206)	<b>348</b> (317-387)	<b>506</b> (416-551)	982
	07-08	<b>101</b> (91.1-112)	<b>96.5</b> (83.5-107)	<b>163</b> (137-190)	<b>280</b> (243-317)	<b>378</b> (316-447)	1077
	09-10	<b>78.3</b> (73.8-83.0)	<b>72.7</b> (66.0-79.5)	<b>117</b> (111-124)	<b>214</b> (189-238)	<b>281</b> (253-326)	1203

### Biomonitoring Summary

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### Factsheet

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## Urinary 3-Hydroxyphenanthrene (creatinine corrected) (2011 - 2012)

*Metabolite of Phenanthrene*

Geometric mean and selected percentiles of urine concentrations (in ng/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Total</b>	11-12	<b>70.5</b> (66.7-74.6)	<b>62.6</b> (58.5-67.3)	<b>118</b> (104-128)	<b>226</b> (201-247)	<b>325</b> (271-366)	2489
<b>Age group</b>							
6-11 years	11-12	<b>79.6</b> (71.8-88.3)	<b>73.9</b> (65.0-84.2)	<b>116</b> (100-131)	<b>170</b> (140-220)	<b>238</b> (168-383)	396
12-19 years	11-12	<b>61.5</b> (56.0-67.6)	<b>55.7</b> (47.0-69.0)	<b>89.0</b> (83.2-101)	<b>150</b> (121-196)	<b>229</b> (173-243)	389
20 years and older	11-12	<b>71.0</b> (66.9-75.4)	<b>61.6</b> (58.3-67.0)	<b>123</b> (110-139)	<b>246</b> (209-258)	<b>334</b> (278-409)	1704
<b>Gender</b>							
Males	11-12	<b>67.8</b> (61.9-74.2)	<b>60.4</b> (52.2-68.5)	<b>117</b> (99.1-130)	<b>222</b> (188-246)	<b>320</b> (243-474)	1257
Females	11-12	<b>73.2</b> (67.0-80.0)	<b>64.2</b> (59.7-72.1)	<b>120</b> (99.2-138)	<b>238</b> (187-271)	<b>325</b> (276-362)	1232
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>61.6</b> (50.6-75.0)	<b>54.2</b> (44.9-66.7)	<b>91.4</b> (75.2-118)	<b>204</b> (110-343)	<b>303</b> (195-556)	317
Non-Hispanic blacks	11-12	<b>72.1</b> (66.5-78.1)	<b>68.3</b> (60.5-77.5)	<b>117</b> (106-134)	<b>202</b> (163-245)	<b>311</b> (239-388)	664
Non-Hispanic whites	11-12	<b>70.8</b> (66.7-75.2)	<b>62.0</b> (56.8-67.4)	<b>121</b> (105-131)	<b>238</b> (200-254)	<b>325</b> (258-383)	811
All Hispanics	11-12	<b>68.6</b> (60.2-78.1)	<b>61.8</b> (54.3-73.2)	<b>104</b> (88.1-126)	<b>206</b> (150-291)	<b>343</b> (225-500)	573
Asians	11-12	<b>67.0</b> (55.6-80.7)	<b>60.8</b> (50.5-79.6)	<b>107</b> (82.1-144)	<b>178</b> (150-206)	<b>255</b> (184-354)	352

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Phenanthrene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Phenanthrene_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PAHs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html)

## Urinary 4-Hydroxyphenanthrene (2003 – 2006)‡

Metabolite of Phenanthrene

Geometric mean and selected percentiles of urine concentrations (in ng/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	<b>25.1</b> (22.6-27.9)	<b>25.9</b> (22.5-29.6)	<b>53.7</b> (47.4-59.7)	<b>96.8</b> (85.0-116)	<b>152</b> (118-176)	2443
	05-06	<b>29.3</b> (26.7-32.2)	<b>29.2</b> (25.1-31.8)	<b>56.9</b> (50.1-66.1)	<b>108</b> (93.1-124)	<b>157</b> (134-176)	2131
<b>Age group</b>							
6-11 years	03-04	<b>25.2</b> (22.3-28.4)	<b>26.3</b> (22.8-30.0)	<b>45.7</b> (38.6-53.3)	<b>95.5</b> (61.7-137)	<b>138</b> (95.1-202)	321
	05-06	<b>20.4</b> (17.7-23.4)	<b>20.2</b> (17.6-23.8)	<b>35.1</b> (27.4-41.6)	<b>59.6</b> (43.3-93.0)	<b>96.1</b> (62.2-155)	307
12-19 years	03-04	<b>23.7</b> (20.3-27.6)	<b>25.8</b> (20.5-31.4)	<b>49.9</b> (45.2-53.0)	<b>77.4</b> (67.2-95.1)	<b>123</b> (94.6-142)	683
	05-06	<b>26.6</b> (23.0-30.8)	<b>27.6</b> (22.4-31.2)	<b>50.9</b> (43.5-56.8)	<b>79.4</b> (71.1-89.9)	<b>108</b> (89.9-140)	568
20 years and older	03-04	<b>25.3</b> (22.4-28.6)	<b>25.8</b> (22.4-29.5)	<b>54.8</b> (48.6-61.9)	<b>101</b> (87.1-120)	<b>163</b> (117-197)	1439
	05-06	<b>31.1</b> (28.1-34.3)	<b>30.7</b> (26.4-33.7)	<b>62.9</b> (52.6-75.1)	<b>119</b> (97.1-140)	<b>165</b> (138-188)	1256
<b>Gender</b>							
Males	03-04	<b>30.0</b> (26.5-34.0)	<b>29.6</b> (25.5-35.1)	<b>60.4</b> (53.4-68.7)	<b>110</b> (90.6-130)	<b>169</b> (118-211)	1180
	05-06	<b>31.9</b> (28.6-35.5)	<b>30.7</b> (25.0-36.8)	<b>60.3</b> (49.7-72.7)	<b>111</b> (92.3-134)	<b>153</b> (119-226)	1064
Females	03-04	<b>21.1</b> (18.7-23.8)	<b>21.3</b> (18.3-25.3)	<b>46.5</b> (41.6-53.3)	<b>88.4</b> (73.5-103)	<b>136</b> (106-157)	1263
	05-06	<b>27.1</b> (23.4-31.4)	<b>26.6</b> (22.7-31.1)	<b>54.0</b> (41.9-66.9)	<b>107</b> (82.6-140)	<b>165</b> (120-189)	1067
<b>Race/ethnicity</b>							
Mexican Americans	03-04	<b>23.5</b> (20.9-26.3)	<b>24.4</b> (21.4-29.4)	<b>46.1</b> (40.1-53.0)	<b>80.5</b> (60.9-94.1)	<b>99.7</b> (80.2-154)	607
	05-06	<b>24.5</b> (20.3-29.6)	<b>24.8</b> (20.2-31.3)	<b>43.7</b> (37.2-54.5)	<b>81.2</b> (62.8-94.4)	<b>112</b> (82.6-134)	466
Non-Hispanic blacks	03-04	<b>35.4</b> (29.6-42.3)	<b>37.1</b> (29.8-46.1)	<b>71.4</b> (60.3-83.3)	<b>123</b> (104-145)	<b>167</b> (133-215)	657
	05-06	<b>36.8</b> (31.8-42.5)	<b>33.6</b> (29.7-42.0)	<b>66.0</b> (56.0-80.5)	<b>130</b> (98.0-168)	<b>190</b> (133-276)	612
Non-Hispanic whites	03-04	<b>24.4</b> (21.5-27.7)	<b>25.2</b> (21.8-29.1)	<b>51.5</b> (45.1-58.5)	<b>97.9</b> (77.4-127)	<b>163</b> (113-202)	1021
	05-06	<b>28.6</b> (25.2-32.4)	<b>28.6</b> (24.5-31.9)	<b>55.5</b> (47.3-69.3)	<b>108</b> (90.9-136)	<b>163</b> (134-188)	890

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04 and 05-06 are 5.0 and 5.0 respectively.

‡Not measured in Survey years 2007-2008 and 2009-2010 because of potential interferences that would affect the quality of the results.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Phenanthrene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Phenanthrene_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PAHs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html)

## Urinary 4-Hydroxyphenanthrene (2011 - 2012)

*Metabolite of Phenanthrene*

Geometric mean and selected percentiles of urine concentrations (in ng/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Total</b>	11-12	<b>20.5</b> (19.3-21.8)	<b>19.0</b> (18.0-21.0)	<b>36.0</b> (34.0-40.0)	<b>74.0</b> (62.0-82.0)	<b>99.0</b> (88.0-114)	2487
<b>Age group</b>							
6-11 years	11-12	<b>17.1</b> (15.6-18.8)	<b>16.0</b> (13.0-19.0)	<b>32.0</b> (25.0-37.0)	<b>54.0</b> (46.0-59.0)	<b>72.0</b> (56.0-96.0)	397
12-19 years	11-12	<b>20.4</b> (18.1-23.0)	<b>18.0</b> (17.0-23.0)	<b>34.0</b> (31.0-42.0)	<b>57.0</b> (47.0-75.0)	<b>84.0</b> (57.0-120)	389
20 years and older	11-12	<b>21.0</b> (19.6-22.4)	<b>20.0</b> (18.0-21.0)	<b>38.0</b> (35.0-42.0)	<b>78.0</b> (69.0-87.0)	<b>101</b> (89.0-128)	1701
<b>Gender</b>							
Males	11-12	<b>21.6</b> (19.8-23.7)	<b>22.0</b> (18.0-24.0)	<b>38.0</b> (34.0-43.0)	<b>74.0</b> (63.0-83.0)	<b>99.0</b> (85.0-124)	1255
Females	11-12	<b>19.5</b> (18.1-21.1)	<b>18.0</b> (16.0-19.0)	<b>36.0</b> (33.0-40.0)	<b>74.0</b> (59.0-82.0)	<b>98.0</b> (87.0-114)	1232
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>19.7</b> (16.2-24.0)	<b>18.0</b> (15.0-22.0)	<b>34.0</b> (27.0-45.0)	<b>65.0</b> (40.0-96.0)	<b>91.0</b> (53.0-130)	317
Non-Hispanic blacks	11-12	<b>28.4</b> (26.0-31.0)	<b>28.0</b> (25.0-31.0)	<b>50.0</b> (44.0-57.0)	<b>90.0</b> (75.0-109)	<b>122</b> (103-136)	662
Non-Hispanic whites	11-12	<b>19.4</b> (18.3-20.5)	<b>18.0</b> (16.0-20.0)	<b>35.0</b> (32.0-38.0)	<b>73.0</b> (57.0-81.0)	<b>94.0</b> (82.0-114)	812
All Hispanics	11-12	<b>21.0</b> (18.5-23.8)	<b>20.0</b> (17.0-23.0)	<b>38.0</b> (32.0-46.0)	<b>68.0</b> (52.0-88.0)	<b>91.0</b> (69.0-122)	573
Asians	11-12	<b>16.8</b> (14.7-19.1)	<b>15.0</b> (13.0-17.0)	<b>30.0</b> (25.0-33.0)	<b>55.0</b> (37.0-86.0)	<b>91.0</b> (53.0-110)	351

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 10.0.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Phenanthrene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Phenanthrene_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PAHs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html)



## Urinary 4-Hydroxyphenanthrene (creatinine corrected) (2003 – 2006)‡

*Metabolite of Phenanthrene*

Geometric mean and selected percentiles of urine concentrations (in ng/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	<b>23.3</b> (21.7-25.0)	<b>22.7</b> (20.5-24.9)	<b>42.0</b> (38.6-44.6)	<b>74.3</b> (66.3-85.4)	<b>114</b> (102-130)	2443
	05-06	<b>28.9</b> (26.6-31.4)	<b>26.9</b> (24.1-29.4)	<b>48.4</b> (43.9-53.7)	<b>88.3</b> (77.5-102)	<b>127</b> (106-145)	2131
<b>Age group</b>							
6-11 years	03-04	<b>26.3</b> (23.7-29.2)	<b>24.8</b> (21.6-28.6)	<b>43.3</b> (35.2-48.8)	<b>72.9</b> (56.3-113)	<b>126</b> (79.3-173)	321
	05-06	<b>22.9</b> (19.8-26.5)	<b>21.7</b> (20.0-24.8)	<b>36.2</b> (27.8-43.7)	<b>50.0</b> (42.7-79.3)	<b>79.3</b> (50.0-98.3)	307
12-19 years	03-04	<b>17.7</b> (15.9-19.8)	<b>16.7</b> (15.7-18.4)	<b>31.4</b> (26.0-37.1)	<b>47.9</b> (40.7-54.1)	<b>61.7</b> (51.7-86.0)	683
	05-06	<b>20.1</b> (18.2-22.2)	<b>19.0</b> (16.5-22.9)	<b>30.0</b> (28.3-33.0)	<b>48.7</b> (41.0-63.5)	<b>79.4</b> (53.8-98.2)	568
20 years and older	03-04	<b>24.0</b> (22.0-26.2)	<b>23.3</b> (21.1-25.4)	<b>43.5</b> (39.4-48.1)	<b>79.0</b> (66.8-100)	<b>121</b> (104-138)	1439
	05-06	<b>31.4</b> (29.0-34.1)	<b>29.4</b> (26.9-32.4)	<b>54.6</b> (48.0-61.6)	<b>102</b> (86.4-109)	<b>139</b> (115-166)	1256
<b>Gender</b>							
Males	03-04	<b>23.4</b> (21.6-25.4)	<b>22.7</b> (20.3-24.9)	<b>40.9</b> (35.9-45.7)	<b>72.7</b> (61.5-86.8)	<b>112</b> (100-126)	1180
	05-06	<b>26.1</b> (23.8-28.7)	<b>24.1</b> (22.2-28.2)	<b>44.3</b> (40.0-51.1)	<b>74.3</b> (61.6-87.7)	<b>102</b> (87.3-120)	1064
Females	03-04	<b>23.2</b> (21.2-25.5)	<b>22.8</b> (19.7-26.0)	<b>42.5</b> (38.3-46.2)	<b>75.1</b> (63.4-94.0)	<b>119</b> (93.1-139)	1263
	05-06	<b>31.8</b> (28.7-35.3)	<b>28.9</b> (25.8-31.8)	<b>54.2</b> (46.0-63.2)	<b>103</b> (85.4-127)	<b>145</b> (119-174)	1067
<b>Race/ethnicity</b>							
Mexican Americans	03-04	<b>21.2</b> (18.8-23.8)	<b>20.7</b> (19.1-22.9)	<b>35.9</b> (29.8-40.7)	<b>59.0</b> (43.3-87.5)	<b>83.4</b> (60.9-139)	607
	05-06	<b>22.5</b> (20.1-25.3)	<b>21.6</b> (18.8-27.1)	<b>34.7</b> (31.4-41.5)	<b>54.5</b> (48.2-61.6)	<b>81.3</b> (59.8-86.1)	466
Non-Hispanic blacks	03-04	<b>25.0</b> (21.6-28.9)	<b>25.3</b> (23.1-28.8)	<b>42.0</b> (37.4-51.4)	<b>75.0</b> (61.6-87.9)	<b>102</b> (79.2-137)	657
	05-06	<b>25.8</b> (23.0-29.0)	<b>24.5</b> (22.0-26.8)	<b>39.4</b> (36.2-44.7)	<b>68.5</b> (59.8-88.6)	<b>103</b> (80.0-146)	612
Non-Hispanic whites	03-04	<b>23.7</b> (21.5-26.2)	<b>22.4</b> (19.4-25.4)	<b>43.6</b> (38.8-47.3)	<b>82.2</b> (68.5-101)	<b>126</b> (103-143)	1021
	05-06	<b>30.5</b> (27.3-34.1)	<b>28.5</b> (25.0-31.6)	<b>53.0</b> (45.5-61.5)	<b>102</b> (83.0-115)	<b>138</b> (112-174)	890

‡Not measured in Survey years 2007-2008 and 2009-2010 because of potential interferences that would affect the quality of the results.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Phenanthrene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Phenanthrene_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PAHs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html)

## Urinary 4-Hydroxyphenanthrene (creatinine corrected) (2011 - 2012)

*Metabolite of Phenanthrene*

Geometric mean and selected percentiles of urine concentrations (in ng/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Total</b>	11-12	<b>23.3</b> (22.4-24.2)	<b>22.0</b> (20.9-22.9)	<b>36.9</b> (33.8-40.0)	<b>65.0</b> (60.0-76.3)	<b>106</b> (85.9-121)	2485
<b>Age group</b>							
6-11 years	11-12	<b>24.4</b> (22.1-26.9)	<b>23.7</b> (21.5-25.9)	<b>36.2</b> (31.9-39.1)	<b>55.0</b> (47.9-69.7)	<b>78.9</b> (57.1-126)	396
12-19 years	11-12	<b>19.7</b> (17.7-21.9)	<b>19.7</b> (17.2-21.7)	<b>28.4</b> (26.3-34.7)	<b>46.6</b> (38.5-57.9)	<b>64.9</b> (46.1-78.9)	389
20 years and older	11-12	<b>23.8</b> (22.6-25.0)	<b>22.1</b> (20.9-23.3)	<b>38.4</b> (34.2-43.8)	<b>70.5</b> (60.0-88.8)	<b>115</b> (91.4-136)	1700
<b>Gender</b>							
Males	11-12	<b>20.3</b> (19.3-21.4)	<b>19.4</b> (18.5-20.6)	<b>31.4</b> (28.4-35.4)	<b>57.7</b> (53.3-63.8)	<b>79.6</b> (63.8-111)	1254
Females	11-12	<b>26.6</b> (24.9-28.5)	<b>24.5</b> (22.9-26.2)	<b>41.8</b> (37.4-46.6)	<b>78.9</b> (66.7-88.8)	<b>117</b> (95.7-142)	1231
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>22.2</b> (19.1-25.8)	<b>20.9</b> (19.2-23.6)	<b>35.5</b> (29.6-42.1)	<b>59.7</b> (43.2-67.6)	<b>67.6</b> (48.0-183)	317
Non-Hispanic blacks	11-12	<b>22.1</b> (20.3-24.0)	<b>21.3</b> (19.7-23.4)	<b>34.9</b> (30.8-38.8)	<b>53.5</b> (49.0-61.3)	<b>74.5</b> (63.7-84.7)	662
Non-Hispanic whites	11-12	<b>23.5</b> (22.1-24.9)	<b>22.0</b> (20.3-23.4)	<b>37.3</b> (32.3-43.7)	<b>70.5</b> (60.0-81.6)	<b>111</b> (88.8-142)	810
All Hispanics	11-12	<b>23.5</b> (21.2-25.9)	<b>22.9</b> (20.7-25.5)	<b>37.4</b> (33.0-41.8)	<b>60.1</b> (45.5-79.6)	<b>90.7</b> (60.1-133)	573
Asians	11-12	<b>22.5</b> (20.2-25.1)	<b>21.5</b> (17.9-24.5)	<b>34.9</b> (32.3-40.1)	<b>60.8</b> (50.5-71.0)	<b>85.1</b> (64.2-102)	351

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Phenanthrene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Phenanthrene_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PAHs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html)

## Urinary 1-Hydroxypyrene (2003 – 2010)

Metabolite of Pyrene

Geometric mean and selected percentiles of urine concentrations (in ng/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	<b>89.2</b> (79.8-99.7)	<b>91.3</b> (83.5-98.8)	<b>189</b> (168-208)	<b>389</b> (345-459)	<b>569</b> (493-676)	2515
	05-06	<b>98.3</b> (91.0-106)	<b>94.0</b> (85.5-102)	<b>206</b> (181-227)	<b>440</b> (373-521)	<b>673</b> (585-829)	2415
	07-08	<b>118</b> (108-129)	<b>118</b> (107-133)	<b>233</b> (208-263)	<b>439</b> (392-487)	<b>675</b> (543-844)	2581
	09-10	<b>119</b> (110-130)	<b>118</b> (109-129)	<b>231</b> (213-251)	<b>451</b> (401-509)	<b>675</b> (580-822)	2746
<b>Age group</b>							
6-11 years	03-04	<b>112</b> (96.9-130)	<b>119</b> (99.0-143)	<b>193</b> (163-229)	<b>351</b> (233-484)	<b>514</b> (336-680)	333
	05-06	<b>103</b> (91.3-117)	<b>99.8</b> (91.7-105)	<b>170</b> (139-206)	<b>342</b> (222-413)	<b>469</b> (353-786)	342
	07-08	<b>146</b> (127-168)	<b>149</b> (131-171)	<b>231</b> (203-288)	<b>395</b> (293-557)	<b>569</b> (395-1060)	387
	09-10	<b>147</b> (125-174)	<b>143</b> (127-164)	<b>245</b> (203-312)	<b>443</b> (312-681)	<b>756</b> (383-2410)	415
12-19 years	03-04	<b>119</b> (103-137)	<b>115</b> (98.0-145)	<b>244</b> (213-274)	<b>506</b> (359-608)	<b>705</b> (636-788)	705
	05-06	<b>118</b> (104-134)	<b>108</b> (93.2-132)	<b>218</b> (179-266)	<b>409</b> (332-557)	<b>837</b> (481-992)	667
	07-08	<b>149</b> (130-170)	<b>145</b> (118-165)	<b>282</b> (228-343)	<b>452</b> (399-515)	<b>614</b> (476-843)	401
	09-10	<b>152</b> (132-174)	<b>156</b> (130-175)	<b>280</b> (237-305)	<b>414</b> (348-543)	<b>642</b> (452-910)	420
20 years and older	03-04	<b>82.8</b> (73.0-93.8)	<b>83.8</b> (75.6-92.4)	<b>177</b> (155-203)	<b>387</b> (337-437)	<b>553</b> (483-644)	1477
	05-06	<b>94.9</b> (86.3-104)	<b>89.1</b> (79.8-100)	<b>208</b> (173-245)	<b>476</b> (368-563)	<b>677</b> (563-913)	1406
	07-08	<b>111</b> (100-123)	<b>114</b> (95.7-129)	<b>226</b> (199-258)	<b>446</b> (370-506)	<b>719</b> (525-904)	1793
	09-10	<b>113</b> (103-122)	<b>110</b> (103-119)	<b>222</b> (199-244)	<b>452</b> (401-531)	<b>674</b> (559-837)	1911
<b>Gender</b>							
Males	03-04	<b>108</b> (96.0-122)	<b>111</b> (98.7-121)	<b>227</b> (197-265)	<b>459</b> (387-518)	<b>644</b> (526-811)	1214
	05-06	<b>114</b> (104-125)	<b>108</b> (98.4-119)	<b>235</b> (196-279)	<b>465</b> (386-585)	<b>793</b> (634-980)	1208
	07-08	<b>134</b> (120-150)	<b>131</b> (113-155)	<b>260</b> (229-293)	<b>474</b> (409-560)	<b>748</b> (554-956)	1279
	09-10	<b>128</b> (114-143)	<b>128</b> (114-141)	<b>230</b> (205-251)	<b>465</b> (393-555)	<b>713</b> (559-923)	1398
Females	03-04	<b>74.0</b> (64.3-85.1)	<b>75.3</b> (66.3-83.9)	<b>158</b> (143-173)	<b>334</b> (258-407)	<b>502</b> (389-604)	1301
	05-06	<b>84.8</b> (74.5-96.5)	<b>80.0</b> (69.8-89.9)	<b>173</b> (148-213)	<b>421</b> (313-521)	<b>617</b> (534-677)	1207
	07-08	<b>105</b> (94.7-116)	<b>111</b> (92.6-123)	<b>213</b> (194-227)	<b>387</b> (342-444)	<b>580</b> (486-769)	1302
	09-10	<b>112</b> (101-125)	<b>109</b> (98.0-124)	<b>231</b> (209-260)	<b>425</b> (390-495)	<b>652</b> (566-780)	1348

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08 and 09-10 are 5.0, 5.0, 5.0, and 10.0 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Pyrene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Pyrene_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PAHs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html)

## Urinary 1-Hydroxypyrene (2003 – 2010)

*Metabolite of Pyrene*

Geometric mean and selected percentiles of urine concentrations (in ng/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Race/ethnicity</b>							
Mexican Americans	03-04	<b>89.4</b> (78.6-102)	<b>92.4</b> (79.8-113)	<b>173</b> (153-191)	<b>331</b> (281-415)	<b>495</b> (404-548)	623
	05-06	<b>95.6</b> (81.0-113)	<b>92.3</b> (80.1-112)	<b>179</b> (149-220)	<b>332</b> (261-455)	<b>490</b> (367-756)	611
	07-08	<b>119</b> (110-129)	<b>117</b> (104-132)	<b>196</b> (170-230)	<b>380</b> (289-494)	<b>593</b> (485-755)	531
	09-10	<b>134</b> (122-147)	<b>134</b> (116-154)	<b>245</b> (198-314)	<b>453</b> (392-591)	<b>706</b> (551-975)	566
Non-Hispanic blacks	03-04	<b>128</b> (105-157)	<b>127</b> (111-157)	<b>296</b> (226-356)	<b>552</b> (399-669)	<b>702</b> (569-935)	663
	05-06	<b>116</b> (98.5-137)	<b>108</b> (91.0-124)	<b>230</b> (185-332)	<b>517</b> (401-639)	<b>743</b> (559-1060)	653
	07-08	<b>136</b> (122-153)	<b>142</b> (122-160)	<b>282</b> (250-320)	<b>548</b> (480-610)	<b>752</b> (617-871)	592
	09-10	<b>165</b> (146-188)	<b>170</b> (142-201)	<b>321</b> (280-392)	<b>656</b> (557-727)	<b>989</b> (727-1370)	516
Non-Hispanic whites	03-04	<b>84.6</b> (73.3-97.8)	<b>85.2</b> (75.2-97.4)	<b>182</b> (156-213)	<b>386</b> (336-463)	<b>566</b> (464-748)	1040
	05-06	<b>94.9</b> (85.4-106)	<b>91.3</b> (80.3-104)	<b>203</b> (170-235)	<b>399</b> (351-538)	<b>677</b> (563-899)	968
	07-08	<b>116</b> (102-131)	<b>117</b> (102-136)	<b>235</b> (198-287)	<b>436</b> (364-500)	<b>719</b> (473-981)	1059
	09-10	<b>108</b> (96.3-122)	<b>107</b> (99.0-118)	<b>209</b> (176-239)	<b>398</b> (329-474)	<b>603</b> (495-739)	1203

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08 and 09-10 are 5.0, 5.0, 5.0, and 10.0 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Pyrene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Pyrene_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PAHs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html)

## Urinary 1-Hydroxypyrene (2011 - 2012)

*Metabolite of Pyrene*

Geometric mean and selected percentiles of urine concentrations (in ng/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Total</b>	11-12	<b>111</b> (101-123)	<b>113</b> (99.0-124)	<b>217</b> (196-254)	<b>437</b> (373-501)	<b>635</b> (538-784)	2487
<b>Age group</b>							
6-11 years	11-12	<b>130</b> (111-153)	<b>127</b> (107-160)	<b>252</b> (202-301)	<b>386</b> (362-462)	<b>521</b> (431-693)	397
12-19 years	11-12	<b>131</b> (110-156)	<b>141</b> (117-159)	<b>247</b> (199-331)	<b>451</b> (331-547)	<b>555</b> (454-716)	387
20 years and older	11-12	<b>107</b> (96.2-119)	<b>104</b> (95.0-118)	<b>208</b> (181-244)	<b>443</b> (373-504)	<b>685</b> (543-882)	1703
<b>Gender</b>							
Males	11-12	<b>122</b> (107-139)	<b>121</b> (103-131)	<b>231</b> (198-276)	<b>494</b> (380-606)	<b>756</b> (547-1020)	1255
Females	11-12	<b>102</b> (92.6-113)	<b>104</b> (92.0-117)	<b>209</b> (183-243)	<b>384</b> (340-447)	<b>543</b> (443-652)	1232
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>127</b> (104-157)	<b>129</b> (112-157)	<b>225</b> (191-262)	<b>435</b> (262-685)	<b>685</b> (342-1060)	316
Non-Hispanic blacks	11-12	<b>140</b> (123-160)	<b>138</b> (117-168)	<b>292</b> (246-335)	<b>476</b> (384-685)	<b>779</b> (596-1070)	662
Non-Hispanic whites	11-12	<b>104</b> (94.6-113)	<b>102</b> (94.0-116)	<b>199</b> (176-231)	<b>447</b> (349-513)	<b>606</b> (504-803)	812
All Hispanics	11-12	<b>131</b> (114-152)	<b>136</b> (119-156)	<b>248</b> (209-279)	<b>416</b> (329-501)	<b>654</b> (440-873)	572
Asians	11-12	<b>85.6</b> (72.3-101)	<b>78.0</b> (65.0-94.0)	<b>175</b> (124-218)	<b>301</b> (243-359)	<b>373</b> (325-571)	352

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 10.0.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Pyrene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Pyrene_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PAHs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html)

## Urinary 1-Hydroxypyrene (creatinine corrected) (2003 – 2010)

Metabolite of Pyrene

Geometric mean and selected percentiles of urine concentrations (in ng/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	<b>83.4</b> (77.4-90.0)	<b>79.9</b> (72.6-86.9)	<b>149</b> (133-167)	<b>279</b> (236-343)	<b>424</b> (352-474)	2515
	05-06	<b>95.1</b> (89.1-102)	<b>85.5</b> (81.0-91.1)	<b>173</b> (161-184)	<b>338</b> (292-371)	<b>492</b> (427-550)	2415
	07-08	<b>119</b> (110-129)	<b>113</b> (103-127)	<b>200</b> (180-224)	<b>364</b> (321-411)	<b>527</b> (467-587)	2581
	09-10	<b>125</b> (116-134)	<b>117</b> (109-126)	<b>202</b> (187-222)	<b>366</b> (337-401)	<b>530</b> (485-583)	2746
<b>Age group</b>							
6-11 years	03-04	<b>119</b> (102-138)	<b>112</b> (98.2-137)	<b>185</b> (156-225)	<b>336</b> (227-440)	<b>475</b> (336-566)	333
	05-06	<b>115</b> (102-128)	<b>105</b> (94.7-116)	<b>181</b> (145-217)	<b>285</b> (242-385)	<b>407</b> (308-517)	342
	07-08	<b>180</b> (156-206)	<b>171</b> (145-197)	<b>255</b> (233-316)	<b>457</b> (329-593)	<b>604</b> (457-1320)	387
	09-10	<b>192</b> (164-225)	<b>181</b> (161-203)	<b>283</b> (232-355)	<b>471</b> (356-836)	<b>812</b> (405-2030)	415
12-19 years	03-04	<b>89.4</b> (77.7-103)	<b>81.5</b> (74.3-93.0)	<b>146</b> (123-187)	<b>269</b> (196-364)	<b>364</b> (251-611)	705
	05-06	<b>88.7</b> (78.7-99.9)	<b>80.9</b> (73.8-92.3)	<b>146</b> (115-176)	<b>250</b> (199-358)	<b>400</b> (252-682)	667
	07-08	<b>116</b> (105-127)	<b>112</b> (98.3-127)	<b>178</b> (154-202)	<b>301</b> (245-349)	<b>405</b> (321-558)	401
	09-10	<b>122</b> (111-133)	<b>121</b> (108-133)	<b>176</b> (155-198)	<b>262</b> (211-337)	<b>371</b> (280-421)	420
20 years and older	03-04	<b>79.1</b> (73.2-85.4)	<b>73.5</b> (66.7-82.3)	<b>142</b> (127-160)	<b>278</b> (236-331)	<b>424</b> (349-472)	1477
	05-06	<b>94.1</b> (87.1-102)	<b>82.5</b> (75.8-89.3)	<b>177</b> (163-194)	<b>352</b> (294-397)	<b>502</b> (444-558)	1406
	07-08	<b>114</b> (105-125)	<b>106</b> (95.3-124)	<b>194</b> (173-217)	<b>364</b> (317-415)	<b>510</b> (456-591)	1793
	09-10	<b>119</b> (111-128)	<b>109</b> (104-118)	<b>199</b> (178-220)	<b>365</b> (336-407)	<b>530</b> (481-606)	1911
<b>Gender</b>							
Males	03-04	<b>84.8</b> (77.3-93.1)	<b>82.8</b> (72.7-91.0)	<b>163</b> (145-175)	<b>290</b> (241-352)	<b>416</b> (353-513)	1214
	05-06	<b>91.6</b> (84.3-99.6)	<b>84.6</b> (76.9-95.5)	<b>169</b> (152-182)	<b>308</b> (268-364)	<b>492</b> (426-589)	1208
	07-08	<b>113</b> (102-125)	<b>109</b> (94.3-124)	<b>193</b> (176-214)	<b>379</b> (308-440)	<b>549</b> (456-629)	1279
	09-10	<b>115</b> (104-126)	<b>105</b> (93.9-116)	<b>184</b> (168-205)	<b>362</b> (317-419)	<b>546</b> (452-708)	1398
Females	03-04	<b>82.1</b> (73.5-91.7)	<b>78.3</b> (69.2-86.8)	<b>137</b> (119-169)	<b>274</b> (215-350)	<b>440</b> (313-479)	1301
	05-06	<b>98.7</b> (91.7-106)	<b>86.8</b> (78.5-92.8)	<b>175</b> (156-195)	<b>345</b> (295-390)	<b>482</b> (395-558)	1207
	07-08	<b>125</b> (114-137)	<b>119</b> (104-135)	<b>203</b> (179-238)	<b>348</b> (302-405)	<b>503</b> (425-619)	1302
	09-10	<b>135</b> (123-148)	<b>126</b> (115-140)	<b>216</b> (199-242)	<b>371</b> (329-421)	<b>526</b> (473-572)	1348

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Pyrene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Pyrene_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PAHs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html)

## Urinary 1-Hydroxypyrene (creatinine corrected) (2003 – 2010)

*Metabolite of Pyrene*

Geometric mean and selected percentiles of urine concentrations (in ng/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Race/ethnicity</b>							
Mexican Americans	03-04	<b>81.2</b> (73.9-89.2)	<b>80.9</b> (70.4-91.7)	<b>146</b> (122-167)	<b>247</b> (221-301)	<b>372</b> (321-460)	623
	05-06	<b>84.9</b> (76.4-94.2)	<b>78.4</b> (67.7-91.2)	<b>132</b> (118-145)	<b>237</b> (203-287)	<b>374</b> (279-482)	611
	07-08	<b>116</b> (107-125)	<b>105</b> (96.5-116)	<b>173</b> (156-188)	<b>296</b> (250-367)	<b>501</b> (395-629)	531
	09-10	<b>133</b> (118-150)	<b>119</b> (105-140)	<b>216</b> (178-266)	<b>388</b> (295-527)	<b>643</b> (464-1180)	566
Non-Hispanic blacks	03-04	<b>90.7</b> (77.3-106)	<b>92.6</b> (76.6-106)	<b>171</b> (140-211)	<b>325</b> (226-433)	<b>451</b> (301-680)	663
	05-06	<b>81.2</b> (70.7-93.2)	<b>74.9</b> (65.6-84.8)	<b>140</b> (113-173)	<b>295</b> (206-403)	<b>477</b> (324-643)	653
	07-08	<b>106</b> (93.1-121)	<b>104</b> (93.4-123)	<b>201</b> (162-249)	<b>352</b> (302-464)	<b>537</b> (384-662)	592
	09-10	<b>120</b> (109-131)	<b>115</b> (103-123)	<b>206</b> (185-226)	<b>390</b> (323-476)	<b>567</b> (471-757)	516
Non-Hispanic whites	03-04	<b>83.1</b> (75.1-91.9)	<b>76.3</b> (69.0-86.6)	<b>146</b> (127-174)	<b>285</b> (238-360)	<b>438</b> (360-506)	1040
	05-06	<b>99.3</b> (91.2-108)	<b>90.6</b> (82.2-99.5)	<b>188</b> (169-200)	<b>358</b> (305-395)	<b>495</b> (427-555)	968
	07-08	<b>120</b> (108-134)	<b>113</b> (97.7-135)	<b>206</b> (178-237)	<b>379</b> (300-438)	<b>510</b> (438-617)	1059
	09-10	<b>122</b> (111-133)	<b>116</b> (107-126)	<b>197</b> (174-222)	<b>357</b> (326-393)	<b>511</b> (446-569)	1203

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Pyrene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Pyrene_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PAHs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html)



## Urinary 1-Hydroxypyrene (creatinine corrected) (2011 - 2012)

*Metabolite of Pyrene*

Geometric mean and selected percentiles of urine concentrations (in ng/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Total</b>	11-12	<b>127</b> (119-137)	<b>119</b> (110-128)	<b>215</b> (193-241)	<b>395</b> (356-449)	<b>542</b> (464-703)	2485
<b>Age group</b>							
6-11 years	11-12	<b>187</b> (165-212)	<b>181</b> (153-213)	<b>276</b> (232-317)	<b>415</b> (356-477)	<b>500</b> (450-671)	396
12-19 years	11-12	<b>126</b> (110-144)	<b>121</b> (102-143)	<b>194</b> (156-256)	<b>313</b> (252-396)	<b>409</b> (325-480)	387
20 years and older	11-12	<b>122</b> (114-131)	<b>112</b> (103-122)	<b>207</b> (189-227)	<b>411</b> (356-464)	<b>589</b> (466-793)	1702
<b>Gender</b>							
Males	11-12	<b>114</b> (103-127)	<b>106</b> (95.0-115)	<b>196</b> (170-230)	<b>378</b> (296-452)	<b>506</b> (394-804)	1254
Females	11-12	<b>141</b> (130-154)	<b>133</b> (124-143)	<b>232</b> (209-262)	<b>422</b> (364-464)	<b>589</b> (464-748)	1231
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>143</b> (123-166)	<b>136</b> (116-153)	<b>225</b> (176-270)	<b>385</b> (267-525)	<b>512</b> (374-829)	316
Non-Hispanic blacks	11-12	<b>109</b> (94.8-126)	<b>114</b> (95.2-138)	<b>191</b> (166-233)	<b>330</b> (276-396)	<b>453</b> (411-556)	662
Non-Hispanic whites	11-12	<b>127</b> (117-138)	<b>113</b> (104-126)	<b>218</b> (192-249)	<b>415</b> (356-465)	<b>580</b> (464-793)	810
All Hispanics	11-12	<b>147</b> (133-162)	<b>144</b> (127-158)	<b>244</b> (200-262)	<b>395</b> (295-458)	<b>525</b> (436-600)	572
Asians	11-12	<b>115</b> (101-130)	<b>113</b> (96.3-131)	<b>173</b> (156-191)	<b>263</b> (228-326)	<b>437</b> (303-601)	352

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Pyrene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Pyrene_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PAHs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html)

## Urinary 1-Hydroxynaphthalene (1-Naphthol) (2003 – 2010)

*Metabolite of Naphthalene*

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	<b>2.68</b> (2.36-3.05)	<b>2.26</b> (1.98-2.65)	<b>7.66</b> (6.27-9.42)	<b>18.5</b> (15.5-20.9)	<b>26.1</b> (23.0-33.6)	2595
	05-06	<b>2.64</b> (2.39-2.92)	<b>1.94</b> (1.69-2.24)	<b>8.45</b> (7.05-9.98)	<b>29.9</b> (23.2-37.1)	<b>48.1</b> (41.3-65.6)	2385
	07-08	<b>2.58</b> (2.19-3.03)	<b>1.98</b> (1.75-2.28)	<b>6.87</b> (5.00-8.76)	<b>17.2</b> (13.0-22.2)	<b>29.2</b> (22.2-41.1)	2496
	09-10	<b>2.05</b> (1.88-2.25)	<b>1.74</b> (1.57-1.91)	<b>5.19</b> (4.29-6.20)	<b>14.2</b> (12.1-16.7)	<b>23.9</b> (20.9-27.6)	2747
<b>Age group</b>							
6-11 years	03-04	<b>1.54</b> (1.36-1.75)	<b>1.33</b> (1.11-1.68)	<b>2.79</b> (2.18-3.52)	<b>5.78</b> (4.11-8.20)	<b>10.5</b> (5.87-17.0)	340
	05-06	<b>1.19</b> (1.01-1.40)	<b>1.03</b> (.775-1.29)	<b>2.16</b> (1.70-2.73)	<b>8.10</b> (3.87-10.7)	<b>11.0</b> (7.29-44.1)	336
	07-08	<b>1.54</b> (1.28-1.85)	<b>1.50</b> (1.22-1.68)	<b>3.09</b> (2.17-3.80)	<b>5.94</b> (4.16-9.29)	<b>9.36</b> (4.68-14.3)	370
	09-10	<b>1.17</b> (1.03-1.34)	<b>1.10</b> (.869-1.27)	<b>2.31</b> (1.85-2.56)	<b>5.38</b> (2.93-7.30)	<b>7.77</b> (5.40-11.4)	416
12-19 years	03-04	<b>1.96</b> (1.68-2.28)	<b>1.67</b> (1.50-1.97)	<b>4.19</b> (3.10-5.40)	<b>10.5</b> (8.43-14.3)	<b>20.9</b> (13.5-26.1)	727
	05-06	<b>1.71</b> (1.49-1.96)	<b>1.36</b> (1.11-1.70)	<b>3.76</b> (3.11-4.37)	<b>14.1</b> (9.09-23.5)	<b>25.8</b> (12.4-46.2)	655
	07-08	<b>1.84</b> (1.49-2.26)	<b>1.51</b> (1.19-2.01)	<b>4.03</b> (2.55-5.75)	<b>10.0</b> (6.70-13.5)	<b>14.8</b> (12.0-21.3)	386
	09-10	<b>1.59</b> (1.18-2.15)	<b>1.28</b> (.943-2.12)	<b>3.94</b> (2.39-5.58)	<b>9.24</b> (5.98-14.9)	<b>17.0</b> (11.3-21.5)	420
20 years and older	03-04	<b>3.02</b> (2.58-3.52)	<b>2.65</b> (2.20-3.20)	<b>9.42</b> (7.32-11.5)	<b>20.6</b> (16.5-23.4)	<b>29.4</b> (23.4-37.4)	1528
	05-06	<b>3.10</b> (2.74-3.51)	<b>2.33</b> (2.03-2.82)	<b>10.5</b> (8.18-13.3)	<b>34.5</b> (26.7-43.4)	<b>55.1</b> (42.2-80.4)	1394
	07-08	<b>2.88</b> (2.37-3.49)	<b>2.27</b> (1.83-2.80)	<b>8.19</b> (6.01-10.7)	<b>19.6</b> (15.0-25.5)	<b>33.0</b> (23.6-54.9)	1740
	09-10	<b>2.27</b> (2.05-2.52)	<b>1.91</b> (1.66-2.14)	<b>6.19</b> (4.84-7.25)	<b>16.1</b> (13.2-18.6)	<b>26.3</b> (21.9-30.7)	1911
<b>Gender</b>							
Males	03-04	<b>3.17</b> (2.82-3.56)	<b>2.84</b> (2.37-3.39)	<b>8.79</b> (7.13-11.0)	<b>19.6</b> (16.1-22.2)	<b>25.8</b> (22.5-30.6)	1243
	05-06	<b>2.97</b> (2.63-3.35)	<b>2.37</b> (1.98-2.97)	<b>8.76</b> (7.14-10.7)	<b>28.9</b> (21.7-33.0)	<b>44.1</b> (36.0-52.3)	1197
	07-08	<b>2.94</b> (2.58-3.36)	<b>2.37</b> (2.05-2.93)	<b>7.75</b> (5.87-9.83)	<b>15.9</b> (13.8-21.3)	<b>28.2</b> (21.4-36.8)	1239
	09-10	<b>2.30</b> (2.03-2.61)	<b>1.93</b> (1.63-2.20)	<b>6.32</b> (4.32-7.67)	<b>15.3</b> (12.8-17.8)	<b>23.9</b> (21.6-27.6)	1399
Females	03-04	<b>2.29</b> (1.94-2.72)	<b>1.85</b> (1.50-2.31)	<b>6.38</b> (4.45-8.81)	<b>17.9</b> (14.0-21.5)	<b>28.5</b> (21.5-37.4)	1352
	05-06	<b>2.36</b> (2.01-2.77)	<b>1.59</b> (1.42-1.82)	<b>7.35</b> (5.57-10.2)	<b>33.6</b> (21.6-43.9)	<b>56.8</b> (41.6-101)	1188
	07-08	<b>2.27</b> (1.85-2.79)	<b>1.58</b> (1.32-1.97)	<b>5.26</b> (4.03-7.73)	<b>17.7</b> (11.9-24.8)	<b>32.0</b> (21.3-78.9)	1257
	09-10	<b>1.84</b> (1.60-2.12)	<b>1.56</b> (1.39-1.72)	<b>4.50</b> (3.65-5.34)	<b>12.6</b> (10.2-16.6)	<b>24.0</b> (17.7-31.5)	1348

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08 and 09-10 are 0.047, 0.048, 0.045, and 0.044 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Naphthalene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Naphthalene_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PAHs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html)

## Urinary 1-Hydroxynaphthalene (1-Naphthol) (2003 – 2010)

*Metabolite of Naphthalene*

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	03-04	<b>1.95</b> (1.73-2.19)	<b>1.65</b> (1.37-2.04)	<b>4.38</b> (3.52-5.30)	<b>11.6</b> (9.04-15.5)	<b>20.1</b> (14.9-22.5)	651
	05-06	<b>1.54</b> (1.30-1.83)	<b>1.29</b> (1.09-1.55)	<b>3.72</b> (2.68-4.43)	<b>11.8</b> (8.10-15.6)	<b>22.2</b> (15.2-34.0)	607
	07-08	<b>1.61</b> (1.38-1.89)	<b>1.48</b> (1.23-1.66)	<b>3.38</b> (2.58-4.04)	<b>8.75</b> (6.12-11.9)	<b>16.1</b> (8.19-29.4)	506
	09-10	<b>1.71</b> (1.43-2.04)	<b>1.50</b> (1.36-1.80)	<b>3.38</b> (2.55-5.27)	<b>10.7</b> (6.93-14.3)	<b>17.6</b> (13.7-23.3)	566
Non-Hispanic blacks	03-04	<b>3.36</b> (2.80-4.02)	<b>2.65</b> (2.17-3.46)	<b>7.80</b> (6.52-10.8)	<b>21.9</b> (17.0-29.2)	<b>35.4</b> (27.0-48.9)	677
	05-06	<b>3.42</b> (2.83-4.14)	<b>2.67</b> (2.20-3.43)	<b>11.9</b> (9.12-14.6)	<b>29.9</b> (24.4-41.0)	<b>56.4</b> (42.8-71.6)	641
	07-08	<b>2.88</b> (2.48-3.35)	<b>2.41</b> (2.12-2.91)	<b>8.15</b> (5.31-10.7)	<b>19.3</b> (13.7-27.1)	<b>31.6</b> (21.3-42.4)	574
	09-10	<b>3.06</b> (2.58-3.64)	<b>3.04</b> (2.38-3.49)	<b>9.21</b> (7.41-10.3)	<b>19.3</b> (15.7-23.2)	<b>29.6</b> (24.2-38.8)	517
Non-Hispanic whites	03-04	<b>2.78</b> (2.40-3.22)	<b>2.29</b> (1.93-2.81)	<b>8.63</b> (6.65-10.8)	<b>19.8</b> (15.9-22.5)	<b>27.1</b> (23.2-35.1)	1074
	05-06	<b>2.72</b> (2.30-3.21)	<b>1.98</b> (1.56-2.43)	<b>8.66</b> (6.73-11.3)	<b>32.5</b> (22.6-42.2)	<b>51.3</b> (41.0-85.5)	952
	07-08	<b>2.79</b> (2.23-3.50)	<b>2.08</b> (1.74-2.69)	<b>7.52</b> (4.97-10.4)	<b>18.7</b> (12.6-26.9)	<b>32.2</b> (22.5-62.0)	1022
	09-10	<b>2.00</b> (1.78-2.26)	<b>1.70</b> (1.49-1.94)	<b>4.77</b> (3.97-5.70)	<b>13.2</b> (10.3-17.7)	<b>23.9</b> (19.5-30.8)	1203

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08 and 09-10 are 0.047, 0.048, 0.045, and 0.044 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Naphthalene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Naphthalene_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PAHs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html)

## Urinary 1-Hydroxynaphthalene (1-Naphthol) (2011 - 2012)

*Metabolite of Naphthalene*

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>1.67</b> (1.52-1.84)	<b>1.41</b> (1.26-1.59)	<b>3.90</b> (3.25-5.05)	<b>13.1</b> (10.9-15.7)	<b>22.1</b> (19.0-26.6)	2492
<b>Age group</b>							
6-11 years	11-12	<b>.960</b> (.803-1.15)	<b>.970</b> (.727-1.20)	<b>2.01</b> (1.63-2.51)	<b>4.02</b> (3.11-7.07)	<b>7.99</b> (5.05-12.6)	397
12-19 years	11-12	<b>1.16</b> (.895-1.50)	<b>1.04</b> (.843-1.33)	<b>2.34</b> (1.77-3.34)	<b>8.38</b> (3.43-15.0)	<b>14.6</b> (8.38-22.4)	389
20 years and older	11-12	<b>1.88</b> (1.71-2.06)	<b>1.59</b> (1.40-1.73)	<b>5.05</b> (3.98-5.82)	<b>14.7</b> (12.4-17.9)	<b>23.7</b> (19.8-34.2)	1706
<b>Gender</b>							
Males	11-12	<b>1.89</b> (1.66-2.15)	<b>1.62</b> (1.36-1.78)	<b>4.57</b> (3.25-5.91)	<b>13.5</b> (10.6-19.0)	<b>22.9</b> (16.7-36.7)	1258
Females	11-12	<b>1.49</b> (1.20-1.84)	<b>1.21</b> (.997-1.52)	<b>3.51</b> (2.67-5.12)	<b>12.9</b> (8.54-16.4)	<b>21.1</b> (17.7-24.6)	1234
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>1.27</b> (.962-1.68)	<b>1.15</b> (.805-1.46)	<b>2.92</b> (1.79-4.58)	<b>7.97</b> (4.82-13.3)	<b>14.2</b> (7.97-20.2)	317
Non-Hispanic blacks	11-12	<b>2.14</b> (1.85-2.47)	<b>1.78</b> (1.51-2.01)	<b>5.17</b> (3.73-6.71)	<b>14.9</b> (11.2-19.5)	<b>22.8</b> (16.8-42.9)	664
Non-Hispanic whites	11-12	<b>1.70</b> (1.53-1.90)	<b>1.47</b> (1.28-1.65)	<b>4.20</b> (3.15-5.43)	<b>13.6</b> (10.9-17.4)	<b>22.4</b> (17.7-33.4)	814
All Hispanics	11-12	<b>1.35</b> (1.12-1.64)	<b>1.13</b> (.896-1.41)	<b>3.17</b> (2.39-4.46)	<b>9.30</b> (6.34-11.6)	<b>16.1</b> (11.3-20.9)	573
Asians	11-12	<b>1.29</b> (1.01-1.66)	<b>1.16</b> (.885-1.50)	<b>3.00</b> (2.02-4.61)	<b>8.61</b> (5.33-11.5)	<b>15.5</b> (10.6-21.9)	352

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 0.044.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Naphthalene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Naphthalene_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PAHs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html)

## Urinary 1-Hydroxynaphthalene (1-Naphthol) (creatinine corrected) (2003 – 2010)

*Metabolite of Naphthalene*

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	<b>2.52</b> (2.28-2.79)	<b>2.10</b> (1.87-2.40)	<b>6.56</b> (5.43-8.18)	<b>15.1</b> (13.5-17.4)	<b>21.8</b> (18.2-25.4)	2595
	05-06	<b>2.56</b> (2.29-2.86)	<b>1.79</b> (1.57-2.06)	<b>7.57</b> (5.89-9.40)	<b>24.7</b> (20.4-31.0)	<b>39.6</b> (34.1-53.0)	2385
	07-08	<b>2.59</b> (2.19-3.06)	<b>1.98</b> (1.67-2.40)	<b>6.25</b> (4.69-8.22)	<b>16.1</b> (13.6-18.8)	<b>25.3</b> (20.9-32.8)	2496
	09-10	<b>2.14</b> (1.99-2.32)	<b>1.69</b> (1.59-1.86)	<b>4.68</b> (4.21-5.52)	<b>13.5</b> (12.3-14.9)	<b>21.2</b> (19.0-22.9)	2747
<b>Age group</b>							
6-11 years	03-04	<b>1.63</b> (1.43-1.86)	<b>1.36</b> (1.18-1.74)	<b>2.77</b> (2.27-3.20)	<b>5.70</b> (3.99-8.95)	<b>10.2</b> (5.70-16.4)	340
	05-06	<b>1.30</b> (1.09-1.55)	<b>1.09</b> (.938-1.33)	<b>2.21</b> (1.99-2.81)	<b>6.15</b> (3.33-10.3)	<b>10.3</b> (6.82-28.0)	336
	07-08	<b>1.87</b> (1.57-2.24)	<b>1.67</b> (1.35-2.15)	<b>3.31</b> (2.61-4.65)	<b>7.37</b> (5.13-8.83)	<b>9.99</b> (8.06-11.3)	370
	09-10	<b>1.53</b> (1.35-1.73)	<b>1.39</b> (1.17-1.63)	<b>2.66</b> (2.36-2.95)	<b>5.58</b> (4.36-7.62)	<b>9.32</b> (5.73-17.2)	416
12-19 years	03-04	<b>1.47</b> (1.26-1.71)	<b>1.20</b> (1.02-1.39)	<b>2.84</b> (2.49-4.08)	<b>7.56</b> (5.47-9.12)	<b>10.8</b> (9.12-13.4)	727
	05-06	<b>1.29</b> (1.14-1.45)	<b>.995</b> (.854-1.10)	<b>2.70</b> (2.27-3.35)	<b>8.76</b> (5.83-10.8)	<b>12.5</b> (9.37-19.6)	655
	07-08	<b>1.39</b> (1.18-1.65)	<b>1.13</b> (.833-1.58)	<b>3.21</b> (2.02-3.63)	<b>6.95</b> (4.79-8.41)	<b>9.93</b> (7.84-11.9)	386
	09-10	<b>1.28</b> (1.03-1.60)	<b>.992</b> (.735-1.36)	<b>2.54</b> (1.87-3.77)	<b>7.54</b> (4.63-9.68)	<b>10.5</b> (7.54-17.5)	420
20 years and older	03-04	<b>2.90</b> (2.59-3.25)	<b>2.52</b> (2.12-3.06)	<b>8.21</b> (6.45-9.81)	<b>16.9</b> (14.4-19.8)	<b>24.2</b> (20.0-27.2)	1528
	05-06	<b>3.08</b> (2.72-3.50)	<b>2.32</b> (1.91-2.73)	<b>10.1</b> (7.67-13.9)	<b>29.8</b> (23.9-34.1)	<b>46.4</b> (39.1-57.3)	1394
	07-08	<b>2.96</b> (2.43-3.60)	<b>2.36</b> (1.89-2.78)	<b>7.42</b> (5.75-10.2)	<b>18.5</b> (14.9-22.6)	<b>27.9</b> (22.3-45.0)	1740
	09-10	<b>2.41</b> (2.21-2.63)	<b>1.92</b> (1.71-2.10)	<b>5.83</b> (4.84-6.84)	<b>15.4</b> (13.5-16.7)	<b>22.7</b> (20.2-27.0)	1911
<b>Gender</b>							
Males	03-04	<b>2.49</b> (2.25-2.75)	<b>2.14</b> (1.86-2.59)	<b>6.56</b> (5.50-8.01)	<b>13.5</b> (12.3-14.4)	<b>18.3</b> (16.6-20.7)	1243
	05-06	<b>2.38</b> (2.11-2.68)	<b>1.89</b> (1.59-2.21)	<b>6.45</b> (4.94-9.21)	<b>19.2</b> (16.1-22.4)	<b>31.7</b> (22.1-38.4)	1197
	07-08	<b>2.48</b> (2.21-2.77)	<b>2.07</b> (1.74-2.39)	<b>6.17</b> (5.07-7.52)	<b>13.8</b> (11.9-16.0)	<b>20.7</b> (16.7-24.0)	1239
	09-10	<b>2.07</b> (1.82-2.35)	<b>1.67</b> (1.48-1.94)	<b>5.07</b> (3.82-6.48)	<b>12.6</b> (10.4-14.9)	<b>18.6</b> (15.3-21.9)	1399
Females	03-04	<b>2.56</b> (2.22-2.95)	<b>2.04</b> (1.73-2.44)	<b>6.68</b> (5.00-8.85)	<b>17.5</b> (13.5-21.7)	<b>24.7</b> (19.8-30.6)	1352
	05-06	<b>2.75</b> (2.37-3.19)	<b>1.75</b> (1.47-2.06)	<b>8.05</b> (6.08-11.8)	<b>31.5</b> (24.7-39.5)	<b>54.2</b> (40.8-64.5)	1188
	07-08	<b>2.71</b> (2.13-3.43)	<b>1.94</b> (1.58-2.50)	<b>6.31</b> (4.29-9.32)	<b>18.9</b> (13.8-23.7)	<b>32.8</b> (22.3-104)	1257
	09-10	<b>2.22</b> (1.95-2.53)	<b>1.71</b> (1.59-1.89)	<b>4.54</b> (3.89-5.49)	<b>15.4</b> (10.8-19.6)	<b>24.7</b> (18.6-31.1)	1348

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Naphthalene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Naphthalene_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PAHs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html)

## Urinary 1-Hydroxynaphthalene (1-Naphthol) (creatinine corrected) (2003 – 2010)

*Metabolite of Naphthalene*

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Race/ethnicity</b>							
Mexican Americans	03-04	<b>1.75</b> (1.59-1.93)	<b>1.50</b> (1.26-1.69)	<b>3.24</b> (2.90-4.25)	<b>8.55</b> (7.15-12.0)	<b>17.5</b> (13.5-21.4)	651
	05-06	<b>1.37</b> (1.15-1.64)	<b>1.08</b> (.940-1.38)	<b>2.83</b> (2.13-3.82)	<b>9.50</b> (5.95-12.6)	<b>18.8</b> (12.0-21.6)	607
	07-08	<b>1.59</b> (1.29-1.95)	<b>1.29</b> (1.03-1.57)	<b>3.09</b> (2.17-5.05)	<b>7.58</b> (5.43-10.8)	<b>11.8</b> (7.86-26.1)	506
	09-10	<b>1.70</b> (1.46-1.98)	<b>1.41</b> (1.24-1.61)	<b>3.38</b> (2.48-4.56)	<b>7.83</b> (6.02-11.6)	<b>15.7</b> (10.9-19.3)	566
Non-Hispanic blacks	03-04	<b>2.36</b> (2.03-2.76)	<b>2.00</b> (1.59-2.41)	<b>5.90</b> (4.44-6.81)	<b>13.8</b> (9.01-18.7)	<b>20.9</b> (17.1-30.3)	677
	05-06	<b>2.40</b> (1.99-2.89)	<b>1.98</b> (1.52-2.51)	<b>7.17</b> (5.28-8.85)	<b>20.6</b> (15.4-29.2)	<b>39.2</b> (29.2-54.3)	641
	07-08	<b>2.22</b> (1.87-2.64)	<b>1.87</b> (1.47-2.42)	<b>6.06</b> (4.34-7.94)	<b>13.6</b> (10.6-17.0)	<b>21.3</b> (14.1-31.8)	574
	09-10	<b>2.22</b> (1.96-2.52)	<b>2.13</b> (1.64-2.52)	<b>5.89</b> (4.70-7.22)	<b>13.0</b> (10.3-14.9)	<b>18.2</b> (14.5-28.9)	517
Non-Hispanic whites	03-04	<b>2.75</b> (2.45-3.08)	<b>2.33</b> (1.94-2.87)	<b>8.03</b> (6.32-9.26)	<b>16.6</b> (14.4-18.9)	<b>23.5</b> (20.3-26.0)	1074
	05-06	<b>2.84</b> (2.41-3.36)	<b>1.99</b> (1.60-2.54)	<b>8.65</b> (5.95-12.6)	<b>28.2</b> (20.8-35.0)	<b>43.1</b> (38.4-59.0)	952
	07-08	<b>2.90</b> (2.33-3.61)	<b>2.16</b> (1.71-2.78)	<b>7.30</b> (5.00-10.2)	<b>18.4</b> (14.8-22.3)	<b>27.3</b> (22.3-50.8)	1022
	09-10	<b>2.25</b> (2.05-2.48)	<b>1.74</b> (1.59-1.92)	<b>4.84</b> (4.08-5.98)	<b>14.6</b> (12.8-16.9)	<b>22.5</b> (19.1-27.1)	1203

### Biomonitoring Summary

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### Factsheet

[http://www.cdc.gov/biomonitoring/PAHs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html)

## Urinary 1-Hydroxynaphthalene (1-Naphthol) (creatinine corrected) (2011 - 2012)

*Metabolite of Naphthalene*

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Total</b>	11-12	<b>1.90</b> (1.73-2.10)	<b>1.51</b> (1.35-1.67)	<b>4.15</b> (3.49-5.23)	<b>13.4</b> (10.4-15.6)	<b>20.4</b> (15.8-26.7)	2490
<b>Age group</b>							
6-11 years	11-12	<b>1.38</b> (1.18-1.61)	<b>1.21</b> (.971-1.58)	<b>2.36</b> (1.96-2.83)	<b>4.78</b> (3.72-6.59)	<b>8.90</b> (5.68-10.0)	396
12-19 years	11-12	<b>1.12</b> (.927-1.35)	<b>.936</b> (.729-1.21)	<b>2.02</b> (1.43-3.03)	<b>5.22</b> (3.42-7.72)	<b>8.11</b> (5.61-17.2)	389
20 years and older	11-12	<b>2.14</b> (1.93-2.36)	<b>1.69</b> (1.49-1.87)	<b>5.35</b> (4.44-6.53)	<b>15.3</b> (13.0-17.5)	<b>22.4</b> (16.4-38.0)	1705
<b>Gender</b>							
Males	11-12	<b>1.77</b> (1.53-2.05)	<b>1.43</b> (1.16-1.69)	<b>3.80</b> (2.92-5.93)	<b>12.2</b> (9.34-14.7)	<b>18.8</b> (14.2-25.5)	1257
Females	11-12	<b>2.04</b> (1.68-2.47)	<b>1.62</b> (1.30-1.90)	<b>4.42</b> (3.31-6.05)	<b>15.3</b> (12.4-18.0)	<b>21.6</b> (18.0-30.0)	1233
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>1.43</b> (1.14-1.80)	<b>1.18</b> (.841-1.71)	<b>3.03</b> (1.94-4.75)	<b>7.88</b> (5.68-10.6)	<b>11.8</b> (8.45-18.9)	317
Non-Hispanic blacks	11-12	<b>1.66</b> (1.46-1.90)	<b>1.29</b> (1.11-1.47)	<b>4.01</b> (3.05-5.22)	<b>10.5</b> (8.56-12.7)	<b>16.4</b> (12.2-25.5)	664
Non-Hispanic whites	11-12	<b>2.07</b> (1.87-2.30)	<b>1.66</b> (1.47-1.81)	<b>4.97</b> (3.58-6.10)	<b>15.0</b> (12.7-17.5)	<b>22.4</b> (15.8-39.3)	812
All Hispanics	11-12	<b>1.51</b> (1.27-1.81)	<b>1.21</b> (.961-1.59)	<b>3.35</b> (2.33-4.61)	<b>9.08</b> (6.82-11.3)	<b>15.1</b> (10.7-20.1)	573
Asians	11-12	<b>1.73</b> (1.37-2.20)	<b>1.31</b> (1.00-1.72)	<b>3.74</b> (2.64-4.72)	<b>8.92</b> (6.47-14.1)	<b>22.8</b> (9.03-56.6)	352

### Biomonitoring Summary

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### Factsheet

[http://www.cdc.gov/biomonitoring/PAHs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html)



## Urinary 2-Hydroxynaphthalene (2-Naphthol) (2001 – 2010)

Metabolite of Naphthalene

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	<b>2.47</b> (2.11-2.89)	<b>2.28</b> (1.93-2.67)	<b>5.68</b> (4.58-6.83)	<b>14.7</b> (12.8-19.5)	<b>26.0</b> (22.5-29.7)	2748
	03-04	<b>3.18</b> (2.76-3.67)	<b>2.96</b> (2.50-3.50)	<b>7.50</b> (6.19-9.69)	<b>17.3</b> (14.5-22.1)	<b>25.8</b> (22.6-27.7)	2575
	05-06	<b>3.63</b> (3.36-3.92)	<b>3.44</b> (3.11-3.80)	<b>8.55</b> (7.84-9.42)	<b>20.2</b> (17.0-24.1)	<b>33.1</b> (28.6-38.2)	2446
	07-08	<b>3.83</b> (3.37-4.36)	<b>3.66</b> (3.24-4.12)	<b>8.44</b> (6.67-10.3)	<b>17.3</b> (14.8-21.9)	<b>26.7</b> (23.0-30.8)	2531
	09-10	<b>3.55</b> (3.23-3.91)	<b>3.49</b> (3.15-3.85)	<b>7.81</b> (7.07-8.55)	<b>15.8</b> (14.0-17.6)	<b>23.8</b> (21.5-26.9)	2747
Age group 6-11 years	01-02	<b>1.69</b> (1.56-1.84)	<b>1.70</b> (1.40-1.95)	<b>3.01</b> (2.58-3.47)	<b>5.41</b> (3.89-6.70)	<b>7.72</b> (6.30-9.54)	387
	03-04	<b>2.11</b> (1.80-2.47)	<b>2.14</b> (1.79-2.59)	<b>3.57</b> (3.14-4.38)	<b>5.58</b> (5.05-6.38)	<b>9.71</b> (5.23-20.0)	339
	05-06	<b>2.16</b> (1.94-2.41)	<b>2.09</b> (1.95-2.33)	<b>3.96</b> (3.09-4.46)	<b>5.64</b> (5.00-9.68)	<b>10.6</b> (7.21-13.3)	345
	07-08	<b>2.70</b> (2.38-3.06)	<b>2.59</b> (2.13-2.95)	<b>4.66</b> (4.05-5.23)	<b>8.73</b> (5.91-10.7)	<b>11.5</b> (9.16-14.8)	376
	09-10	<b>2.40</b> (2.04-2.83)	<b>2.49</b> (2.12-3.02)	<b>4.89</b> (3.80-6.27)	<b>9.61</b> (7.65-11.6)	<b>12.8</b> (10.4-22.2)	416
12-19 years	01-02	<b>2.22</b> (1.70-2.90)	<b>2.15</b> (1.74-2.53)	<b>4.39</b> (3.15-6.11)	<b>11.0</b> (6.99-20.4)	<b>22.5</b> (13.9-28.4)	735
	03-04	<b>3.04</b> (2.68-3.46)	<b>2.91</b> (2.51-3.50)	<b>5.29</b> (4.67-6.59)	<b>12.4</b> (8.53-16.8)	<b>17.6</b> (15.1-25.9)	721
	05-06	<b>3.46</b> (3.04-3.95)	<b>3.30</b> (2.87-3.78)	<b>6.75</b> (5.87-7.49)	<b>14.5</b> (10.3-20.8)	<b>23.9</b> (14.7-33.1)	677
	07-08	<b>4.29</b> (3.49-5.28)	<b>4.34</b> (3.73-5.32)	<b>8.74</b> (6.57-10.8)	<b>17.1</b> (13.0-22.5)	<b>24.0</b> (19.6-29.7)	387
	09-10	<b>3.93</b> (3.25-4.75)	<b>3.98</b> (3.37-5.26)	<b>7.76</b> (6.63-9.35)	<b>12.8</b> (10.7-16.0)	<b>19.8</b> (13.4-22.1)	420
20 years and older	01-02	<b>2.62</b> (2.22-3.10)	<b>2.44</b> (1.94-2.95)	<b>6.38</b> (5.11-8.11)	<b>17.6</b> (14.0-21.1)	<b>28.1</b> (23.3-33.7)	1626
	03-04	<b>3.37</b> (2.86-3.96)	<b>3.18</b> (2.59-3.96)	<b>8.77</b> (7.21-11.3)	<b>19.2</b> (16.0-23.2)	<b>26.6</b> (23.4-28.8)	1515
	05-06	<b>3.88</b> (3.51-4.29)	<b>3.77</b> (3.25-4.33)	<b>9.58</b> (8.77-10.6)	<b>23.0</b> (18.6-28.8)	<b>37.0</b> (29.2-39.5)	1424
	07-08	<b>3.91</b> (3.41-4.50)	<b>3.68</b> (3.20-4.32)	<b>9.17</b> (6.82-11.0)	<b>18.5</b> (15.1-23.6)	<b>28.6</b> (23.8-33.5)	1768
	09-10	<b>3.66</b> (3.27-4.08)	<b>3.54</b> (3.14-4.00)	<b>8.17</b> (7.41-9.09)	<b>17.4</b> (15.0-19.7)	<b>25.6</b> (22.1-32.1)	1911
Gender Males	01-02	<b>2.75</b> (2.36-3.22)	<b>2.51</b> (2.09-2.97)	<b>6.06</b> (4.82-7.81)	<b>16.9</b> (11.9-23.0)	<b>28.1</b> (20.8-35.6)	1349
	03-04	<b>3.52</b> (3.09-4.01)	<b>3.37</b> (2.91-3.88)	<b>8.52</b> (6.96-10.5)	<b>18.4</b> (15.3-22.6)	<b>26.1</b> (22.2-27.9)	1233
	05-06	<b>4.03</b> (3.65-4.44)	<b>3.85</b> (3.25-4.34)	<b>9.49</b> (7.84-11.3)	<b>19.7</b> (16.7-23.1)	<b>32.9</b> (25.5-38.2)	1221
	07-08	<b>4.25</b> (3.77-4.78)	<b>4.20</b> (3.74-4.52)	<b>9.30</b> (7.35-10.8)	<b>17.5</b> (14.5-22.7)	<b>26.0</b> (20.9-32.6)	1256
	09-10	<b>3.72</b> (3.30-4.20)	<b>3.52</b> (3.14-4.12)	<b>7.43</b> (6.76-8.41)	<b>15.5</b> (13.7-18.0)	<b>25.2</b> (21.0-27.2)	1399
Females	01-02	<b>2.22</b> (1.86-2.66)	<b>2.06</b> (1.65-2.48)	<b>5.24</b> (3.89-6.44)	<b>13.9</b> (12.3-17.7)	<b>25.3</b> (19.7-28.3)	1399
	03-04	<b>2.89</b> (2.42-3.45)	<b>2.60</b> (2.14-3.16)	<b>6.80</b> (5.14-9.21)	<b>16.6</b> (12.7-21.3)	<b>23.9</b> (22.1-27.6)	1342
	05-06	<b>3.28</b> (2.83-3.80)	<b>3.18</b> (2.64-3.61)	<b>7.83</b> (6.77-9.00)	<b>21.3</b> (14.5-29.2)	<b>35.0</b> (26.7-39.6)	1225
	07-08	<b>3.47</b> (2.99-4.03)	<b>3.18</b> (2.65-3.74)	<b>7.64</b> (5.97-10.0)	<b>17.1</b> (13.6-21.9)	<b>26.7</b> (21.6-30.8)	1275
	09-10	<b>3.40</b> (3.09-3.74)	<b>3.44</b> (3.07-3.82)	<b>8.14</b> (7.12-9.07)	<b>16.3</b> (13.6-18.6)	<b>23.7</b> (20.8-30.7)	1348

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.002, 0.031, 0.013, 0.042, and 0.042 respectively.

### Biomonitoring Summary

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### Factsheet

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## Urinary 2-Hydroxynaphthalene (2-Naphthol) (2001 – 2010)

*Metabolite of Naphthalene*

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Race/ethnicity</b>							
Mexican Americans	01-02	<b>2.70</b> (2.36-3.08)	<b>2.71</b> (2.35-3.26)	<b>5.14</b> (4.36-6.15)	<b>9.64</b> (8.15-10.6)	<b>14.3</b> (10.4-18.7)	665
	03-04	<b>3.13</b> (2.71-3.63)	<b>3.11</b> (2.57-3.85)	<b>6.74</b> (5.60-8.28)	<b>14.5</b> (10.4-15.6)	<b>18.0</b> (15.5-20.5)	648
	05-06	<b>4.52</b> (4.12-4.96)	<b>4.79</b> (4.13-5.43)	<b>8.96</b> (7.84-9.81)	<b>17.3</b> (12.4-23.3)	<b>28.7</b> (20.0-32.7)	621
	07-08	<b>4.69</b> (4.07-5.41)	<b>4.50</b> (3.93-5.58)	<b>8.60</b> (6.77-11.3)	<b>16.4</b> (12.6-20.9)	<b>24.0</b> (19.1-29.7)	515
	09-10	<b>4.47</b> (3.90-5.13)	<b>4.56</b> (3.72-5.88)	<b>9.63</b> (8.51-10.7)	<b>16.6</b> (13.4-19.5)	<b>23.6</b> (18.7-28.4)	566
Non-Hispanic blacks	01-02	<b>3.97</b> (3.47-4.54)	<b>3.46</b> (3.10-4.02)	<b>9.29</b> (6.82-13.2)	<b>22.8</b> (16.0-29.1)	<b>33.0</b> (25.9-38.7)	692
	03-04	<b>4.69</b> (3.81-5.77)	<b>4.23</b> (3.18-5.54)	<b>10.3</b> (7.67-13.1)	<b>21.5</b> (17.4-26.1)	<b>30.7</b> (23.0-40.6)	673
	05-06	<b>4.99</b> (4.41-5.65)	<b>4.63</b> (3.93-5.62)	<b>11.6</b> (9.37-14.3)	<b>22.6</b> (20.0-26.9)	<b>31.9</b> (27.6-38.5)	657
	07-08	<b>4.90</b> (4.42-5.44)	<b>4.81</b> (4.33-5.19)	<b>10.1</b> (8.05-12.3)	<b>22.1</b> (17.2-26.3)	<b>28.6</b> (25.0-36.6)	587
	09-10	<b>5.23</b> (4.45-6.16)	<b>5.42</b> (4.51-6.80)	<b>11.1</b> (9.18-13.3)	<b>22.1</b> (17.9-26.0)	<b>30.9</b> (26.0-35.1)	517
Non-Hispanic whites	01-02	<b>2.19</b> (1.76-2.72)	<b>1.91</b> (1.61-2.42)	<b>4.97</b> (3.71-6.78)	<b>14.1</b> (10.7-20.2)	<b>25.9</b> (20.7-30.0)	1207
	03-04	<b>3.07</b> (2.57-3.66)	<b>2.65</b> (2.19-3.43)	<b>7.61</b> (5.77-10.3)	<b>18.5</b> (14.5-23.2)	<b>26.3</b> (23.2-28.7)	1062
	05-06	<b>3.25</b> (2.90-3.64)	<b>2.98</b> (2.71-3.33)	<b>7.90</b> (6.69-9.36)	<b>19.3</b> (15.8-24.7)	<b>34.0</b> (25.5-38.3)	980
	07-08	<b>3.60</b> (2.98-4.35)	<b>3.34</b> (2.61-4.17)	<b>8.04</b> (5.73-10.7)	<b>17.1</b> (11.8-23.8)	<b>26.4</b> (20.4-35.6)	1044
	09-10	<b>3.17</b> (2.79-3.62)	<b>3.12</b> (2.81-3.51)	<b>6.75</b> (6.06-7.81)	<b>14.1</b> (12.3-17.6)	<b>22.3</b> (19.7-26.5)	1203

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.002, 0.031, 0.013, 0.042, and 0.042 respectively.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Naphthalene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Naphthalene_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PAHs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html)

## Urinary 2-Hydroxynaphthalene (2-Naphthol) (2011 - 2012)

*Metabolite of Naphthalene*

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>4.14</b> (3.73-4.61)	<b>4.18</b> (3.83-4.76)	<b>9.74</b> (8.22-10.8)	<b>19.7</b> (17.7-21.2)	<b>28.1</b> (24.1-30.3)	2492
<b>Age group</b>							
6-11 years	11-12	<b>3.13</b> (2.66-3.69)	<b>3.34</b> (2.75-4.53)	<b>6.49</b> (5.77-8.10)	<b>11.9</b> (11.1-16.5)	<b>20.3</b> (14.8-26.5)	397
12-19 years	11-12	<b>4.33</b> (3.47-5.40)	<b>4.03</b> (3.18-5.36)	<b>9.34</b> (7.14-11.7)	<b>20.8</b> (14.7-26.6)	<b>27.3</b> (20.8-61.5)	389
20 years and older	11-12	<b>4.25</b> (3.78-4.77)	<b>4.26</b> (3.84-4.96)	<b>10.4</b> (8.45-11.4)	<b>20.0</b> (17.7-22.2)	<b>28.5</b> (23.6-31.2)	1706
<b>Gender</b>							
Males	11-12	<b>4.26</b> (3.82-4.76)	<b>4.20</b> (3.62-5.09)	<b>8.93</b> (7.61-10.7)	<b>18.3</b> (14.7-22.4)	<b>27.7</b> (21.0-32.9)	1258
Females	11-12	<b>4.03</b> (3.50-4.65)	<b>4.16</b> (3.72-4.83)	<b>10.4</b> (8.56-11.9)	<b>20.5</b> (17.8-23.0)	<b>28.3</b> (24.1-31.2)	1234
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>5.86</b> (5.13-6.70)	<b>5.41</b> (4.82-6.55)	<b>12.7</b> (9.57-16.6)	<b>22.5</b> (17.5-25.1)	<b>27.5</b> (22.7-37.3)	317
Non-Hispanic blacks	11-12	<b>6.65</b> (5.66-7.80)	<b>6.87</b> (5.70-8.56)	<b>14.0</b> (11.8-15.1)	<b>23.6</b> (20.3-28.4)	<b>37.0</b> (25.4-47.1)	664
Non-Hispanic whites	11-12	<b>3.54</b> (3.17-3.96)	<b>3.59</b> (3.09-4.06)	<b>7.55</b> (6.80-9.06)	<b>17.8</b> (13.4-20.5)	<b>26.2</b> (20.5-29.2)	814
All Hispanics	11-12	<b>5.69</b> (4.90-6.61)	<b>5.49</b> (4.60-6.61)	<b>12.6</b> (10.1-15.7)	<b>22.8</b> (18.4-24.7)	<b>27.9</b> (23.0-42.3)	573
Asians	11-12	<b>2.91</b> (2.37-3.56)	<b>2.97</b> (2.06-3.86)	<b>6.33</b> (5.29-8.33)	<b>13.5</b> (10.8-17.0)	<b>20.6</b> (14.2-26.6)	352

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 0.042.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Naphthalene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Naphthalene_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PAHs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html)

## Urinary 2-Hydroxynaphthalene (2-Naphthol) (creatinine corrected) (2001 – 2010)

*Metabolite of Naphthalene*

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	<b>2.31</b> (1.98-2.68)	<b>1.94</b> (1.67-2.30)	<b>4.73</b> (3.82-5.86)	<b>11.5</b> (9.98-13.1)	<b>16.7</b> (14.1-19.2)	2748
	03-04	<b>2.99</b> (2.67-3.34)	<b>2.56</b> (2.20-2.97)	<b>6.34</b> (5.01-7.87)	<b>14.1</b> (11.8-16.3)	<b>19.9</b> (16.0-23.8)	2575
	05-06	<b>3.52</b> (3.29-3.77)	<b>3.08</b> (2.67-3.40)	<b>7.24</b> (6.45-8.27)	<b>17.0</b> (14.8-18.8)	<b>23.9</b> (21.9-27.2)	2446
	07-08	<b>3.86</b> (3.44-4.33)	<b>3.44</b> (3.04-3.91)	<b>7.08</b> (6.01-8.63)	<b>15.3</b> (12.9-18.3)	<b>20.7</b> (18.8-23.9)	2531
	09-10	<b>3.71</b> (3.47-3.97)	<b>3.33</b> (3.08-3.70)	<b>6.69</b> (6.29-7.15)	<b>13.8</b> (12.7-15.0)	<b>19.9</b> (17.8-21.7)	2747
Age group 6-11 years	01-02	<b>1.89</b> (1.74-2.07)	<b>1.83</b> (1.72-1.94)	<b>3.11</b> (2.51-3.47)	<b>5.04</b> (4.38-5.54)	<b>6.49</b> (5.27-12.4)	387
	03-04	<b>2.24</b> (1.89-2.65)	<b>2.04</b> (1.66-2.44)	<b>3.54</b> (2.85-3.91)	<b>5.95</b> (4.14-8.51)	<b>8.72</b> (7.56-12.0)	339
	05-06	<b>2.40</b> (2.10-2.75)	<b>2.27</b> (2.00-2.58)	<b>3.68</b> (3.15-4.43)	<b>6.10</b> (4.84-7.04)	<b>7.82</b> (6.31-13.8)	345
	07-08	<b>3.33</b> (2.98-3.73)	<b>3.35</b> (2.90-3.71)	<b>5.23</b> (4.32-6.78)	<b>8.00</b> (6.79-9.92)	<b>10.5</b> (8.00-14.5)	376
	09-10	<b>3.13</b> (2.73-3.60)	<b>3.08</b> (2.54-3.60)	<b>5.01</b> (4.19-6.23)	<b>9.79</b> (7.04-12.5)	<b>13.8</b> (10.9-18.9)	416
12-19 years	01-02	<b>1.72</b> (1.35-2.19)	<b>1.51</b> (1.34-1.83)	<b>2.75</b> (2.08-4.07)	<b>7.18</b> (4.07-10.9)	<b>11.1</b> (7.86-17.4)	735
	03-04	<b>2.28</b> (2.06-2.52)	<b>2.03</b> (1.77-2.35)	<b>3.78</b> (3.20-4.47)	<b>7.84</b> (6.13-9.11)	<b>10.5</b> (9.10-12.5)	721
	05-06	<b>2.59</b> (2.37-2.84)	<b>2.31</b> (2.03-2.62)	<b>4.58</b> (3.99-5.02)	<b>8.47</b> (6.98-10.5)	<b>11.9</b> (10.1-15.2)	677
	07-08	<b>3.30</b> (2.74-3.96)	<b>3.13</b> (2.43-4.08)	<b>5.73</b> (4.88-6.79)	<b>9.85</b> (7.56-12.0)	<b>12.5</b> (9.91-18.6)	387
	09-10	<b>3.16</b> (2.79-3.58)	<b>3.00</b> (2.58-3.67)	<b>5.43</b> (4.70-6.35)	<b>8.73</b> (7.59-9.98)	<b>12.5</b> (9.61-14.2)	420
20 years and older	01-02	<b>2.48</b> (2.13-2.89)	<b>2.08</b> (1.68-2.60)	<b>5.63</b> (4.46-6.94)	<b>12.4</b> (10.9-13.9)	<b>17.7</b> (15.2-20.6)	1626
	03-04	<b>3.23</b> (2.87-3.64)	<b>2.91</b> (2.36-3.41)	<b>7.54</b> (6.20-9.10)	<b>15.6</b> (13.1-17.9)	<b>21.8</b> (17.2-24.0)	1515
	05-06	<b>3.87</b> (3.59-4.17)	<b>3.40</b> (3.08-3.75)	<b>9.20</b> (7.93-10.5)	<b>19.0</b> (17.4-21.3)	<b>27.2</b> (22.3-29.7)	1424
	07-08	<b>4.02</b> (3.55-4.55)	<b>3.47</b> (3.07-4.04)	<b>7.75</b> (6.17-9.83)	<b>17.5</b> (13.9-19.8)	<b>22.7</b> (20.2-25.5)	1768
	09-10	<b>3.87</b> (3.57-4.20)	<b>3.47</b> (3.18-3.87)	<b>7.26</b> (6.69-7.99)	<b>14.9</b> (13.3-16.8)	<b>21.2</b> (19.2-22.8)	1911
Gender Males	01-02	<b>2.23</b> (1.90-2.61)	<b>1.86</b> (1.63-2.10)	<b>4.79</b> (3.51-6.12)	<b>11.4</b> (8.95-14.3)	<b>15.8</b> (13.1-19.2)	1349
	03-04	<b>2.77</b> (2.50-3.06)	<b>2.36</b> (2.13-2.81)	<b>6.31</b> (5.08-7.36)	<b>12.8</b> (11.3-14.6)	<b>16.4</b> (14.6-18.3)	1233
	05-06	<b>3.23</b> (3.00-3.48)	<b>2.83</b> (2.53-3.14)	<b>6.75</b> (5.62-8.10)	<b>13.8</b> (12.3-16.2)	<b>18.9</b> (17.4-21.3)	1221
	07-08	<b>3.58</b> (3.24-3.95)	<b>3.13</b> (2.70-3.57)	<b>6.79</b> (5.79-8.10)	<b>14.4</b> (12.2-17.2)	<b>19.6</b> (18.3-20.9)	1256
	09-10	<b>3.34</b> (3.04-3.67)	<b>2.92</b> (2.54-3.37)	<b>6.19</b> (5.44-6.84)	<b>13.2</b> (11.1-15.4)	<b>18.1</b> (14.9-21.7)	1399
Females	01-02	<b>2.38</b> (2.05-2.77)	<b>1.99</b> (1.66-2.56)	<b>4.73</b> (3.79-6.00)	<b>11.5</b> (10.3-12.8)	<b>17.4</b> (13.7-21.5)	1399
	03-04	<b>3.21</b> (2.76-3.73)	<b>2.68</b> (2.20-3.26)	<b>6.43</b> (4.74-8.58)	<b>16.0</b> (11.5-19.9)	<b>22.5</b> (18.1-25.0)	1342
	05-06	<b>3.83</b> (3.39-4.33)	<b>3.21</b> (2.72-3.76)	<b>8.08</b> (6.43-9.74)	<b>20.8</b> (17.0-24.7)	<b>29.0</b> (24.9-34.2)	1225
	07-08	<b>4.15</b> (3.57-4.83)	<b>3.59</b> (3.19-4.18)	<b>7.40</b> (5.88-9.63)	<b>16.8</b> (12.9-20.2)	<b>22.7</b> (20.0-25.5)	1275
	09-10	<b>4.10</b> (3.80-4.41)	<b>3.89</b> (3.52-4.16)	<b>7.17</b> (6.54-8.06)	<b>14.6</b> (13.0-16.8)	<b>21.7</b> (19.2-23.9)	1348

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Naphthalene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Naphthalene_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PAHs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html)

## Urinary 2-Hydroxynaphthalene (2-Naphthol) (creatinine corrected) (2001 – 2010)

*Metabolite of Naphthalene*

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Race/ethnicity</b>							
Mexican Americans	01-02	<b>2.52</b> (2.23-2.85)	<b>2.35</b> (2.01-2.95)	<b>4.65</b> (3.97-5.21)	<b>7.32</b> (6.05-8.09)	<b>12.1</b> (7.82-15.3)	665
	03-04	<b>2.83</b> (2.44-3.28)	<b>2.57</b> (2.20-3.23)	<b>5.00</b> (4.10-5.95)	<b>10.3</b> (6.79-13.0)	<b>13.3</b> (11.0-15.5)	648
	05-06	<b>4.05</b> (3.77-4.35)	<b>4.03</b> (3.65-4.36)	<b>7.05</b> (6.30-8.05)	<b>12.6</b> (9.53-15.1)	<b>17.4</b> (13.4-20.6)	621
	07-08	<b>4.58</b> (3.97-5.28)	<b>4.38</b> (3.55-5.02)	<b>7.59</b> (6.30-9.38)	<b>14.2</b> (11.6-16.4)	<b>19.1</b> (16.0-24.7)	515
	09-10	<b>4.44</b> (4.02-4.90)	<b>4.30</b> (3.79-5.03)	<b>7.80</b> (7.28-8.47)	<b>12.9</b> (11.1-14.6)	<b>18.8</b> (13.8-22.8)	566
Non-Hispanic blacks	01-02	<b>2.79</b> (2.39-3.27)	<b>2.41</b> (2.04-2.77)	<b>5.98</b> (4.84-6.98)	<b>11.6</b> (9.09-15.3)	<b>17.4</b> (12.2-23.4)	692
	03-04	<b>3.31</b> (2.70-4.04)	<b>3.06</b> (2.31-3.86)	<b>6.92</b> (5.12-9.33)	<b>12.8</b> (10.4-16.5)	<b>18.6</b> (15.7-22.1)	673
	05-06	<b>3.51</b> (3.16-3.89)	<b>3.10</b> (2.59-3.53)	<b>6.71</b> (5.33-8.04)	<b>12.3</b> (10.3-16.1)	<b>19.7</b> (16.1-25.0)	657
	07-08	<b>3.80</b> (3.47-4.15)	<b>3.45</b> (3.08-3.90)	<b>6.73</b> (5.57-8.41)	<b>13.1</b> (11.3-14.9)	<b>19.2</b> (14.8-26.5)	587
	09-10	<b>3.80</b> (3.47-4.15)	<b>3.37</b> (3.10-3.85)	<b>7.27</b> (6.54-8.32)	<b>13.4</b> (10.8-16.8)	<b>18.7</b> (13.4-23.5)	517
Non-Hispanic whites	01-02	<b>2.16</b> (1.78-2.62)	<b>1.74</b> (1.44-2.18)	<b>4.34</b> (3.32-6.09)	<b>11.9</b> (9.93-14.3)	<b>16.9</b> (13.8-20.6)	1207
	03-04	<b>3.03</b> (2.65-3.46)	<b>2.46</b> (2.10-2.98)	<b>7.14</b> (5.09-8.91)	<b>15.6</b> (13.3-17.6)	<b>21.9</b> (17.1-24.1)	1062
	05-06	<b>3.40</b> (3.08-3.77)	<b>2.73</b> (2.39-3.26)	<b>7.45</b> (6.10-9.65)	<b>17.9</b> (15.3-20.7)	<b>24.9</b> (21.3-29.0)	980
	07-08	<b>3.75</b> (3.18-4.43)	<b>3.28</b> (2.60-4.08)	<b>6.91</b> (5.53-9.51)	<b>16.8</b> (12.8-19.8)	<b>22.2</b> (19.4-25.5)	1044
	09-10	<b>3.57</b> (3.27-3.90)	<b>3.18</b> (2.82-3.71)	<b>6.27</b> (5.67-7.13)	<b>14.8</b> (13.1-15.8)	<b>20.8</b> (19.0-22.5)	1203

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Naphthalene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Naphthalene_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PAHs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html)

## Urinary 2-Hydroxynaphthalene (2-Naphthol) (creatinine corrected) (2011 - 2012)

*Metabolite of Naphthalene*

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Total</b>	11-12	<b>4.72</b> (4.39-5.08)	<b>4.32</b> (4.00-4.78)	<b>9.30</b> (8.40-10.1)	<b>17.6</b> (15.5-18.7)	<b>23.4</b> (20.2-25.9)	2490
<b>Age group</b>							
6-11 years	11-12	<b>4.50</b> (3.93-5.16)	<b>4.18</b> (3.68-4.96)	<b>7.81</b> (6.44-9.37)	<b>14.6</b> (11.2-17.1)	<b>19.2</b> (15.3-22.6)	396
12-19 years	11-12	<b>4.19</b> (3.61-4.86)	<b>3.82</b> (3.26-4.63)	<b>6.97</b> (5.26-8.92)	<b>12.9</b> (9.70-14.9)	<b>20.5</b> (12.9-32.1)	389
20 years and older	11-12	<b>4.84</b> (4.48-5.22)	<b>4.50</b> (4.07-4.98)	<b>9.88</b> (9.07-11.0)	<b>18.1</b> (16.4-19.4)	<b>24.0</b> (20.8-26.7)	1705
<b>Gender</b>							
Males	11-12	<b>4.01</b> (3.61-4.44)	<b>3.71</b> (3.23-4.19)	<b>7.61</b> (6.50-8.89)	<b>14.2</b> (12.1-15.8)	<b>19.6</b> (17.4-22.3)	1257
Females	11-12	<b>5.53</b> (5.01-6.11)	<b>5.22</b> (4.62-5.94)	<b>11.4</b> (9.85-12.8)	<b>19.1</b> (17.4-22.6)	<b>25.9</b> (21.6-31.0)	1233
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>6.59</b> (5.61-7.75)	<b>6.22</b> (5.54-7.60)	<b>11.6</b> (9.38-14.3)	<b>20.1</b> (14.3-26.3)	<b>26.3</b> (18.5-44.9)	317
Non-Hispanic blacks	11-12	<b>5.17</b> (4.58-5.85)	<b>5.26</b> (4.59-6.16)	<b>9.33</b> (8.09-10.7)	<b>15.3</b> (13.5-17.3)	<b>19.6</b> (17.9-22.0)	664
Non-Hispanic whites	11-12	<b>4.32</b> (3.96-4.70)	<b>3.81</b> (3.40-4.21)	<b>8.89</b> (7.40-10.0)	<b>17.6</b> (14.5-18.7)	<b>21.9</b> (18.7-27.7)	812
All Hispanics	11-12	<b>6.37</b> (5.80-7.00)	<b>6.04</b> (5.65-6.77)	<b>11.6</b> (9.85-13.3)	<b>19.2</b> (15.8-23.8)	<b>25.9</b> (21.9-30.4)	573
Asians	11-12	<b>3.89</b> (3.22-4.71)	<b>3.91</b> (3.08-4.86)	<b>6.94</b> (5.70-8.22)	<b>12.9</b> (8.67-19.0)	<b>19.1</b> (13.7-23.1)	352

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Naphthalene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Naphthalene_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/PAHs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html)

## Blood 1,1,1-Trichloroethane (Methyl chloroform) (2003 - 2008)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size	
<b>Total</b>	03-04	*	< LOD	< LOD	< LOD	< LOD	1345	
	05-06	*	< LOD	< LOD	< LOD	< LOD	3085	
	07-08	*	< LOD	< LOD	< LOD	< LOD	2907	
<b>Age group</b>								
	12-19 years	05-06	*	< LOD	< LOD	< LOD	< LOD	911
		07-08	*	< LOD	< LOD	< LOD	< LOD	469
20-59 years	03-04	*	< LOD	< LOD	< LOD	< LOD	1345	
	05-06	*	< LOD	< LOD	< LOD	< LOD	1524	
	07-08	*	< LOD	< LOD	< LOD	< LOD	1565	
60 years and older	05-06	*	< LOD	< LOD	< LOD	.014 (<LOD-.021)	650	
	07-08	*	< LOD	< LOD	< LOD	< LOD	873	
<b>Gender</b>								
	Males	03-04	*	< LOD	< LOD	< LOD	< LOD	660
		05-06	*	< LOD	< LOD	< LOD	1464	
		07-08	*	< LOD	< LOD	< LOD	1442	
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	685	
	05-06	*	< LOD	< LOD	< LOD	< LOD	1621	
	07-08	*	< LOD	< LOD	< LOD	< LOD	1465	
<b>Race/ethnicity</b>								
	Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	267
		05-06	*	< LOD	< LOD	< LOD	762	
		07-08	*	< LOD	< LOD	< LOD	575	
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	289	
	05-06	*	< LOD	< LOD	< LOD	< LOD	791	
	07-08	*	< LOD	< LOD	< LOD	< LOD	581	
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	688	
	05-06	*	< LOD	< LOD	< LOD	< LOD	1303	
	07-08	*	< LOD	< LOD	< LOD	< LOD	1291	

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.048, 0.01, and 0.01, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/OtherHalogenatedSolvents\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/OtherHalogenatedSolvents_BiomonitoringSummary.html)



## 1,1,1,2-Tetrachloroethane (2007 - 2008)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Total</b>	07-08	*	< LOD	< LOD	< LOD	< LOD	2750
<b>Age group</b>							
12-19 years	07-08	*	< LOD	< LOD	< LOD	< LOD	452
20-59 years	07-08	*	< LOD	< LOD	< LOD	< LOD	1493
60 years and older	07-08	*	< LOD	< LOD	< LOD	< LOD	805
<b>Gender</b>							
Males	07-08	*	< LOD	< LOD	< LOD	< LOD	1365
Females	07-08	*	< LOD	< LOD	< LOD	< LOD	1385
<b>Race/ethnicity</b>							
Mexican Americans	07-08	*	< LOD	< LOD	< LOD	< LOD	556
Non-Hispanic blacks	07-08	*	< LOD	< LOD	< LOD	< LOD	546
Non-Hispanic whites	07-08	*	< LOD	< LOD	< LOD	< LOD	1197

Limit of detection (LOD, see Data Analysis section) for Survey year 07-08 is 0.04.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

## Blood 1,1,2,2-Tetrachloroethane (2003 - 2008)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Total</b>	03-04	*	< LOD	< LOD	< LOD	< LOD	1235
	05-06	*	< LOD	< LOD	< LOD	< LOD	3131
	07-08	*	< LOD	< LOD	< LOD	< LOD	2922
<b>Age group</b>							
	12-19 years	05-06	*	< LOD	< LOD	< LOD	< LOD
	07-08	*	< LOD	< LOD	< LOD	< LOD	464
20-59 years	03-04	*	< LOD	< LOD	< LOD	< LOD	1235
	05-06	*	< LOD	< LOD	< LOD	< LOD	1542
	07-08	*	< LOD	< LOD	< LOD	< LOD	1575
60 years and older	05-06	*	< LOD	< LOD	< LOD	< LOD	665
	07-08	*	< LOD	< LOD	< LOD	< LOD	883
<b>Gender</b>							
	Males	03-04	*	< LOD	< LOD	< LOD	< LOD
	05-06	*	< LOD	< LOD	< LOD	< LOD	1484
	07-08	*	< LOD	< LOD	< LOD	< LOD	1447
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	622
	05-06	*	< LOD	< LOD	< LOD	< LOD	1647
	07-08	*	< LOD	< LOD	< LOD	< LOD	1475
<b>Race/ethnicity</b>							
	Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD
	05-06	*	< LOD	< LOD	< LOD	< LOD	753
	07-08	*	< LOD	< LOD	< LOD	< LOD	554
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	282
	05-06	*	< LOD	< LOD	< LOD	< LOD	823
	07-08	*	< LOD	< LOD	< LOD	< LOD	594
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	606
	05-06	*	< LOD	< LOD	< LOD	< LOD	1323
	07-08	*	< LOD	< LOD	< LOD	< LOD	1310

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.01, 0.01, and 0.01, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/OtherHalogenatedSolvents\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/OtherHalogenatedSolvents_BiomonitoringSummary.html)

## Blood 1,1,2-Trichloroethane (2003 - 2008)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Total</b>	03-04	*	< LOD	< LOD	< LOD	< LOD	1354
	05-06	*	< LOD	< LOD	< LOD	< LOD	3165
	07-08	*	< LOD	< LOD	< LOD	< LOD	2701
<b>Age group</b>							
	12-19 years	05-06	*	< LOD	< LOD	< LOD	< LOD
	07-08	*	< LOD	< LOD	< LOD	< LOD	436
20-59 years	03-04	*	< LOD	< LOD	< LOD	< LOD	1354
	05-06	*	< LOD	< LOD	< LOD	< LOD	1556
	07-08	*	< LOD	< LOD	< LOD	< LOD	1458
60 years and older	05-06	*	< LOD	< LOD	< LOD	< LOD	673
	07-08	*	< LOD	< LOD	< LOD	< LOD	807
<b>Gender</b>							
	Males	03-04	*	< LOD	< LOD	< LOD	< LOD
	05-06	*	< LOD	< LOD	< LOD	< LOD	1499
	07-08	*	< LOD	< LOD	< LOD	< LOD	1338
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	690
	05-06	*	< LOD	< LOD	< LOD	< LOD	1666
	07-08	*	< LOD	< LOD	< LOD	< LOD	1363
<b>Race/ethnicity</b>							
	Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD
	05-06	*	< LOD	< LOD	< LOD	< LOD	777
	07-08	*	< LOD	< LOD	< LOD	< LOD	534
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	297
	05-06	*	< LOD	< LOD	< LOD	< LOD	824
	07-08	*	< LOD	< LOD	< LOD	< LOD	572
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	686
	05-06	*	< LOD	< LOD	< LOD	< LOD	1331
	07-08	*	< LOD	< LOD	< LOD	< LOD	1183

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.01, 0.01, and 0.01, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/OtherHalogenatedSolvents\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/OtherHalogenatedSolvents_BiomonitoringSummary.html)

## Blood 1,2,3-Trichloropropane (2007 - 2008)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Total</b>	07-08	*	< LOD	< LOD	< LOD	< LOD	2592
<b>Age group</b>							
12-19 years	07-08	*	< LOD	< LOD	< LOD	< LOD	413
20-59 years	07-08	*	< LOD	< LOD	< LOD	< LOD	1398
60 years and older	07-08	*	< LOD	< LOD	< LOD	< LOD	781
<b>Gender</b>							
Males	07-08	*	< LOD	< LOD	< LOD	< LOD	1284
Females	07-08	*	< LOD	< LOD	< LOD	< LOD	1308
<b>Race/ethnicity</b>							
Mexican Americans	07-08	*	< LOD	< LOD	< LOD	< LOD	518
Non-Hispanic blacks	07-08	*	< LOD	< LOD	< LOD	< LOD	541
Non-Hispanic whites	07-08	*	< LOD	< LOD	< LOD	< LOD	1133

Limit of detection (LOD, see Data Analysis section) for Survey year 07-08 is 0.04.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

## Blood 1,1-Dichloroethane (2003 - 2008)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size	
<b>Total</b>	03-04	*	< LOD	< LOD	< LOD	< LOD	1367	
	05-06	*	< LOD	< LOD	< LOD	< LOD	3193	
	07-08	*	< LOD	< LOD	< LOD	< LOD	2800	
<b>Age group</b>								
	12-19 years	05-06	*	< LOD	< LOD	< LOD	< LOD	941
		07-08	*	< LOD	< LOD	< LOD	< LOD	446
20-59 years	03-04	*	< LOD	< LOD	< LOD	< LOD	1367	
	05-06	*	< LOD	< LOD	< LOD	< LOD	1569	
	07-08	*	< LOD	< LOD	< LOD	< LOD	1505	
60 years and older	05-06	*	< LOD	< LOD	< LOD	< LOD	683	
	07-08	*	< LOD	< LOD	< LOD	< LOD	849	
<b>Gender</b>								
	Males	03-04	*	< LOD	< LOD	< LOD	< LOD	670
		05-06	*	< LOD	< LOD	< LOD	< LOD	1510
	07-08	*	< LOD	< LOD	< LOD	< LOD	1380	
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	697	
	05-06	*	< LOD	< LOD	< LOD	< LOD	1683	
	07-08	*	< LOD	< LOD	< LOD	< LOD	1420	
<b>Race/ethnicity</b>								
	Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	267
		05-06	*	< LOD	< LOD	< LOD	< LOD	778
07-08		*	< LOD	< LOD	< LOD	< LOD	548	
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	300	
	05-06	*	< LOD	< LOD	< LOD	< LOD	832	
	07-08	*	< LOD	< LOD	< LOD	< LOD	577	
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	695	
	05-06	*	< LOD	< LOD	< LOD	< LOD	1347	
	07-08	*	< LOD	< LOD	< LOD	< LOD	1239	

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.01, 0.01, and 0.01, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/OtherHalogenatedSolvents\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/OtherHalogenatedSolvents_BiomonitoringSummary.html)

## Blood 1,1 - Dichloroethene (Vinylidene chloride) (2003 - 2008)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size	
<b>Total</b>	03-04	*	< LOD	< LOD	< LOD	< LOD	1367	
	05-06	*	< LOD	< LOD	< LOD	< LOD	3163	
	07-08	*	< LOD	< LOD	< LOD	< LOD	2810	
<b>Age group</b>								
	12-19 years	05-06	*	< LOD	< LOD	< LOD	< LOD	931
		07-08	*	< LOD	< LOD	< LOD	< LOD	447
20-59 years	03-04	*	< LOD	< LOD	< LOD	< LOD	1367	
	05-06	*	< LOD	< LOD	< LOD	< LOD	1555	
	07-08	*	< LOD	< LOD	< LOD	< LOD	1503	
60 years and older	05-06	*	< LOD	< LOD	< LOD	< LOD	677	
	07-08	*	< LOD	< LOD	< LOD	< LOD	860	
<b>Gender</b>								
	Males	03-04	*	< LOD	< LOD	< LOD	< LOD	670
		05-06	*	< LOD	< LOD	< LOD	1502	
		07-08	*	< LOD	< LOD	< LOD	1398	
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	697	
	05-06	*	< LOD	< LOD	< LOD	< LOD	1661	
	07-08	*	< LOD	< LOD	< LOD	< LOD	1412	
<b>Race/ethnicity</b>								
	Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	267
		05-06	*	< LOD	< LOD	< LOD	774	
		07-08	*	< LOD	< LOD	< LOD	525	
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	300	
	05-06	*	< LOD	< LOD	< LOD	< LOD	823	
	07-08	*	< LOD	< LOD	< LOD	< LOD	584	
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	695	
	05-06	*	< LOD	< LOD	< LOD	< LOD	1332	
	07-08	*	< LOD	< LOD	< LOD	< LOD	1255	

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.009, 0.009, and 0.009, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/OtherHalogenatedSolvents\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/OtherHalogenatedSolvents_BiomonitoringSummary.html)

## Blood 1,2-Dibromo-3-chloropropane (DBCP) (2003 - 2008)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Total</b>	03-04	*	< LOD	< LOD	< LOD	< LOD	1170
	05-06	*	< LOD	< LOD	< LOD	< LOD	2998
	07-08	*	< LOD	< LOD	< LOD	< LOD	2837
<b>Age group</b>							
	12-19 years	05-06	*	< LOD	< LOD	< LOD	< LOD
	07-08	*	< LOD	< LOD	< LOD	< LOD	469
20-59 years	03-04	*	< LOD	< LOD	< LOD	< LOD	1170
	05-06	*	< LOD	< LOD	< LOD	< LOD	1485
	07-08	*	< LOD	< LOD	< LOD	< LOD	1522
60 years and older	05-06	*	< LOD	< LOD	< LOD	< LOD	638
	07-08	*	< LOD	< LOD	< LOD	< LOD	846
<b>Gender</b>							
	Males	03-04	*	< LOD	< LOD	< LOD	< LOD
	05-06	*	< LOD	< LOD	< LOD	< LOD	1409
	07-08	*	< LOD	< LOD	< LOD	< LOD	1397
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	602
	05-06	*	< LOD	< LOD	< LOD	< LOD	1589
	07-08	*	< LOD	< LOD	< LOD	< LOD	1440
<b>Race/ethnicity</b>							
	Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD
	05-06	*	< LOD	< LOD	< LOD	< LOD	752
	07-08	*	< LOD	< LOD	< LOD	< LOD	565
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	239
	05-06	*	< LOD	< LOD	< LOD	< LOD	737
	07-08	*	< LOD	< LOD	< LOD	< LOD	586
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	603
	05-06	*	< LOD	< LOD	< LOD	< LOD	1287
	07-08	*	< LOD	< LOD	< LOD	< LOD	1231

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.1, 0.1, and 0.1, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/DBCP\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/DBCP_BiomonitoringSummary.html)



## Blood 1,2-Dibromoethane (2007 - 2008)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Total</b>	07-08	*	< LOD	< LOD	< LOD	< LOD	2577
<b>Age group</b>							
12-19 years	07-08	*	< LOD	< LOD	< LOD	< LOD	409
20-59 years	07-08	*	< LOD	< LOD	< LOD	< LOD	1389
60 years and older	07-08	*	< LOD	< LOD	< LOD	< LOD	779
<b>Gender</b>							
Males	07-08	*	< LOD	< LOD	< LOD	< LOD	1270
Females	07-08	*	< LOD	< LOD	< LOD	< LOD	1307
<b>Race/ethnicity</b>							
Mexican Americans	07-08	*	< LOD	< LOD	< LOD	< LOD	471
Non-Hispanic blacks	07-08	*	< LOD	< LOD	< LOD	< LOD	532
Non-Hispanic whites	07-08	*	< LOD	< LOD	< LOD	< LOD	1165

Limit of detection (LOD, see Data Analysis section) for Survey year 07-08 is 0.015.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

## Blood 1,2-Dichlorobenzene (*o*-Dichlorobenzene) (2003 - 2008)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Total</b>	03-04	*	< LOD	< LOD	< LOD	< LOD	1327
	05-06	*	< LOD	< LOD	< LOD	< LOD	3083
	07-08	*	< LOD	< LOD	< LOD	< LOD	2803
<b>Age group</b>							
	12-19 years	05-06	*	< LOD	< LOD	< LOD	< LOD
	07-08	*	< LOD	< LOD	< LOD	< LOD	455
20-59 years	03-04	*	< LOD	< LOD	< LOD	< LOD	1327
	05-06	*	< LOD	< LOD	< LOD	< LOD	1523
	07-08	*	< LOD	< LOD	< LOD	< LOD	1510
60 years and older	05-06	*	< LOD	< LOD	< LOD	< LOD	639
	07-08	*	< LOD	< LOD	< LOD	< LOD	838
<b>Gender</b>							
	Males	03-04	*	< LOD	< LOD	< LOD	< LOD
	05-06	*	< LOD	< LOD	< LOD	< LOD	1457
	07-08	*	< LOD	< LOD	< LOD	< LOD	1388
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	680
	05-06	*	< LOD	< LOD	< LOD	< LOD	1626
	07-08	*	< LOD	< LOD	< LOD	< LOD	1415
<b>Race/ethnicity</b>							
	Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD
	05-06	*	< LOD	< LOD	< LOD	< LOD	766
	07-08	*	< LOD	< LOD	< LOD	< LOD	544
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	291
	05-06	*	< LOD	< LOD	< LOD	< LOD	801
	07-08	*	< LOD	< LOD	< LOD	< LOD	579
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	682
	05-06	*	< LOD	< LOD	< LOD	< LOD	1288
	07-08	*	< LOD	< LOD	< LOD	< LOD	1237

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.1, 0.1, and 0.025, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Chlorobenzenes\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Chlorobenzenes_BiomonitoringSummary.html)

## Blood 1,2-Dichloroethane (Ethylene dichloride) (2003 - 2008)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Total</b>	03-04	*	< LOD	< LOD	< LOD	< LOD	1346
	05-06	*	< LOD	< LOD	< LOD	< LOD	3082
	07-08	*	< LOD	< LOD	< LOD	< LOD	2767
<b>Age group</b>							
	12-19 years	05-06	*	< LOD	< LOD	< LOD	< LOD
	07-08	*	< LOD	< LOD	< LOD	< LOD	443
20-59 years	03-04	*	< LOD	< LOD	< LOD	< LOD	1346
	05-06	*	< LOD	< LOD	< LOD	< LOD	1520
	07-08	*	< LOD	< LOD	< LOD	< LOD	1484
60 years and older	05-06	*	< LOD	< LOD	< LOD	< LOD	656
	07-08	*	< LOD	< LOD	< LOD	< LOD	840
<b>Gender</b>							
	Males	03-04	*	< LOD	< LOD	< LOD	< LOD
	05-06	*	< LOD	< LOD	< LOD	< LOD	1452
	07-08	*	< LOD	< LOD	< LOD	< LOD	1375
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	685
	05-06	*	< LOD	< LOD	< LOD	< LOD	1630
	07-08	*	< LOD	< LOD	< LOD	< LOD	1392
<b>Race/ethnicity</b>							
	Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD
	05-06	*	< LOD	< LOD	< LOD	< LOD	763
	07-08	*	< LOD	< LOD	< LOD	< LOD	533
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	289
	05-06	*	< LOD	< LOD	< LOD	< LOD	795
	07-08	*	< LOD	< LOD	< LOD	< LOD	554
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	689
	05-06	*	< LOD	< LOD	< LOD	< LOD	1297
	07-08	*	< LOD	< LOD	< LOD	< LOD	1244

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.01, 0.01, and 0.01, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/OtherHalogenatedSolvents\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/OtherHalogenatedSolvents_BiomonitoringSummary.html)

## Blood *cis*-1,2-Dichloroethene (2003 - 2008)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Total</b>	03-04	*	< LOD	< LOD	< LOD	< LOD	1366
	05-06	*	< LOD	< LOD	< LOD	< LOD	3140
	07-08	*	< LOD	< LOD	< LOD	< LOD	2897
<b>Age group</b>							
	12-19 years	05-06	*	< LOD	< LOD	< LOD	< LOD
	07-08	*	< LOD	< LOD	< LOD	< LOD	463
20-59 years	03-04	*	< LOD	< LOD	< LOD	< LOD	1366
	05-06	*	< LOD	< LOD	< LOD	< LOD	1539
	07-08	*	< LOD	< LOD	< LOD	< LOD	1556
60 years and older	05-06	*	< LOD	< LOD	< LOD	< LOD	677
	07-08	*	< LOD	< LOD	< LOD	< LOD	878
<b>Gender</b>							
	Males	03-04	*	< LOD	< LOD	< LOD	< LOD
	05-06	*	< LOD	< LOD	< LOD	< LOD	1481
	07-08	*	< LOD	< LOD	< LOD	< LOD	1432
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	697
	05-06	*	< LOD	< LOD	< LOD	< LOD	1659
	07-08	*	< LOD	< LOD	< LOD	< LOD	1465
<b>Race/ethnicity</b>							
	Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD
	05-06	*	< LOD	< LOD	< LOD	< LOD	757
	07-08	*	< LOD	< LOD	< LOD	< LOD	576
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	300
	05-06	*	< LOD	< LOD	< LOD	< LOD	822
	07-08	*	< LOD	< LOD	< LOD	< LOD	591
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	694
	05-06	*	< LOD	< LOD	< LOD	< LOD	1329
	07-08	*	< LOD	< LOD	< LOD	< LOD	1283

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.01, 0.01, and 0.01, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/OtherHalogenatedSolvents\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/OtherHalogenatedSolvents_BiomonitoringSummary.html)

## Blood *trans*-1,2-Dichloroethene (2003 - 2008)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Total</b>	03-04	*	< LOD	< LOD	< LOD	< LOD	1367
	05-06	*	< LOD	< LOD	< LOD	< LOD	3193
	07-08	*	< LOD	< LOD	< LOD	< LOD	2843
<b>Age group</b>							
	12-19 years	05-06	*	< LOD	< LOD	< LOD	< LOD
	07-08	*	< LOD	< LOD	< LOD	< LOD	468
20-59 years	03-04	*	< LOD	< LOD	< LOD	< LOD	1367
	05-06	*	< LOD	< LOD	< LOD	< LOD	1569
	07-08	*	< LOD	< LOD	< LOD	< LOD	1524
60 years and older	05-06	*	< LOD	< LOD	< LOD	< LOD	683
	07-08	*	< LOD	< LOD	< LOD	< LOD	851
<b>Gender</b>							
	Males	03-04	*	< LOD	< LOD	< LOD	< LOD
	05-06	*	< LOD	< LOD	< LOD	< LOD	1511
	07-08	*	< LOD	< LOD	< LOD	< LOD	1415
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	697
	05-06	*	< LOD	< LOD	< LOD	< LOD	1682
	07-08	*	< LOD	< LOD	< LOD	< LOD	1428
<b>Race/ethnicity</b>							
	Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD
	05-06	*	< LOD	< LOD	< LOD	< LOD	779
	07-08	*	< LOD	< LOD	< LOD	< LOD	574
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	300
	05-06	*	< LOD	< LOD	< LOD	< LOD	832
	07-08	*	< LOD	< LOD	< LOD	< LOD	580
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	695
	05-06	*	< LOD	< LOD	< LOD	< LOD	1346
	07-08	*	< LOD	< LOD	< LOD	< LOD	1249

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.01, 0.01, and 0.01, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/OtherHalogenatedSolvents\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/OtherHalogenatedSolvents_BiomonitoringSummary.html)

## Blood 1,2-Dichloropropane (2003 - 2008)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size	
<b>Total</b>	03-04	*	< LOD	< LOD	< LOD	< LOD	1364	
	05-06	*	< LOD	< LOD	< LOD	< LOD	3120	
	07-08	*	< LOD	< LOD	< LOD	< LOD	2840	
<b>Age group</b>								
	12-19 years	05-06	*	< LOD	< LOD	< LOD	< LOD	918
		07-08	*	< LOD	< LOD	< LOD	< LOD	469
20-59 years	03-04	*	< LOD	< LOD	< LOD	< LOD	1364	
	05-06	*	< LOD	< LOD	< LOD	< LOD	1536	
	07-08	*	< LOD	< LOD	< LOD	< LOD	1524	
60 years and older	05-06	*	< LOD	< LOD	< LOD	< LOD	666	
	07-08	*	< LOD	< LOD	< LOD	< LOD	847	
<b>Gender</b>								
	Males	03-04	*	< LOD	< LOD	< LOD	< LOD	667
		05-06	*	< LOD	< LOD	< LOD	1478	
		07-08	*	< LOD	< LOD	< LOD	1413	
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	697	
	05-06	*	< LOD	< LOD	< LOD	< LOD	1642	
	07-08	*	< LOD	< LOD	< LOD	< LOD	1427	
<b>Race/ethnicity</b>								
	Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	267
		05-06	*	< LOD	< LOD	< LOD	755	
		07-08	*	< LOD	< LOD	< LOD	562	
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	300	
	05-06	*	< LOD	< LOD	< LOD	< LOD	811	
	07-08	*	< LOD	< LOD	< LOD	< LOD	582	
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	692	
	05-06	*	< LOD	< LOD	< LOD	< LOD	1322	
	07-08	*	< LOD	< LOD	< LOD	< LOD	1245	

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.008, 0.008, and 0.01, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/OtherHalogenatedSolvents\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/OtherHalogenatedSolvents_BiomonitoringSummary.html)

## Blood 1,3-Dichlorobenzene (*m*-Dichlorobenzene) (2003 - 2008)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Total</b>	03-04	*	< LOD	< LOD	< LOD	< LOD	1334
	05-06	*	< LOD	< LOD	< LOD	< LOD	3148
	07-08	*	< LOD	< LOD	< LOD	< LOD	2484
<b>Age group</b>							
12-19 years	05-06	*	< LOD	< LOD	< LOD	< LOD	928
	07-08	*	< LOD	< LOD	< LOD	< LOD	405
20-59 years	03-04	*	< LOD	< LOD	< LOD	< LOD	1334
	05-06	*	< LOD	< LOD	< LOD	< LOD	1545
	07-08	*	< LOD	< LOD	< LOD	< LOD	1345
60 years and older	05-06	*	< LOD	< LOD	< LOD	< LOD	675
	07-08	*	< LOD	< LOD	< LOD	< LOD	734
<b>Gender</b>							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	659
	05-06	*	< LOD	< LOD	< LOD	< LOD	1491
	07-08	*	< LOD	< LOD	< LOD	< LOD	1217
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	675
	05-06	*	< LOD	< LOD	< LOD	< LOD	1657
	07-08	*	< LOD	< LOD	< LOD	< LOD	1267
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	266
	05-06	*	< LOD	< LOD	< LOD	< LOD	774
	07-08	*	< LOD	< LOD	< LOD	< LOD	483
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	279
	05-06	*	< LOD	< LOD	< LOD	< LOD	809
	07-08	*	< LOD	< LOD	< LOD	< LOD	534
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	686
	05-06	*	< LOD	< LOD	< LOD	< LOD	1330
	07-08	*	< LOD	< LOD	< LOD	< LOD	1072

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.05, 0.05, and 0.025, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Chlorobenzenes\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Chlorobenzenes_BiomonitoringSummary.html)



## Blood 1,4-Dichlorobenzene (Paradichlorobenzene) (2001 - 2008)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Total</b>	01-02	*	< LOD	.300 (.190-.550)	1.19 (.610-2.90)	4.10 (1.40-7.60)	807
	03-04	*	< LOD	.320 (.250-.400)	1.10 (.710-1.60)	3.30 (1.70-5.10)	1322
	05-06	*	.085 (.085-.085)	.218 (.180-.260)	.917 (.643-1.31)	3.59 (1.80-5.50)	3126
	07-08	*	.054 (.043-.071)	.186 (.138-.262)	.869 (.543-1.35)	2.69 (1.52-7.13)	2330
<b>Age group</b>							
	12-19 years	05-06	*	.085 (.085-.085)	.220 (.160-.280)	.960 (.560-2.00)	4.27 (2.37-6.10)
	07-08	.118 (.089-.155)	.074 (.049-.109)	.244 (.147-.520)	1.11 (.743-2.10)	4.16 (1.18-20.1)	379
20-59 years	01-02	*	< LOD	.300 (.190-.550)	1.19 (.610-2.90)	4.10 (1.40-7.60)	807
	03-04	*	< LOD	.320 (.250-.400)	1.10 (.710-1.60)	3.30 (1.70-5.10)	1322
	05-06	*	.085 (.085-.085)	.220 (.170-.260)	.910 (.540-1.50)	3.77 (1.50-7.33)	1537
	07-08	*	.052 (<LOD-.071)	.184 (.121-.266)	.788 (.464-1.49)	2.67 (1.36-7.58)	1250
60 years and older	05-06	*	.085 (.085-.085)	.207 (.158-.313)	.877 (.525-1.80)	3.06 (1.50-4.20)	663
	07-08	*	.055 (<LOD-.072)	.169 (.120-.280)	.768 (.461-1.16)	2.28 (.936-7.84)	698
<b>Gender</b>							
Males	01-02	*	< LOD	.270 (.180-.530)	.900 (.570-2.90)	3.60 (1.10-7.20)	390
	03-04	*	< LOD	.320 (.250-.380)	.770 (.580-1.20)	1.90 (1.20-4.00)	651
	05-06	*	.085 (.085-.085)	.230 (.188-.290)	.950 (.603-1.50)	3.50 (1.50-7.20)	1479
	07-08	.102 (.081-.126)	.065 (.052-.080)	.205 (.156-.274)	.833 (.497-1.33)	2.14 (1.05-8.40)	1133
Females	01-02	*	< LOD	.360 (.190-.620)	1.20 (.620-3.90)	4.10 (1.68-8.30)	417
	03-04	*	< LOD	.350 (.220-.450)	1.40 (.810-2.10)	4.10 (2.20-5.90)	671
	05-06	*	.085 (.085-.085)	.180 (.140-.240)	.865 (.522-1.70)	3.59 (2.10-5.18)	1647
	07-08	*	.048 (<LOD-.065)	.155 (.108-.268)	.894 (.537-1.61)	3.11 (1.68-8.10)	1197
<b>Race/ethnicity</b>							
Mexican Americans	01-02	.331 (.246-.446)	.180 (<LOD-.260)	.790 (.400-1.30)	6.00 (1.30-16.0)	16.0 (6.20-33.0)	217
	03-04	.381 (.256-.566)	.210 (.140-.400)	.730 (.370-2.90)	6.20 (2.90-9.30)	10.0 (6.30-19.0)	262
	05-06	.412 (.309-.549)	.210 (.150-.290)	1.20 (.680-2.97)	8.80 (3.80-16.0)	16.0 (8.10-33.0)	772
	07-08	.251 (.119-.529)	.179 (.059-.420)	.864 (.304-4.30)	7.76 (2.14-17.8)	19.0 (10.5-23.4)	459
Non-Hispanic blacks	01-02	.558 (.376-.827)	.360 (.260-.560)	1.80 (.710-3.90)	6.30 (1.40-29.0)	15.0 (3.60-51.0)	136
	03-04	.423 (.292-.613)	.340 (.200-.480)	.980 (.550-1.50)	4.10 (1.60-9.20)	11.0 (2.50-19.0)	297
	05-06	.381 (.272-.532)	.230 (.160-.330)	.860 (.500-1.70)	5.24 (2.00-11.5)	12.7 (8.41-21.0)	805
	07-08	.235 (.181-.303)	.151 (.112-.200)	.688 (.410-1.04)	3.76 (2.14-9.10)	12.7 (6.00-21.3)	502
Non-Hispanic whites	01-02	*	< LOD	.200 (<LOD-.380)	.570 (.300-1.20)	1.19 (.570-3.70)	396
	03-04	*	< LOD	.200 (.160-.260)	.490 (.370-.720)	.940 (.690-2.00)	658
	05-06	*	.085 (.085-.085)	.134 (.085-.180)	.438 (.260-.670)	1.16 (.520-2.30)	1319
	07-08	*	.043 (<LOD-.055)	.095 (.081-.137)	.377 (.291-.486)	.898 (.543-1.49)	1015

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, and 07-08 are 0.12, 0.12, 0.011, and 0.04, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Chlorobenzenes\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Chlorobenzenes_BiomonitoringSummary.html)

## Blood 2,5-Dimethylfuran (2003 - 2008)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Total</b>	03-04	*	< LOD	.016 (<LOD-.032)	.100 (.083-.110)	.140 (.120-.180)	1213
	05-06	*	< LOD	< LOD	.100 (.069-.120)	.160 (.130-.180)	3160
	07-08	*	< LOD	< LOD	.087 (.056-.118)	.148 (.129-.168)	2745
<b>Age group</b>							
	12-19 years	05-06	*	< LOD	< LOD	.013 (<LOD-.029)	.049 (.020-.069)
		07-08	*	< LOD	< LOD	.028 (<LOD-.077)	449
20-59 years	03-04	*	< LOD	.016 (<LOD-.032)	.100 (.083-.110)	.140 (.120-.180)	1213
	05-06	*	< LOD	.013 (<LOD-.035)	.120 (.097-.144)	.170 (.140-.210)	1553
	07-08	*	< LOD	< LOD	.113 (.079-.146)	.169 (.147-.209)	1471
60 years and older	05-06	*	< LOD	< LOD	.069 (.027-.100)	.140 (.106-.160)	677
	07-08	*	< LOD	< LOD	.014 (<LOD-.061)	.086 (.061-.137)	825
<b>Gender</b>							
Males	03-04	*	< LOD	.019 (<LOD-.034)	.094 (.071-.110)	.130 (.110-.190)	598
	05-06	*	< LOD	< LOD	.110 (.079-.130)	.160 (.130-.190)	1490
	07-08	*	< LOD	< LOD	.101 (.056-.130)	.154 (.133-.187)	1358
Females	03-04	*	< LOD	.012 (<LOD-.048)	.110 (.071-.120)	.150 (.120-.210)	615
	05-06	*	< LOD	< LOD	.094 (.062-.120)	.158 (.120-.180)	1670
	07-08	*	< LOD	< LOD	.081 (.042-.110)	.142 (.101-.176)	1387
<b>Race/ethnicity</b>							
Mexican Americans	03-04	*	< LOD	< LOD	.012 (<LOD-.020)	.038 (.013-.054)	237
	05-06	*	< LOD	< LOD	.015 (<LOD-.029)	.033 (.020-.055)	778
	07-08	*	< LOD	< LOD	.012 (<LOD-.019)	.032 (.019-.048)	557
Non-Hispanic blacks	03-04	*	< LOD	.042 (.019-.063)	.110 (.079-.170)	.170 (.099-.220)	258
	05-06	*	< LOD	.012 (<LOD-.030)	.085 (.058-.110)	.130 (.095-.180)	825
	07-08	*	< LOD	< LOD	.081 (.058-.102)	.148 (.093-.160)	557
Non-Hispanic whites	03-04	*	< LOD	.021 (<LOD-.043)	.110 (.087-.120)	.150 (.120-.200)	624
	05-06	*	< LOD	< LOD	.118 (.091-.140)	.170 (.140-.230)	1325
	07-08	*	< LOD	< LOD	.111 (.077-.142)	.165 (.146-.191)	1215

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.012, 0.011, and 0.011, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/2,5-Dimethylfuran\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/2,5-Dimethylfuran_BiomonitoringSummary.html)

## Blood Benzene (2001 - 2008)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Total</b>	01-02	*	<b>.030</b> (<LOD-.050)	<b>.100</b> (.060-.140)	<b>.190</b> (.140-.290)	<b>.320</b> (.190-.480)	837
	03-04	*	<b>.027</b> (.025-.031)	<b>.064</b> (.050-.084)	<b>.170</b> (.150-.190)	<b>.260</b> (.210-.320)	1345
	05-06	*	<b>.026</b> (<LOD-.030)	<b>.056</b> (.047-.072)	<b>.220</b> (.157-.260)	<b>.310</b> (.264-.370)	3091
	07-08	*	<b>&lt; LOD</b>	<b>.041</b> (.028-.062)	<b>.198</b> (.156-.246)	<b>.294</b> (.246-.380)	2685
<b>Age group</b>							
	12-19 years						
	05-06	*	<b>.024</b> (<LOD-.028)	<b>.039</b> (.031-.056)	<b>.089</b> (.066-.110)	<b>.120</b> (.092-.180)	912
	07-08	*	<b>&lt; LOD</b>	<b>&lt; LOD</b>	<b>.053</b> (.029-.088)	<b>.106</b> (.056-.159)	426
20-59 years	01-02	*	<b>.030</b> (<LOD-.050)	<b>.100</b> (.060-.140)	<b>.190</b> (.140-.290)	<b>.320</b> (.190-.480)	837
	03-04	*	<b>.027</b> (.025-.031)	<b>.064</b> (.050-.084)	<b>.170</b> (.150-.190)	<b>.260</b> (.210-.320)	1345
	05-06	*	<b>.028</b> (.025-.032)	<b>.072</b> (.053-.100)	<b>.240</b> (.200-.290)	<b>.340</b> (.300-.390)	1513
	07-08	*	<b>&lt; LOD</b>	<b>.075</b> (.037-.126)	<b>.243</b> (.187-.290)	<b>.328</b> (.280-.416)	1445
60 years and older	05-06	*	<b>&lt; LOD</b>	<b>.042</b> (.036-.048)	<b>.180</b> (.100-.230)	<b>.270</b> (.200-.340)	666
	07-08	*	<b>&lt; LOD</b>	<b>&lt; LOD</b>	<b>.120</b> (.065-.158)	<b>.213</b> (.150-.279)	814
<b>Gender</b>							
<b>Males</b>							
	01-02	*	<b>.030</b> (<LOD-.050)	<b>.110</b> (.060-.160)	<b>.230</b> (.150-.370)	<b>.370</b> (.210-.510)	403
	03-04	<b>.039</b> (.035-.043)	<b>.030</b> (.027-.035)	<b>.069</b> (.053-.084)	<b>.160</b> (.140-.180)	<b>.240</b> (.190-.320)	654
	05-06	*	<b>.028</b> (.025-.032)	<b>.066</b> (.051-.083)	<b>.230</b> (.165-.280)	<b>.330</b> (.260-.440)	1459
	07-08	*	<b>&lt; LOD</b>	<b>.056</b> (.036-.095)	<b>.216</b> (.172-.274)	<b>.303</b> (.252-.398)	1330
<b>Females</b>							
	01-02	*	<b>.030</b> (<LOD-.050)	<b>.100</b> (.060-.130)	<b>.180</b> (.120-.240)	<b>.250</b> (.170-.330)	434
	03-04	*	<b>.025</b> (<LOD-.029)	<b>.057</b> (.040-.090)	<b>.180</b> (.150-.220)	<b>.290</b> (.220-.420)	691
	05-06	*	<b>.024</b> (<LOD-.028)	<b>.049</b> (.040-.067)	<b>.200</b> (.150-.230)	<b>.290</b> (.250-.340)	1632
	07-08	*	<b>&lt; LOD</b>	<b>.030</b> (<LOD-.045)	<b>.182</b> (.109-.240)	<b>.285</b> (.220-.368)	1355
<b>Race/ethnicity</b>							
<b>Mexican Americans</b>							
	01-02	*	<b>.030</b> (<LOD-.070)	<b>.070</b> (.030-.170)	<b>.140</b> (.060-.360)	<b>.230</b> (.130-.370)	227
	03-04	*	<b>.027</b> (<LOD-.035)	<b>.041</b> (.034-.057)	<b>.077</b> (.058-.110)	<b>.130</b> (.084-.320)	254
	05-06	*	<b>&lt; LOD</b>	<b>.036</b> (.031-.045)	<b>.060</b> (.048-.086)	<b>.096</b> (.072-.140)	744
	07-08	*	<b>&lt; LOD</b>	<b>&lt; LOD</b>	<b>.053</b> (.038-.076)	<b>.092</b> (.056-.120)	522
<b>Non-Hispanic blacks</b>							
	01-02	*	<b>&lt; LOD</b>	<b>.060</b> (<LOD-.160)	<b>.180</b> (.090-.300)	<b>.250</b> (.160-.480)	137
	03-04	<b>.043</b> (.033-.058)	<b>.029</b> (<LOD-.054)	<b>.092</b> (.055-.140)	<b>.210</b> (.140-.290)	<b>.320</b> (.240-.460)	302
	05-06	*	<b>.026</b> (<LOD-.034)	<b>.077</b> (.051-.110)	<b>.180</b> (.150-.221)	<b>.280</b> (.220-.360)	812
	07-08	*	<b>&lt; LOD</b>	<b>.075</b> (.056-.093)	<b>.180</b> (.136-.284)	<b>.318</b> (.240-.512)	556
<b>Non-Hispanic whites</b>							
	01-02	*	<b>.030</b> (<LOD-.060)	<b>.110</b> (.070-.160)	<b>.210</b> (.140-.340)	<b>.330</b> (.190-.510)	411
	03-04	*	<b>.028</b> (.025-.033)	<b>.068</b> (.053-.088)	<b>.180</b> (.150-.200)	<b>.280</b> (.210-.330)	687
	05-06	*	<b>.027</b> (<LOD-.031)	<b>.069</b> (.049-.091)	<b>.240</b> (.190-.280)	<b>.330</b> (.270-.390)	1309
	07-08	*	<b>&lt; LOD</b>	<b>.051</b> (.028-.107)	<b>.226</b> (.182-.276)	<b>.313</b> (.276-.388)	1210

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, and 07-08 are 0.024, 0.024, 0.024, and 0.024, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Benzene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Benzene_BiomonitoringSummary.html)

## Blood Chlorobenzene (Monochlorobenzene) (2003 - 2008)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Total</b>	03-04	*	< LOD	< LOD	< LOD	< LOD	1366
	05-06	*	< LOD	< LOD	< LOD	< LOD	3072
	07-08	*	< LOD	< LOD	< LOD	< LOD	2749
<b>Age group</b>							
	12-19 years	05-06	*	< LOD	< LOD	< LOD	< LOD
	07-08	*	< LOD	< LOD	< LOD	< LOD	434
20-59 years	03-04	*	< LOD	< LOD	< LOD	< LOD	1366
	05-06	*	< LOD	< LOD	< LOD	< LOD	1495
	07-08	*	< LOD	< LOD	< LOD	< LOD	1487
60 years and older	05-06	*	< LOD	< LOD	< LOD	< LOD	667
	07-08	*	< LOD	< LOD	< LOD	< LOD	828
<b>Gender</b>							
	Males	03-04	*	< LOD	< LOD	< LOD	< LOD
	05-06	*	< LOD	< LOD	< LOD	< LOD	1453
	07-08	*	< LOD	< LOD	< LOD	< LOD	1358
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	697
	05-06	*	< LOD	< LOD	< LOD	< LOD	1619
	07-08	*	< LOD	< LOD	< LOD	< LOD	1391
<b>Race/ethnicity</b>							
	Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD
	05-06	*	< LOD	< LOD	< LOD	< LOD	740
	07-08	*	< LOD	< LOD	< LOD	< LOD	524
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	300
	05-06	*	< LOD	< LOD	< LOD	< LOD	817
	07-08	*	< LOD	< LOD	< LOD	< LOD	568
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	694
	05-06	*	< LOD	< LOD	< LOD	< LOD	1287
	07-08	*	< LOD	< LOD	< LOD	< LOD	1227

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.011, 0.011, and 0.011, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Chlorobenzenes\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Chlorobenzenes_BiomonitoringSummary.html)

## Blood Dibromomethane (2003 - 2008)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Total</b>	03-04	*	< LOD	< LOD	< LOD	< LOD	1355
	05-06	*	< LOD	< LOD	< LOD	< LOD	3152
	07-08	*	< LOD	< LOD	< LOD	< LOD	2712
<b>Age group</b>							
	12-19 years	05-06	*	< LOD	< LOD	< LOD	< LOD
	07-08	*	< LOD	< LOD	< LOD	< LOD	427
20-59 years	03-04	*	< LOD	< LOD	< LOD	< LOD	1355
	05-06	*	< LOD	< LOD	< LOD	< LOD	1554
	07-08	*	< LOD	< LOD	< LOD	< LOD	1461
60 years and older	05-06	*	< LOD	< LOD	< LOD	< LOD	669
	07-08	*	< LOD	< LOD	< LOD	< LOD	824
<b>Gender</b>							
	Males	03-04	*	< LOD	< LOD	< LOD	< LOD
	05-06	*	< LOD	< LOD	< LOD	< LOD	1494
	07-08	*	< LOD	< LOD	< LOD	< LOD	1345
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	689
	05-06	*	< LOD	< LOD	< LOD	< LOD	1658
	07-08	*	< LOD	< LOD	< LOD	< LOD	1367
<b>Race/ethnicity</b>							
	Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD
	05-06	*	< LOD	< LOD	< LOD	< LOD	778
	07-08	*	< LOD	< LOD	< LOD	< LOD	510
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	292
	05-06	*	< LOD	< LOD	< LOD	< LOD	816
	07-08	*	< LOD	< LOD	< LOD	< LOD	556
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	693
	05-06	*	< LOD	< LOD	< LOD	< LOD	1324
	07-08	*	< LOD	< LOD	< LOD	< LOD	1236

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.03, 0.03, and 0.03, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/OtherHalogenatedSolvents\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/OtherHalogenatedSolvents_BiomonitoringSummary.html)

## Blood Dichloromethane (Methylene chloride) (2003 - 2008)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Total</b>	03-04	*	< LOD	< LOD	< LOD	< LOD	1165
	05-06	*	< LOD	< LOD	< LOD	< LOD	2852
	07-08	*	< LOD	< LOD	< LOD	< LOD	2569
<b>Age group</b>							
	12-19 years	05-06	*	< LOD	< LOD	< LOD	< LOD
	07-08	*	< LOD	< LOD	< LOD	< LOD	416
20-59 years	03-04	*	< LOD	< LOD	< LOD	< LOD	1165
	05-06	*	< LOD	< LOD	< LOD	< LOD	1400
	07-08	*	< LOD	< LOD	< LOD	< LOD	1369
60 years and older	05-06	*	< LOD	< LOD	< LOD	< LOD	615
	07-08	*	< LOD	< LOD	< LOD	< LOD	784
<b>Gender</b>							
	Males	03-04	*	< LOD	< LOD	< LOD	< LOD
	05-06	*	< LOD	< LOD	< LOD	< LOD	1338
	07-08	*	< LOD	< LOD	< LOD	< LOD	1279
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	597
	05-06	*	< LOD	< LOD	< LOD	< LOD	1514
	07-08	*	< LOD	< LOD	< LOD	< LOD	1290
<b>Race/ethnicity</b>							
	Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD
	05-06	*	< LOD	< LOD	< LOD	< LOD	731
	07-08	*	< LOD	< LOD	< LOD	< LOD	521
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	245
	05-06	*	< LOD	< LOD	< LOD	< LOD	729
	07-08	*	< LOD	< LOD	< LOD	< LOD	476
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	607
	05-06	*	< LOD	< LOD	< LOD	< LOD	1186
	07-08	*	< LOD	< LOD	< LOD	< LOD	1154

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.07, 0.25, and 0.25, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/HalogenatedSolvents\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/HalogenatedSolvents_BiomonitoringSummary.html)

## Blood Ethylbenzene (2001 - 2008)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size	
<b>Total</b>	01-02	.034 (.029-.039)	.030 (.030-.040)	.050 (.050-.070)	.090 (.070-.120)	.140 (.090-.180)	879	
	03-04	.035 (.033-.037)	.032 (.030-.036)	.053 (.048-.057)	.083 (.077-.088)	.110 (.098-.120)	1299	
	05-06	.038 (.036-.041)	.035 (.033-.037)	.059 (.052-.067)	.100 (.093-.114)	.140 (.122-.160)	3119	
	07-08	*	< LOD	.038 (.031-.047)	.083 (.071-.098)	.122 (.099-.143)	2750	
<b>Age group</b>								
	12-19 years	05-06	.032 (.030-.034)	.031 (.029-.033)	.046 (.042-.049)	.070 (.058-.085)	.096 (.075-.120)	909
		07-08	*	< LOD	.026 (<LOD-.035)	.051 (.036-.059)	.068 (.057-.090)	448
20-59 years	01-02	.034 (.029-.039)	.030 (.030-.040)	.050 (.050-.070)	.090 (.070-.120)	.140 (.090-.180)	879	
	03-04	.035 (.033-.037)	.032 (.030-.036)	.053 (.048-.057)	.083 (.077-.088)	.110 (.098-.120)	1299	
	05-06	.040 (.037-.043)	.037 (.034-.039)	.062 (.054-.073)	.110 (.098-.126)	.150 (.130-.180)	1539	
	07-08	*	< LOD	.045 (.036-.056)	.094 (.077-.114)	.131 (.112-.160)	1473	
60 years and older	05-06	.037 (.033-.040)	.033 (.030-.036)	.056 (.046-.068)	.098 (.090-.110)	.130 (.110-.160)	671	
	07-08	*	< LOD	.032 (.026-.038)	.062 (.050-.083)	.100 (.074-.123)	829	
<b>Gender</b>								
Males	01-02	.035 (.029-.041)	.030 (<LOD-.040)	.060 (.040-.070)	.100 (.070-.150)	.150 (.090-.220)	419	
	03-04	.037 (.034-.041)	.036 (.031-.040)	.057 (.051-.065)	.086 (.078-.099)	.110 (.094-.130)	625	
	05-06	.042 (.039-.044)	.038 (.036-.041)	.067 (.057-.074)	.114 (.099-.131)	.160 (.136-.180)	1474	
	07-08	*	< LOD	.044 (.037-.056)	.090 (.077-.105)	.128 (.102-.154)	1356	
Females	01-02	.033 (.028-.038)	.030 (.030-.040)	.050 (.040-.060)	.080 (.060-.120)	.130 (.070-.180)	460	
	03-04	.032 (.030-.034)	.030 (.027-.033)	.048 (.041-.053)	.081 (.071-.089)	.100 (.091-.120)	674	
	05-06	.035 (.032-.038)	.032 (.029-.035)	.052 (.047-.061)	.093 (.081-.103)	.120 (.106-.150)	1645	
	07-08	*	< LOD	.032 (.027-.043)	.074 (.058-.092)	.116 (.089-.134)	1394	
<b>Race/ethnicity</b>								
Mexican Americans	01-02	*	.030 (<LOD-.040)	.040 (.040-.060)	.070 (.050-.110)	.120 (.070-.210)	220	
	03-04	.031 (.027-.036)	.029 (<LOD-.035)	.044 (.035-.048)	.064 (.051-.074)	.091 (.066-.170)	253	
	05-06	.032 (.028-.036)	.030 (.026-.036)	.047 (.039-.057)	.072 (.051-.093)	.086 (.073-.120)	752	
	07-08	*	< LOD	.029 (.025-.036)	.050 (.040-.068)	.072 (.059-.100)	557	
Non-Hispanic blacks	01-02	.032 (.027-.038)	.030 (<LOD-.040)	.050 (.030-.070)	.080 (.060-.130)	.130 (.070-.240)	159	
	03-04	.032 (.027-.038)	.030 (<LOD-.037)	.050 (.037-.066)	.079 (.065-.100)	.110 (.084-.130)	281	
	05-06	.037 (.035-.040)	.034 (.030-.038)	.057 (.052-.064)	.095 (.085-.100)	.120 (.104-.140)	809	
	07-08	*	< LOD	.048 (.037-.053)	.086 (.066-.105)	.117 (.089-.170)	559	
Non-Hispanic whites	01-02	.035 (.029-.043)	.030 (<LOD-.040)	.060 (.050-.070)	.090 (.070-.140)	.150 (.090-.190)	432	
	03-04	.036 (.034-.038)	.034 (.030-.038)	.055 (.050-.061)	.087 (.081-.092)	.110 (.098-.130)	669	
	05-06	.039 (.037-.042)	.036 (.033-.038)	.061 (.053-.072)	.110 (.095-.120)	.150 (.125-.180)	1326	
	07-08	*	< LOD	.040 (.031-.053)	.090 (.075-.112)	.128 (.105-.154)	1190	

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, and 07-08 are 0.024, 0.024, 0.024, and 0.024, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Ethylbenzene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Ethylbenzene_BiomonitoringSummary.html)



## Blood Furan (2007 - 2008)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Total</b>	07-08	*	< LOD	< LOD	.042 (<LOD-.065)	.089 (.068-.106)	2758
<b>Age group</b>							
12-19 years	07-08	*	< LOD	< LOD	< LOD	< LOD	450
20-59 years	07-08	*	< LOD	< LOD	.066 (.032-.088)	.099 (.082-.128)	1455
60 years and older	07-08	*	< LOD	< LOD	< LOD	.052 (<LOD-.084)	853
<b>Gender</b>							
Males	07-08	*	< LOD	< LOD	.051 (<LOD-.074)	.091 (.062-.121)	1367
Females	07-08	*	< LOD	< LOD	.038 (<LOD-.063)	.087 (.050-.102)	1391
<b>Race/ethnicity</b>							
Mexican Americans	07-08	*	< LOD	< LOD	< LOD	< LOD	540
Non-Hispanic blacks	07-08	*	< LOD	< LOD	.039 (.026-.050)	.083 (.050-.099)	575
Non-Hispanic whites	07-08	*	< LOD	< LOD	.056 (<LOD-.083)	.098 (.080-.124)	1206

Limit of detection (LOD, see Data Analysis section) for Survey year 07-08 is 0.025.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

## Blood Hexachloroethane (2003 - 2008)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Total</b>	03-04	*	< LOD	< LOD	< LOD	< LOD	1366
	05-06	*	< LOD	< LOD	< LOD	< LOD	3155
	07-08	*	< LOD	< LOD	< LOD	< LOD	2627
<b>Age group</b>							
	12-19 years	05-06	*	< LOD	< LOD	< LOD	< LOD
	07-08	*	< LOD	< LOD	< LOD	< LOD	419
20-59 years	03-04	*	< LOD	< LOD	< LOD	< LOD	1366
	05-06	*	< LOD	< LOD	< LOD	< LOD	1547
	07-08	*	< LOD	< LOD	< LOD	< LOD	1417
60 years and older	05-06	*	< LOD	< LOD	< LOD	< LOD	678
	07-08	*	< LOD	< LOD	< LOD	< LOD	791
<b>Gender</b>							
	Males	03-04	*	< LOD	< LOD	< LOD	< LOD
	05-06	*	< LOD	< LOD	< LOD	< LOD	1495
	07-08	*	< LOD	< LOD	< LOD	< LOD	1285
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	697
	05-06	*	< LOD	< LOD	< LOD	< LOD	1660
	07-08	*	< LOD	< LOD	< LOD	< LOD	1342
<b>Race/ethnicity</b>							
	Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD
	05-06	*	< LOD	< LOD	< LOD	< LOD	758
	07-08	*	< LOD	< LOD	< LOD	< LOD	506
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	300
	05-06	*	< LOD	< LOD	< LOD	< LOD	830
	07-08	*	< LOD	< LOD	< LOD	< LOD	531
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	694
	05-06	*	< LOD	< LOD	< LOD	< LOD	1335
	07-08	*	< LOD	< LOD	< LOD	< LOD	1191

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.011, 0.011, and 0.011, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Hexachloroethane\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Hexachloroethane_BiomonitoringSummary.html)

## Blood Isopropylbenzene (Cumene) (2007 - 2008)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Total</b>	07-08	*	< LOD	< LOD	< LOD	< LOD	2752
<b>Age group</b>							
12-19 years	07-08	*	< LOD	< LOD	< LOD	< LOD	448
20-59 years	07-08	*	< LOD	< LOD	< LOD	< LOD	1479
60 years and older	07-08	*	< LOD	< LOD	< LOD	< LOD	825
<b>Gender</b>							
Males	07-08	*	< LOD	< LOD	< LOD	< LOD	1369
Females	07-08	*	< LOD	< LOD	< LOD	< LOD	1383
<b>Race/ethnicity</b>							
Mexican Americans	07-08	*	< LOD	< LOD	< LOD	< LOD	518
Non-Hispanic blacks	07-08	*	< LOD	< LOD	< LOD	< LOD	544
Non-Hispanic whites	07-08	*	< LOD	< LOD	< LOD	< LOD	1251

Limit of detection (LOD, see Data Analysis section) for Survey year 07-08 is 0.04.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

## Blood Methyl-tert-Butyl Ether (MTBE) (2001 - 2008)

Geometric mean and selected percentiles of whole blood concentrations (in pg/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Total</b>	01-02	<b>16.4</b> (4.77-56.7)	<b>27.7</b> (7.29-64.9)	<b>73.8</b> (35.5-127)	<b>132</b> (64.0-278)	<b>188</b> (109-339)	672
	03-04	<b>11.0</b> (5.98-20.1)	<b>10.0</b> (4.60-25.1)	<b>45.0</b> (16.0-98.0)	<b>110</b> (70.0-180)	<b>170</b> (110-340)	1307
	05-06	<b>6.16</b> (2.94-12.9)	<b>4.60</b> (1.80-15.0)	<b>20.0</b> (5.20-73.0)	<b>75.0</b> (22.0-140)	<b>110</b> (49.0-250)	3080
	07-08	*	< LOD	< LOD	<b>3.50</b> (2.00-7.83)	<b>7.27</b> (3.40-22.3)	2964
<b>Age group</b>							
	12-19 years	05-06 <b>5.85</b> (2.61-13.1)	<b>4.20</b> (1.40-18.0)	<b>18.0</b> (4.60-75.0)	<b>70.0</b> (18.0-140)	<b>110</b> (62.0-180)	911
		07-08 *	< LOD	< LOD	<b>3.74</b> (1.90-8.47)	<b>8.43</b> (3.10-19.0)	476
20-59 years	01-02	<b>16.4</b> (4.77-56.7)	<b>27.7</b> (7.29-64.9)	<b>73.8</b> (35.5-127)	<b>132</b> (64.0-278)	<b>188</b> (109-339)	672
	03-04	<b>11.0</b> (5.98-20.1)	<b>10.0</b> (4.60-25.1)	<b>45.0</b> (16.0-98.0)	<b>110</b> (70.0-180)	<b>170</b> (110-340)	1307
	05-06	<b>6.26</b> (3.05-12.9)	<b>4.80</b> (2.00-14.0)	<b>20.0</b> (5.50-70.0)	<b>71.0</b> (21.0-150)	<b>110</b> (46.0-250)	1512
	07-08	*	< LOD	< LOD	<b>3.16</b> (1.90-5.10)	<b>5.10</b> (2.87-19.0)	1597
60 years and older	05-06	<b>6.00</b> (2.67-13.5)	<b>3.80</b> (1.60-14.0)	<b>22.0</b> (4.00-94.0)	<b>86.0</b> (19.0-180)	<b>120</b> (55.0-290)	657
	07-08	*	< LOD	<b>1.80</b> (<LOD-3.10)	<b>6.00</b> (2.70-14.5)	<b>14.0</b> (5.25-28.0)	891
<b>Gender</b>							
	Males	01-02 <b>16.9</b> (4.96-57.7)	<b>27.9</b> (6.82-64.6)	<b>75.0</b> (35.5-131)	<b>132</b> (54.9-307)	<b>167</b> (109-417)	334
		03-04 <b>12.2</b> (6.29-23.6)	<b>11.0</b> (4.80-29.0)	<b>55.0</b> (18.0-110)	<b>130</b> (79.0-200)	<b>200</b> (110-470)	641
		05-06 <b>6.24</b> (3.07-12.7)	<b>4.60</b> (1.90-15.0)	<b>20.0</b> (5.90-69.0)	<b>73.0</b> (25.0-120)	<b>110</b> (52.0-230)	1462
		07-08 *	< LOD	<b>1.40</b> (<LOD-2.21)	<b>3.40</b> (1.93-8.40)	<b>7.27</b> (3.00-26.0)	1481
Females	01-02	<b>16.0</b> (4.12-61.8)	<b>26.6</b> (5.93-74.6)	<b>72.7</b> (32.6-132)	<b>142</b> (73.5-255)	<b>194</b> (92.3-336)	338
	03-04	<b>9.88</b> (5.62-17.4)	<b>8.90</b> (4.30-23.0)	<b>38.0</b> (14.0-85.0)	<b>94.0</b> (58.0-160)	<b>140</b> (90.0-250)	666
	05-06	<b>6.08</b> (2.81-13.1)	<b>4.50</b> (1.70-14.0)	<b>19.0</b> (4.90-79.0)	<b>76.0</b> (20.0-160)	<b>110</b> (48.0-250)	1618
	07-08	*	< LOD	< LOD	<b>3.50</b> (1.90-8.40)	<b>7.30</b> (3.60-16.5)	1483
<b>Race/ethnicity</b>							
	Mexican Americans	01-02 <b>23.3</b> (4.96-110)	<b>33.4</b> (2.92-187)	<b>91.3</b> (26.1-255)	<b>225</b> (80.6-339)	<b>273</b> (182-358)	166
		03-04 <b>11.6</b> (5.35-25.3)	<b>12.0</b> (3.80-29.0)	<b>32.0</b> (14.0-80.0)	<b>80.0</b> (38.0-190)	<b>160</b> (74.0-220)	245
		05-06 <b>7.61</b> (2.99-19.3)	<b>5.40</b> (2.00-33.0)	<b>30.0</b> (4.60-90.0)	<b>67.0</b> (26.0-190)	<b>100</b> (45.0-330)	735
		07-08 *	< LOD	<b>1.71</b> (<LOD-2.90)	<b>4.10</b> (2.19-9.60)	<b>8.80</b> (5.20-11.5)	559
Non-Hispanic blacks	01-02	<b>14.9</b> (6.11-36.4)	<b>26.4</b> (3.11-55.6)	<b>52.6</b> (30.0-86.8)	<b>87.4</b> (38.6-155)	<b>120</b> (70.0-155)	119
	03-04	<b>9.63</b> (4.83-19.2)	<b>10.0</b> (3.50-28.0)	<b>32.8</b> (11.0-85.0)	<b>77.0</b> (36.0-160)	<b>140</b> (61.0-210)	285
	05-06	<b>9.14</b> (3.16-26.5)	<b>5.70</b> (1.80-50.0)	<b>48.0</b> (5.00-150)	<b>120</b> (46.0-280)	<b>180</b> (88.0-460)	820
	07-08	*	< LOD	<b>1.90</b> (<LOD-3.80)	<b>3.50</b> (2.40-7.27)	<b>5.80</b> (3.50-15.3)	587
Non-Hispanic whites	01-02	<b>16.0</b> (4.13-62.4)	<b>27.9</b> (4.71-74.6)	<b>72.7</b> (33.3-132)	<b>132</b> (59.6-249)	<b>165</b> (92.8-366)	333
	03-04	<b>11.5</b> (5.51-23.8)	<b>11.0</b> (4.00-33.5)	<b>59.0</b> (14.0-120)	<b>120</b> (73.0-230)	<b>180</b> (110-430)	673
	05-06	<b>5.55</b> (2.47-12.5)	<b>4.00</b> (<LOD-15.0)	<b>16.0</b> (4.30-75.0)	<b>70.0</b> (15.0-150)	<b>110</b> (40.0-250)	1291
	07-08	*	< LOD	< LOD	<b>3.30</b> (1.42-12.0)	<b>7.10</b> (2.59-31.0)	1349

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, and 07-08 are 0.232, 2.0, 1.4, and 1.4, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/MTBE\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/MTBE_BiomonitoringSummary.html)

## Blood Nitrobenzene (2003 - 2008)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size	
<b>Total</b>	03-04	*	< LOD	< LOD	< LOD	< LOD	1066	
	05-06	*	< LOD	< LOD	< LOD	< LOD	3144	
	07-08	*	< LOD	< LOD	< LOD	< LOD	2764	
<b>Age group</b>								
	12-19 years	05-06	*	< LOD	< LOD	< LOD	< LOD	926
		07-08	*	< LOD	< LOD	< LOD	< LOD	437
20-59 years	03-04	*	< LOD	< LOD	< LOD	< LOD	1066	
	05-06	*	< LOD	< LOD	< LOD	< LOD	1549	
	07-08	*	< LOD	< LOD	< LOD	< LOD	1499	
60 years and older	05-06	*	< LOD	< LOD	< LOD	< LOD	669	
	07-08	*	< LOD	< LOD	< LOD	< LOD	828	
<b>Gender</b>								
	Males	03-04	*	< LOD	< LOD	< LOD	< LOD	529
		05-06	*	< LOD	< LOD	< LOD	< LOD	1491
Females	07-08	*	< LOD	< LOD	< LOD	< LOD	1362	
	03-04	*	< LOD	< LOD	< LOD	< LOD	537	
	05-06	*	< LOD	< LOD	< LOD	< LOD	1653	
	07-08	*	< LOD	< LOD	< LOD	< LOD	1402	
<b>Race/ethnicity</b>								
	Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	206
		05-06	*	< LOD	< LOD	< LOD	< LOD	773
Non-Hispanic blacks	07-08	*	< LOD	< LOD	< LOD	< LOD	525	
	03-04	*	< LOD	< LOD	< LOD	< LOD	205	
	05-06	*	< LOD	< LOD	< LOD	< LOD	816	
Non-Hispanic whites	07-08	*	< LOD	< LOD	< LOD	< LOD	568	
	03-04	*	< LOD	< LOD	< LOD	< LOD	564	
	05-06	*	< LOD	< LOD	< LOD	< LOD	1322	
	07-08	*	< LOD	< LOD	< LOD	< LOD	1248	

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.3, 0.3, and 0.32, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Nitrobenzene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Nitrobenzene_BiomonitoringSummary.html)

## Blood Nitromethane (2007 - 2008)

Geometric mean and selected percentiles of whole blood concentrations (in pg/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Total</b>	07-08	<b>685</b> (643-729)	<b>668</b> (618-714)	<b>864</b> (790-926)	<b>1080</b> (1020-1160)	<b>1320</b> (1200-1420)	2766
<b>Age group</b>							
12-19 years	07-08	<b>590</b> (554-629)	<b>590</b> (552-628)	<b>717</b> (676-798)	<b>883</b> (819-986)	<b>998</b> (919-1080)	451
20-59 years	07-08	<b>688</b> (650-728)	<b>675</b> (628-719)	<b>866</b> (798-921)	<b>1050</b> (1000-1120)	<b>1260</b> (1120-1360)	1495
60 years and older	07-08	<b>739</b> (670-816)	<b>692</b> (600-816)	<b>960</b> (840-1110)	<b>1340</b> (1210-1490)	<b>1600</b> (1390-1950)	820
<b>Gender</b>							
Males	07-08	<b>679</b> (639-722)	<b>664</b> (620-712)	<b>853</b> (785-912)	<b>1050</b> (993-1130)	<b>1260</b> (1130-1420)	1384
Females	07-08	<b>690</b> (645-738)	<b>670</b> (612-721)	<b>871</b> (786-948)	<b>1100</b> (1040-1200)	<b>1370</b> (1260-1480)	1382
<b>Race/ethnicity</b>							
Mexican Americans	07-08	<b>689</b> (632-752)	<b>667</b> (606-736)	<b>845</b> (759-961)	<b>1080</b> (982-1160)	<b>1260</b> (1120-1560)	535
Non-Hispanic blacks	07-08	<b>754</b> (714-796)	<b>720</b> (673-792)	<b>929</b> (870-1010)	<b>1220</b> (1120-1320)	<b>1500</b> (1340-1640)	545
Non-Hispanic whites	07-08	<b>666</b> (619-716)	<b>648</b> (597-704)	<b>834</b> (756-919)	<b>1040</b> (993-1150)	<b>1270</b> (1160-1420)	1289

Limit of detection (LOD, see Data Analysis section) for Survey year 07-08 is 65.0.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

## Blood Styrene (2001 - 2008)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Total</b>	01-02	*	< LOD	.080 (.050-.100)	.130 (.090-.200)	.200 (.140-.260)	950
	03-04	*	< LOD	.050 (.044-.061)	.089 (.081-.097)	.120 (.110-.130)	1245
	05-06	*	< LOD	.047 (.042-.056)	.099 (.086-.113)	.135 (.120-.160)	2808
	07-08	*	< LOD	.045 (.036-.056)	.096 (.083-.109)	.130 (.115-.151)	2719
<b>Age group</b>							
	12-19 years	05-06	*	< LOD	.039 (.031-.049)	.058 (.050-.071)	.072 (.059-.089)
	07-08	*	< LOD	.031 (<LOD-.035)	.047 (.039-.061)	.074 (.049-.085)	448
20-59 years	01-02	*	< LOD	.080 (.050-.100)	.130 (.090-.200)	.200 (.140-.260)	950
	03-04	*	< LOD	.050 (.044-.061)	.089 (.081-.097)	.120 (.110-.130)	1245
	05-06	*	< LOD	.051 (.044-.065)	.110 (.094-.120)	.150 (.120-.180)	1380
	07-08	*	< LOD	.055 (.041-.076)	.109 (.094-.130)	.151 (.130-.172)	1459
60 years and older	05-06	*	< LOD	.041 (.033-.055)	.083 (.072-.110)	.130 (.100-.150)	601
	07-08	*	< LOD	.034 (.031-.039)	.065 (.055-.079)	.094 (.080-.103)	812
<b>Gender</b>							
Males	01-02	*	< LOD	.080 (.050-.110)	.140 (.100-.230)	.220 (.140-.340)	445
	03-04	*	< LOD	.056 (.045-.068)	.089 (.081-.100)	.120 (.095-.150)	608
	05-06	*	< LOD	.052 (.043-.067)	.110 (.096-.120)	.142 (.120-.170)	1326
	07-08	*	< LOD	.051 (.041-.069)	.102 (.086-.123)	.144 (.117-.169)	1344
Females	01-02	*	< LOD	.070 (.050-.100)	.120 (.090-.180)	.180 (.120-.260)	505
	03-04	*	< LOD	.048 (.040-.060)	.090 (.074-.100)	.110 (.097-.140)	637
	05-06	*	< LOD	.045 (.038-.052)	.087 (.077-.100)	.129 (.107-.150)	1482
	07-08	*	< LOD	.038 (.031-.051)	.087 (.071-.102)	.127 (.104-.149)	1375
<b>Race/ethnicity</b>							
Mexican Americans	01-02	*	< LOD	.050 (.030-.070)	.090 (.070-.110)	.120 (.090-.170)	225
	03-04	*	< LOD	< LOD	.049 (.033-.066)	.062 (.048-.100)	241
	05-06	*	< LOD	.035 (<LOD-.047)	.060 (.042-.092)	.092 (.064-.110)	603
	07-08	*	< LOD	.030 (<LOD-.035)	.049 (.042-.060)	.067 (.055-.084)	510
Non-Hispanic blacks	01-02	*	.040 (<LOD-.080)	.100 (.040-.180)	.180 (.110-.350)	.300 (.170-1.00)	192
	03-04	*	< LOD	.060 (.047-.077)	.100 (.077-.130)	.130 (.110-.160)	264
	05-06	*	< LOD	.056 (.047-.064)	.100 (.079-.120)	.145 (.115-.180)	781
	07-08	*	< LOD	.047 (.040-.055)	.098 (.077-.112)	.137 (.110-.192)	554
Non-Hispanic whites	01-02	*	.030 (<LOD-.050)	.080 (.050-.110)	.130 (.090-.210)	.200 (.130-.260)	462
	03-04	*	< LOD	.056 (.046-.067)	.096 (.083-.110)	.130 (.110-.140)	646
	05-06	*	< LOD	.049 (.043-.058)	.103 (.087-.120)	.140 (.120-.174)	1217
	07-08	*	< LOD	.049 (.037-.069)	.104 (.090-.118)	.143 (.127-.158)	1218

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, and 07-08 are 0.03, 0.03, 0.03, and 0.03, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Styrene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Styrene_BiomonitoringSummary.html)



## Blood Tetrachloroethene (Perchloroethylene) (2001 - 2008)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Total</b>	01-02	*	< LOD	.050 (<LOD-.060)	.100 (.070-.150)	.190 (.130-.260)	978
	03-04	*	< LOD	< LOD	.076 (.060-.097)	.140 (.091-.300)	1317
	05-06	*	< LOD	< LOD	.070 (.056-.088)	.126 (.098-.170)	2940
	07-08	*	< LOD	< LOD	.056 (.049-.061)	.094 (.075-.125)	2735
<b>Age group</b>							
	12-19 years	05-06	*	< LOD	< LOD	.049 (<LOD-.062)	.079 (.057-.106)
	07-08	*	< LOD	< LOD	< LOD	.066 (<LOD-.082)	446
20-59 years	01-02	*	< LOD	.050 (<LOD-.060)	.100 (.070-.150)	.190 (.130-.260)	978
	03-04	*	< LOD	< LOD	.076 (.060-.097)	.140 (.091-.300)	1317
	05-06	*	< LOD	< LOD	.074 (.056-.100)	.130 (.098-.199)	1458
	07-08	*	< LOD	< LOD	.056 (.050-.066)	.102 (.076-.158)	1482
60 years and older	05-06	*	< LOD	< LOD	.071 (.054-.092)	.113 (.092-.190)	617
	07-08	*	< LOD	< LOD	.057 (<LOD-.070)	.095 (.065-.151)	806
<b>Gender</b>							
Males	01-02	*	< LOD	.050 (<LOD-.060)	.110 (.070-.170)	.210 (.170-.340)	457
	03-04	*	< LOD	< LOD	.082 (.060-.140)	.230 (.097-.410)	639
	05-06	*	< LOD	< LOD	.085 (.062-.126)	.172 (.113-.300)	1404
	07-08	*	< LOD	< LOD	.059 (.053-.071)	.136 (.095-.191)	1351
Females	01-02	*	< LOD	.050 (<LOD-.060)	.100 (.070-.140)	.150 (.100-.220)	521
	03-04	*	< LOD	< LOD	.069 (.050-.091)	.120 (.085-.180)	678
	05-06	*	< LOD	< LOD	.056 (.049-.071)	.090 (.070-.130)	1536
	07-08	*	< LOD	< LOD	.050 (<LOD-.059)	.073 (.061-.112)	1384
<b>Race/ethnicity</b>							
Mexican Americans	01-02	*	< LOD	< LOD	.060 (<LOD-.070)	.070 (.060-.230)	226
	03-04	*	< LOD	< LOD	.049 (<LOD-.097)	.100 (.054-.180)	248
	05-06	*	< LOD	< LOD	.069 (.056-.074)	.130 (.073-.284)	713
	07-08	*	< LOD	< LOD	.061 (<LOD-.081)	.112 (.072-.190)	544
Non-Hispanic blacks	01-02	*	< LOD	< LOD	.070 (.050-.110)	.110 (.060-.190)	195
	03-04	*	< LOD	< LOD	.086 (.050-.220)	.220 (.082-.360)	284
	05-06	*	< LOD	< LOD	.074 (.057-.112)	.120 (.069-.280)	776
	07-08	*	< LOD	< LOD	.060 (<LOD-.095)	.106 (.074-.149)	549
Non-Hispanic whites	01-02	*	< LOD	.050 (<LOD-.070)	.110 (.090-.170)	.210 (.150-.260)	487
	03-04	*	< LOD	< LOD	.072 (.060-.091)	.140 (.085-.330)	686
	05-06	*	< LOD	< LOD	.070 (.053-.090)	.130 (.092-.180)	1229
	07-08	*	< LOD	< LOD	.053 (<LOD-.059)	.080 (.069-.112)	1219

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, and 07-08 are 0.048, 0.048, 0.048, and 0.048, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/HalogenatedSolvents\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/HalogenatedSolvents_BiomonitoringSummary.html)

## Blood Tetrachloromethane (Carbon tetrachloride) (2001 - 2008)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Total</b>	01-02	*	< LOD	.010 (<LOD-.010)	.010 (<LOD-.140)	.020 (.010-.050)	742
	03-04	*	< LOD	< LOD	< LOD	< LOD	1362
	05-06	*	< LOD	< LOD	< LOD	< LOD	2979
	07-08	*	< LOD	< LOD	< LOD	< LOD	2812
<b>Age group</b>							
	12-19 years	05-06	*	< LOD	< LOD	< LOD	882
	07-08	*	< LOD	< LOD	< LOD	456	
20-59 years	01-02	*	< LOD	.010 (<LOD-.010)	.010 (<LOD-.140)	.020 (.010-.050)	742
	03-04	*	< LOD	< LOD	< LOD	< LOD	1362
	05-06	*	< LOD	< LOD	< LOD	< LOD	1476
	07-08	*	< LOD	< LOD	< LOD	< LOD	1526
60 years and older	05-06	*	< LOD	< LOD	< LOD	< LOD	621
	07-08	*	< LOD	< LOD	< LOD	< LOD	830
<b>Gender</b>							
Males	01-02	*	< LOD	.010 (<LOD-.010)	.010 (<LOD-.140)	.010 (.010-.040)	364
	03-04	*	< LOD	< LOD	< LOD	< LOD	667
	05-06	*	< LOD	< LOD	< LOD	< LOD	1419
	07-08	*	< LOD	< LOD	< LOD	< LOD	1388
Females	01-02	*	< LOD	.010 (<LOD-.010)	.010 (<LOD-.090)	.040 (.010-.080)	378
	03-04	*	< LOD	< LOD	< LOD	< LOD	695
	05-06	*	< LOD	< LOD	< LOD	< LOD	1560
	07-08	*	< LOD	< LOD	< LOD	< LOD	1424
<b>Race/ethnicity</b>							
Mexican Americans	01-02	*	< LOD	< LOD	.010 (<LOD-.750)	.020 (.010-.050)	193
	03-04	*	< LOD	< LOD	< LOD	< LOD	266
	05-06	*	< LOD	< LOD	< LOD	< LOD	740
	07-08	*	< LOD	< LOD	< LOD	< LOD	555
Non-Hispanic blacks	01-02	*	< LOD	.010 (<LOD-.010)	.010 (<LOD-.020)	.010 (<LOD-.020)	132
	03-04	*	< LOD	< LOD	< LOD	< LOD	299
	05-06	*	< LOD	< LOD	< LOD	< LOD	779
	07-08	*	< LOD	< LOD	< LOD	< LOD	562
Non-Hispanic whites	01-02	*	< LOD	.010 (<LOD-.010)	.010 (<LOD-.140)	.030 (.010-.080)	366
	03-04	*	< LOD	< LOD	< LOD	< LOD	692
	05-06	*	< LOD	< LOD	< LOD	< LOD	1237
	07-08	*	< LOD	< LOD	< LOD	< LOD	1249

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, and 07-08 are 0.01, 0.005, 0.005, and 0.005, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/OtherHalogenatedSolvents\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/OtherHalogenatedSolvents_BiomonitoringSummary.html)

## Blood Toluene (2001 - 2008)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size	
<b>Total</b>	01-02	.156 (.122-.198)	.160 (.120-.220)	.340 (.260-.430)	.670 (.480-.950)	1.06 (.700-1.43)	954	
	03-04	.114 (.100-.129)	.096 (.087-.110)	.220 (.180-.260)	.430 (.380-.550)	.680 (.560-.880)	1336	
	05-06	.137 (.123-.152)	.120 (.110-.130)	.230 (.200-.262)	.550 (.481-.640)	.814 (.702-.937)	3050	
	07-08	.103 (.090-.119)	.083 (.072-.098)	.192 (.148-.256)	.511 (.411-.608)	.735 (.634-.888)	2731	
<b>Age group</b>								
	12-19 years	05-06	.110 (.098-.122)	.100 (.094-.120)	.170 (.150-.180)	.280 (.240-.310)	.400 (.300-.610)	907
		07-08	.067 (.057-.080)	.061 (.053-.073)	.100 (.078-.133)	.205 (.141-.287)	.318 (.228-.388)	439
20-59 years	01-02	.156 (.122-.198)	.160 (.120-.220)	.340 (.260-.430)	.670 (.480-.950)	1.06 (.700-1.43)	954	
	03-04	.114 (.100-.129)	.096 (.087-.110)	.220 (.180-.260)	.430 (.380-.550)	.680 (.560-.880)	1336	
	05-06	.147 (.133-.163)	.120 (.110-.137)	.260 (.210-.340)	.594 (.505-.720)	.900 (.730-1.10)	1505	
	07-08	.115 (.098-.135)	.090 (.076-.110)	.257 (.174-.339)	.589 (.508-.692)	.839 (.702-.976)	1483	
60 years and older	05-06	.124 (.100-.154)	.114 (.097-.138)	.190 (.167-.230)	.520 (.370-.600)	.720 (.600-.814)	638	
	07-08	.094 (.084-.105)	.078 (.070-.091)	.143 (.126-.173)	.370 (.277-.479)	.610 (.424-.742)	809	
<b>Gender</b>								
Males	01-02	.165 (.130-.209)	.170 (.120-.230)	.360 (.260-.520)	.780 (.580-1.06)	1.22 (.850-1.43)	450	
	03-04	.128 (.112-.148)	.110 (.096-.130)	.250 (.190-.310)	.500 (.380-.660)	.730 (.590-1.10)	647	
	05-06	.152 (.139-.166)	.130 (.120-.140)	.280 (.240-.330)	.640 (.550-.720)	.920 (.790-1.10)	1441	
	07-08	.118 (.103-.135)	.091 (.078-.113)	.256 (.191-.311)	.563 (.483-.663)	.816 (.689-.928)	1370	
Females	01-02	.147 (.114-.190)	.150 (.110-.220)	.320 (.240-.390)	.550 (.400-.740)	.810 (.530-1.63)	504	
	03-04	.101 (.086-.118)	.085 (.070-.100)	.190 (.150-.230)	.410 (.340-.500)	.580 (.480-.750)	689	
	05-06	.124 (.107-.144)	.110 (.097-.130)	.190 (.170-.230)	.470 (.380-.550)	.690 (.550-.880)	1609	
	07-08	.091 (.078-.106)	.074 (.065-.087)	.151 (.119-.209)	.444 (.297-.589)	.679 (.533-.853)	1360	
<b>Race/ethnicity</b>								
Mexican Americans	01-02	.136 (.106-.176)	.140 (.080-.210)	.270 (.210-.340)	.550 (.400-.980)	.990 (.500-1.30)	219	
	03-04	.084 (.074-.096)	.076 (.064-.091)	.120 (.100-.170)	.280 (.170-.410)	.400 (.310-.620)	253	
	05-06	.110 (.097-.125)	.110 (.096-.120)	.160 (.140-.170)	.240 (.220-.290)	.340 (.290-.460)	737	
	07-08	.079 (.068-.093)	.075 (.059-.094)	.117 (.106-.142)	.220 (.169-.292)	.339 (.253-.409)	539	
Non-Hispanic blacks	01-02	.137 (.089-.210)	.150 (.070-.200)	.310 (.200-.460)	.690 (.390-1.19)	1.15 (.660-1.69)	194	
	03-04	.105 (.077-.144)	.095 (.070-.130)	.200 (.130-.330)	.440 (.290-.620)	.620 (.480-.710)	297	
	05-06	.139 (.120-.161)	.120 (.099-.140)	.230 (.190-.290)	.450 (.370-.550)	.670 (.550-.830)	796	
	07-08	.108 (.097-.120)	.083 (.076-.097)	.220 (.179-.265)	.463 (.380-.554)	.663 (.486-.899)	567	
Non-Hispanic whites	01-02	.165 (.125-.217)	.170 (.120-.240)	.350 (.270-.450)	.710 (.450-1.12)	1.14 (.710-1.63)	467	
	03-04	.123 (.110-.139)	.100 (.092-.120)	.240 (.210-.280)	.500 (.400-.590)	.750 (.590-.940)	685	
	05-06	.144 (.125-.166)	.130 (.110-.140)	.260 (.210-.330)	.600 (.510-.710)	.880 (.760-.990)	1291	
	07-08	.110 (.094-.128)	.086 (.073-.102)	.223 (.162-.310)	.582 (.479-.693)	.832 (.706-.974)	1200	

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, and 07-08 are 0.025, 0.025, 0.025, and 0.025, respectively.  
< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Toluene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Toluene_BiomonitoringSummary.html)

## Blood Trichloroethene (Trichloroethylene) (2001 - 2008)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
<b>Total</b>	01-02	*	< LOD	< LOD	< LOD	< LOD	922
	03-04	*	< LOD	< LOD	< LOD	< LOD	1228
	05-06	*	< LOD	< LOD	< LOD	< LOD	3178
	07-08	*	< LOD	< LOD	< LOD	< LOD	2952
<b>Age group</b>							
	12-19 years	05-06	*	< LOD	< LOD	< LOD	< LOD
	07-08	*	< LOD	< LOD	< LOD	< LOD	473
20-59 years	01-02	*	< LOD	< LOD	< LOD	< LOD	922
	03-04	*	< LOD	< LOD	< LOD	< LOD	1228
	05-06	*	< LOD	< LOD	< LOD	< LOD	1562
	07-08	*	< LOD	< LOD	< LOD	< LOD	1592
60 years and older	05-06	*	< LOD	< LOD	< LOD	< LOD	679
	07-08	*	< LOD	< LOD	< LOD	< LOD	887
<b>Gender</b>							
	Males	01-02	*	< LOD	< LOD	< LOD	< LOD
	03-04	*	< LOD	< LOD	< LOD	< LOD	604
	05-06	*	< LOD	< LOD	< LOD	< LOD	1504
	07-08	*	< LOD	< LOD	< LOD	< LOD	1466
Females	01-02	*	< LOD	< LOD	< LOD	< LOD	488
	03-04	*	< LOD	< LOD	< LOD	< LOD	624
	05-06	*	< LOD	< LOD	< LOD	< LOD	1674
	07-08	*	< LOD	< LOD	< LOD	< LOD	1486
<b>Race/ethnicity</b>							
	Mexican Americans	01-02	*	< LOD	< LOD	< LOD	< LOD
	03-04	*	< LOD	< LOD	< LOD	< LOD	224
	05-06	*	< LOD	< LOD	< LOD	< LOD	773
	07-08	*	< LOD	< LOD	< LOD	< LOD	572
Non-Hispanic blacks	01-02	*	< LOD	< LOD	< LOD	< LOD	191
	03-04	*	< LOD	< LOD	< LOD	< LOD	266
	05-06	*	< LOD	< LOD	< LOD	< LOD	828
	07-08	*	< LOD	< LOD	< LOD	< LOD	583
Non-Hispanic whites	01-02	*	< LOD	< LOD	< LOD	< LOD	441
	03-04	*	< LOD	< LOD	< LOD	< LOD	644
	05-06	*	< LOD	< LOD	< LOD	< LOD	1341
	07-08	*	< LOD	< LOD	< LOD	< LOD	1329

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, and 07-08 are 0.012, 0.012, 0.012, and 0.012, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/HalogenatedSolvents\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/HalogenatedSolvents_BiomonitoringSummary.html)

## Blood *m*- and *p*-Xylene (2001 - 2008)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size	
<b>Total</b>	01-02	.156 (.124-.198)	.150 (.110-.200)	.280 (.190-.430)	.500 (.370-.690)	.670 (.500-.890)	962	
	03-04	.136 (.123-.150)	.130 (.120-.150)	.200 (.190-.210)	.280 (.260-.300)	.340 (.310-.400)	1346	
	05-06	.132 (.122-.143)	.120 (.110-.130)	.190 (.170-.210)	.301 (.270-.330)	.410 (.360-.450)	3133	
	07-08	.079 (.069-.090)	.072 (.061-.086)	.130 (.108-.156)	.231 (.200-.281)	.343 (.281-.410)	2823	
<b>Age group</b>								
	12-19 years	05-06	.118 (.106-.130)	.120 (.110-.120)	.160 (.150-.170)	.220 (.190-.270)	.330 (.240-.380)	923
		07-08	.067 (.059-.076)	.061 (.052-.074)	.099 (.080-.125)	.181 (.138-.205)	.216 (.182-.282)	447
20-59 years	01-02	.156 (.124-.198)	.150 (.110-.200)	.280 (.190-.430)	.500 (.370-.690)	.670 (.500-.890)	962	
	03-04	.136 (.123-.150)	.130 (.120-.150)	.200 (.190-.210)	.280 (.260-.300)	.340 (.310-.400)	1346	
	05-06	.137 (.127-.147)	.130 (.120-.140)	.200 (.180-.220)	.320 (.280-.350)	.430 (.360-.480)	1542	
	07-08	.083 (.072-.097)	.076 (.065-.089)	.143 (.116-.173)	.256 (.210-.308)	.379 (.290-.468)	1520	
60 years and older	05-06	.126 (.112-.142)	.120 (.100-.130)	.184 (.150-.220)	.303 (.240-.360)	.400 (.335-.463)	668	
	07-08	.073 (.063-.085)	.068 (.055-.082)	.113 (.097-.134)	.209 (.179-.243)	.308 (.255-.361)	854	
<b>Gender</b>								
Males	01-02	.155 (.121-.200)	.140 (.110-.190)	.280 (.180-.440)	.510 (.350-.700)	.700 (.500-.890)	455	
	03-04	.149 (.134-.166)	.140 (.130-.170)	.220 (.200-.230)	.290 (.270-.320)	.380 (.300-.490)	654	
	05-06	.145 (.135-.157)	.130 (.130-.147)	.220 (.190-.240)	.340 (.310-.370)	.460 (.430-.490)	1480	
	07-08	.088 (.077-.101)	.080 (.068-.095)	.153 (.128-.178)	.260 (.224-.308)	.392 (.305-.470)	1395	
Females	01-02	.157 (.124-.199)	.150 (.110-.220)	.270 (.190-.410)	.480 (.360-.650)	.650 (.460-.890)	507	
	03-04	.124 (.112-.138)	.130 (.110-.140)	.180 (.160-.200)	.270 (.240-.300)	.340 (.290-.390)	692	
	05-06	.120 (.109-.132)	.110 (.100-.123)	.170 (.151-.197)	.260 (.220-.320)	.340 (.300-.420)	1653	
	07-08	.071 (.061-.083)	.066 (.054-.080)	.110 (.091-.142)	.201 (.169-.253)	.296 (.240-.362)	1426	
<b>Race/ethnicity</b>								
Mexican Americans	01-02	.134 (.097-.184)	.130 (.090-.180)	.240 (.150-.370)	.400 (.290-.540)	.540 (.380-1.10)	223	
	03-04	.132 (.109-.160)	.120 (.110-.150)	.180 (.140-.230)	.250 (.220-.320)	.360 (.260-.490)	257	
	05-06	.108 (.093-.125)	.110 (.098-.120)	.150 (.130-.170)	.220 (.170-.290)	.270 (.220-.370)	755	
	07-08	.075 (.066-.084)	.071 (.061-.085)	.104 (.094-.120)	.181 (.134-.240)	.260 (.210-.410)	548	
Non-Hispanic blacks	01-02	.147 (.107-.202)	.140 (.090-.220)	.280 (.160-.460)	.470 (.330-.850)	.590 (.420-1.08)	198	
	03-04	.117 (.094-.146)	.120 (.099-.140)	.170 (.140-.220)	.270 (.210-.330)	.330 (.260-.450)	297	
	05-06	.131 (.120-.144)	.120 (.110-.140)	.190 (.170-.210)	.280 (.250-.320)	.350 (.320-.392)	823	
	07-08	.085 (.070-.103)	.082 (.063-.103)	.138 (.120-.160)	.233 (.180-.294)	.326 (.242-.420)	571	
Non-Hispanic whites	01-02	.163 (.124-.214)	.160 (.110-.220)	.300 (.190-.480)	.520 (.370-.740)	.700 (.510-.960)	468	
	03-04	.141 (.128-.155)	.140 (.130-.150)	.210 (.190-.220)	.290 (.270-.310)	.350 (.330-.400)	690	
	05-06	.136 (.125-.147)	.130 (.120-.140)	.200 (.180-.220)	.324 (.280-.350)	.430 (.368-.480)	1323	
	07-08	.080 (.069-.094)	.072 (.058-.088)	.138 (.109-.173)	.248 (.209-.300)	.371 (.290-.457)	1265	

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, and 07-08 are 0.034, 0.034, 0.034, and 0.034, respectively.  
< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Xylenes\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Xylenes_BiomonitoringSummary.html)

## Blood o-Xylene (2001 - 2008)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size	
<b>Total</b>	01-02	*	< LOD	.070 (.050-.080)	.100 (.080-.130)	.130 (.110-.180)	981	
	03-04	*	< LOD	.051 (<LOD-.057)	.072 (.066-.079)	.090 (.081-.097)	1365	
	05-06	.037 (.034-.040)	.035 (.032-.039)	.053 (.047-.061)	.083 (.072-.094)	.110 (.094-.120)	3153	
	07-08	*	< LOD	.039 (.033-.047)	.062 (.051-.076)	.086 (.068-.128)	2835	
<b>Age group</b>								
	12-19 years	05-06	.032 (.030-.034)	.031 (.029-.034)	.044 (.040-.049)	.062 (.053-.075)	.088 (.072-.100)	929
		07-08	*	< LOD	.033 (.026-.044)	.048 (.039-.080)	.066 (.048-.180)	457
20-59 years	01-02	*	< LOD	.070 (.050-.080)	.100 (.080-.130)	.130 (.110-.180)	981	
	03-04	*	< LOD	.051 (<LOD-.057)	.072 (.066-.079)	.090 (.081-.097)	1365	
	05-06	.038 (.034-.041)	.036 (.032-.039)	.055 (.048-.062)	.083 (.073-.094)	.110 (.093-.120)	1547	
	07-08	*	.025 (<LOD-.030)	.040 (.034-.048)	.065 (.053-.079)	.086 (.069-.140)	1524	
60 years and older	05-06	.038 (.033-.044)	.036 (.032-.042)	.054 (.046-.065)	.092 (.065-.115)	.115 (.094-.150)	677	
	07-08	*	< LOD	.038 (.031-.049)	.061 (.052-.078)	.091 (.068-.118)	854	
<b>Gender</b>								
	Males	01-02	*	< LOD	.070 (.050-.090)	.110 (.080-.140)	.150 (.110-.180)	465
		03-04	*	< LOD	.057 (.050-.060)	.074 (.068-.084)	.096 (.084-.110)	667
		05-06	.040 (.036-.045)	.038 (.033-.041)	.058 (.050-.070)	.092 (.082-.100)	.120 (.100-.140)	1487
		07-08	*	.026 (<LOD-.031)	.042 (.037-.048)	.069 (.059-.083)	.098 (.078-.146)	1407
Females	01-02	*	< LOD	.060 (.050-.080)	.100 (.070-.130)	.120 (.100-.180)	516	
	03-04	*	< LOD	< LOD	.067 (.059-.076)	.085 (.074-.095)	698	
	05-06	.034 (.032-.037)	.034 (.031-.036)	.049 (.044-.054)	.072 (.060-.086)	.094 (.078-.110)	1666	
	07-08	*	< LOD	.036 (.029-.044)	.056 (.046-.070)	.076 (.056-.120)	1428	
<b>Race/ethnicity</b>								
	Mexican Americans	01-02	*	< LOD	.060 (<LOD-.080)	.090 (.080-.110)	.120 (.090-.270)	227
		03-04	*	< LOD	.052 (<LOD-.067)	.074 (.067-.080)	.100 (.075-.130)	265
		05-06	.030 (.027-.033)	.029 (.026-.031)	.040 (.036-.045)	.057 (.050-.069)	.079 (.062-.097)	777
		07-08	*	.025 (<LOD-.028)	.032 (.030-.038)	.060 (.038-.140)	.121 (.052-.210)	561
Non-Hispanic blacks	01-02	*	< LOD	.050 (<LOD-.070)	.100 (.080-.110)	.110 (.100-.160)	197	
	03-04	*	< LOD	< LOD	.065 (.055-.078)	.084 (.068-.100)	301	
	05-06	.035 (.033-.038)	.034 (.031-.038)	.049 (.045-.054)	.073 (.064-.077)	.088 (.078-.100)	824	
	07-08	*	.027 (<LOD-.035)	.041 (.032-.054)	.066 (.045-.130)	.100 (.054-.470)	573	
Non-Hispanic whites	01-02	*	< LOD	.070 (.050-.090)	.110 (.080-.140)	.140 (.110-.180)	483	
	03-04	*	< LOD	.052 (<LOD-.058)	.073 (.066-.082)	.090 (.081-.100)	694	
	05-06	.039 (.035-.043)	.037 (.033-.041)	.056 (.049-.064)	.087 (.074-.100)	.110 (.096-.130)	1319	
	07-08	*	< LOD	.040 (.033-.048)	.063 (.052-.079)	.086 (.069-.117)	1242	

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, and 07-08 are 0.049, 0.049, 0.024, and 0.024, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Xylenes\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Xylenes_BiomonitoringSummary.html)

## Urinary N-Acetyl-S-(2-carboxyethyl)-L-cysteine (2011 - 2012)

*Metabolite of Acrolein*

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Total</b>	11-12	<b>96.5</b> (88.6-105)	<b>100</b> (93.6-109)	<b>195</b> (179-215)	<b>354</b> (320-405)	<b>494</b> (432-603)	2466
<b>Age group</b>							
6-11 years	11-12	<b>77.5</b> (68.2-87.9)	<b>79.2</b> (62.6-98.4)	<b>158</b> (136-181)	<b>257</b> (217-330)	<b>358</b> (267-528)	394
12-19 years	11-12	<b>81.8</b> (64.8-103)	<b>94.2</b> (70.7-109)	<b>159</b> (122-205)	<b>279</b> (217-322)	<b>414</b> (315-473)	384
20 years and older	11-12	<b>101</b> (92.3-111)	<b>104</b> (94.6-118)	<b>205</b> (184-228)	<b>377</b> (324-432)	<b>527</b> (445-685)	1688
<b>Gender</b>							
Males	11-12	<b>116</b> (106-128)	<b>118</b> (107-126)	<b>216</b> (191-252)	<b>381</b> (343-448)	<b>528</b> (474-620)	1251
Females	11-12	<b>80.5</b> (71.5-90.7)	<b>82.3</b> (71.2-94.6)	<b>178</b> (156-195)	<b>321</b> (262-386)	<b>447</b> (371-654)	1215
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>90.3</b> (77.9-105)	<b>88.2</b> (82.2-101)	<b>158</b> (130-187)	<b>270</b> (199-343)	<b>399</b> (270-615)	313
Non-Hispanic blacks	11-12	<b>142</b> (129-156)	<b>150</b> (135-163)	<b>260</b> (238-288)	<b>404</b> (350-468)	<b>581</b> (491-665)	662
Non-Hispanic whites	11-12	<b>93.0</b> (82.6-105)	<b>96.7</b> (87.5-109)	<b>193</b> (166-222)	<b>367</b> (310-416)	<b>494</b> (431-642)	810
All Hispanics	11-12	<b>88.6</b> (76.2-103)	<b>91.4</b> (77.7-109)	<b>161</b> (130-190)	<b>291</b> (228-341)	<b>411</b> (325-512)	566
Asians	11-12	<b>73.2</b> (66.7-80.2)	<b>77.6</b> (67.6-86.3)	<b>135</b> (123-161)	<b>257</b> (198-314)	<b>366</b> (286-476)	341

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 8.0.



## Urinary N-Acetyl-S-(2-carboxyethyl)-L-cysteine (creatinine corrected) (2011 - 2012)

*Metabolite of Acrolein*

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Total</b>	11-12	<b>110</b> (103-118)	<b>103</b> (96.3-107)	<b>176</b> (162-190)	<b>311</b> (266-359)	<b>454</b> (369-538)	2464
<b>Age group</b>							
6-11 years	11-12	<b>111</b> (102-120)	<b>108</b> (98.5-119)	<b>176</b> (163-191)	<b>248</b> (226-295)	<b>338</b> (253-357)	393
12-19 years	11-12	<b>79.6</b> (71.0-89.3)	<b>75.3</b> (66.5-83.5)	<b>116</b> (95.6-138)	<b>175</b> (141-249)	<b>249</b> (163-345)	384
20 years and older	11-12	<b>116</b> (107-125)	<b>107</b> (102-113)	<b>185</b> (172-196)	<b>346</b> (284-404)	<b>509</b> (409-633)	1687
<b>Gender</b>							
Males	11-12	<b>109</b> (102-117)	<b>98.1</b> (88.7-110)	<b>172</b> (153-190)	<b>309</b> (262-361)	<b>434</b> (359-531)	1250
Females	11-12	<b>111</b> (100-123)	<b>105</b> (98.3-112)	<b>180</b> (166-194)	<b>320</b> (253-407)	<b>493</b> (353-744)	1214
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>102</b> (88.4-118)	<b>96.0</b> (85.2-109)	<b>153</b> (129-184)	<b>232</b> (185-330)	<b>337</b> (221-512)	313
Non-Hispanic blacks	11-12	<b>111</b> (103-118)	<b>108</b> (102-114)	<b>173</b> (154-187)	<b>267</b> (231-297)	<b>352</b> (284-428)	662
Non-Hispanic whites	11-12	<b>114</b> (104-125)	<b>105</b> (95.4-112)	<b>187</b> (165-207)	<b>351</b> (289-410)	<b>531</b> (423-629)	808
All Hispanics	11-12	<b>99.1</b> (89.2-110)	<b>95.0</b> (85.8-103)	<b>151</b> (138-163)	<b>231</b> (206-272)	<b>324</b> (235-397)	566
Asians	11-12	<b>97.9</b> (91.4-105)	<b>97.6</b> (88.2-103)	<b>145</b> (132-161)	<b>225</b> (196-270)	<b>335</b> (264-445)	341

## Urinary N-Acetyl-S-(3-hydroxypropyl)-L-cysteine (2011 - 2012)

*Metabolite of Acrolein*

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Total</b>	11-12	<b>296</b> (273-321)	<b>277</b> (251-306)	<b>575</b> (509-652)	<b>1270</b> (1110-1490)	<b>2080</b> (1790-2630)	2466
<b>Age group</b>							
6-11 years	11-12	<b>222</b> (199-248)	<b>224</b> (194-270)	<b>452</b> (378-518)	<b>697</b> (600-808)	<b>894</b> (795-1090)	394
12-19 years	11-12	<b>252</b> (203-313)	<b>249</b> (190-338)	<b>499</b> (391-620)	<b>900</b> (653-1160)	<b>1470</b> (876-1970)	384
20 years and older	11-12	<b>313</b> (289-339)	<b>290</b> (265-321)	<b>616</b> (555-702)	<b>1430</b> (1250-1620)	<b>2440</b> (2040-2900)	1688
<b>Gender</b>							
Males	11-12	<b>355</b> (327-386)	<b>330</b> (297-355)	<b>622</b> (548-724)	<b>1300</b> (1110-1740)	<b>2170</b> (1880-3170)	1251
Females	11-12	<b>248</b> (220-280)	<b>217</b> (195-250)	<b>524</b> (450-615)	<b>1200</b> (976-1610)	<b>1940</b> (1690-2630)	1215
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>290</b> (243-346)	<b>294</b> (241-374)	<b>549</b> (458-620)	<b>952</b> (742-1110)	<b>1380</b> (952-1930)	313
Non-Hispanic blacks	11-12	<b>372</b> (326-425)	<b>353</b> (315-391)	<b>727</b> (592-841)	<b>1440</b> (1140-1820)	<b>2210</b> (1820-2670)	662
Non-Hispanic whites	11-12	<b>281</b> (251-314)	<b>256</b> (228-290)	<b>558</b> (482-648)	<b>1300</b> (1030-1640)	<b>2300</b> (1770-2900)	810
All Hispanics	11-12	<b>280</b> (245-321)	<b>280</b> (225-345)	<b>523</b> (469-581)	<b>969</b> (768-1140)	<b>1400</b> (975-2020)	566
Asians	11-12	<b>329</b> (303-357)	<b>316</b> (264-394)	<b>731</b> (577-852)	<b>1220</b> (976-1490)	<b>1690</b> (1350-2560)	341

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 13.0.

## Urinary N-Acetyl-S-(3-hydroxypropyl)-L-cysteine (creatinine corrected) (2011 - 2012)

*Metabolite of Acrolein*

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Total</b>	11-12	<b>338</b> (314-363)	<b>276</b> (259-297)	<b>545</b> (501-590)	<b>1220</b> (1030-1410)	<b>2190</b> (1800-2730)	2464
<b>Age group</b>							
6-11 years	11-12	<b>316</b> (295-339)	<b>304</b> (273-329)	<b>478</b> (415-519)	<b>706</b> (573-826)	<b>1020</b> (737-1240)	393
12-19 years	11-12	<b>246</b> (213-284)	<b>222</b> (186-273)	<b>361</b> (302-452)	<b>584</b> (466-816)	<b>868</b> (584-1220)	384
20 years and older	11-12	<b>357</b> (333-383)	<b>286</b> (263-307)	<b>612</b> (563-664)	<b>1450</b> (1190-1750)	<b>2690</b> (2110-3030)	1687
<b>Gender</b>							
Males	11-12	<b>334</b> (309-360)	<b>271</b> (256-296)	<b>521</b> (462-589)	<b>1090</b> (884-1370)	<b>1870</b> (1490-2600)	1250
Females	11-12	<b>342</b> (306-381)	<b>284</b> (250-318)	<b>564</b> (501-622)	<b>1380</b> (1040-1750)	<b>2440</b> (1910-2990)	1214
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>327</b> (277-386)	<b>294</b> (255-347)	<b>482</b> (421-578)	<b>816</b> (651-1000)	<b>1090</b> (815-1840)	313
Non-Hispanic blacks	11-12	<b>290</b> (264-318)	<b>241</b> (219-284)	<b>434</b> (395-517)	<b>923</b> (772-1130)	<b>1370</b> (1110-1790)	662
Non-Hispanic whites	11-12	<b>343</b> (312-378)	<b>272</b> (253-296)	<b>551</b> (492-622)	<b>1450</b> (1090-1800)	<b>2690</b> (1920-3060)	808
All Hispanics	11-12	<b>314</b> (282-349)	<b>286</b> (251-313)	<b>484</b> (446-533)	<b>850</b> (754-967)	<b>1150</b> (947-1600)	566
Asians	11-12	<b>440</b> (400-484)	<b>407</b> (350-463)	<b>742</b> (618-840)	<b>1300</b> (1000-1550)	<b>1840</b> (1370-3240)	341

## Urinary N-Acetyl-S-(2-carbamoylethyl)-L-cysteine (2011 - 2012)

Metabolite of Acrylamide

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>46.6</b> (43.6-49.9)	<b>45.9</b> (43.1-48.9)	<b>88.4</b> (82.8-95.9)	<b>170</b> (155-195)	<b>276</b> (211-370)	2466
<b>Age group</b>							
6-11 years	11-12	<b>39.6</b> (36.0-43.5)	<b>44.5</b> (40.0-51.5)	<b>69.8</b> (60.5-82.2)	<b>111</b> (96.8-126)	<b>139</b> (122-187)	394
12-19 years	11-12	<b>53.5</b> (45.2-63.4)	<b>49.8</b> (41.9-66.3)	<b>119</b> (95.2-142)	<b>168</b> (158-202)	<b>279</b> (168-439)	384
20 years and older	11-12	<b>46.5</b> (42.6-50.7)	<b>45.2</b> (42.4-49.0)	<b>85.8</b> (79.9-97.4)	<b>181</b> (154-208)	<b>285</b> (221-384)	1688
<b>Gender</b>							
Males	11-12	<b>55.6</b> (50.8-60.9)	<b>53.4</b> (48.8-59.8)	<b>101</b> (84.9-116)	<b>177</b> (157-215)	<b>276</b> (220-382)	1251
Females	11-12	<b>39.3</b> (35.4-43.7)	<b>38.7</b> (34.9-42.8)	<b>75.3</b> (67.1-84.6)	<b>158</b> (127-195)	<b>272</b> (193-382)	1215
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>48.6</b> (41.6-56.9)	<b>51.5</b> (42.7-59.8)	<b>87.7</b> (75.1-108)	<b>143</b> (108-195)	<b>195</b> (143-274)	313
Non-Hispanic blacks	11-12	<b>59.3</b> (54.0-65.0)	<b>55.8</b> (49.9-62.2)	<b>115</b> (93.8-141)	<b>234</b> (178-276)	<b>349</b> (293-419)	662
Non-Hispanic whites	11-12	<b>46.4</b> (42.0-51.3)	<b>45.1</b> (41.4-49.6)	<b>87.6</b> (78.5-101)	<b>168</b> (151-202)	<b>285</b> (195-420)	810
All Hispanics	11-12	<b>43.4</b> (37.3-50.5)	<b>45.6</b> (38.7-52.2)	<b>80.0</b> (69.1-91.1)	<b>143</b> (112-186)	<b>192</b> (163-264)	566
Asians	11-12	<b>31.8</b> (27.6-36.6)	<b>33.3</b> (29.0-39.7)	<b>58.4</b> (50.1-71.9)	<b>109</b> (78.3-145)	<b>153</b> (131-200)	341

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 2.2.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Acrylamide\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Acrylamide_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Acrylamide\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Acrylamide_FactSheet.html)

## Urinary N-Acetyl-S-(2-carbamoylethyl)-L-cysteine (creatinine corrected) (2011 - 2012)

*Metabolite of Acrylamide*

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Total</b>	11-12	<b>53.3</b> (50.3-56.4)	<b>49.5</b> (47.4-51.7)	<b>82.0</b> (76.6-89.4)	<b>146</b> (127-168)	<b>199</b> (167-237)	2464
<b>Age group</b>							
6-11 years	11-12	<b>56.8</b> (53.5-60.4)	<b>52.8</b> (50.9-56.2)	<b>77.9</b> (70.3-84.6)	<b>119</b> (105-143)	<b>173</b> (121-202)	393
12-19 years	11-12	<b>52.1</b> (46.3-58.7)	<b>48.2</b> (42.5-53.3)	<b>81.1</b> (66.5-94.7)	<b>133</b> (105-203)	<b>203</b> (128-366)	384
20 years and older	11-12	<b>53.1</b> (49.7-56.6)	<b>49.0</b> (46.0-52.0)	<b>83.1</b> (76.6-91.5)	<b>150</b> (129-173)	<b>199</b> (162-262)	1687
<b>Gender</b>							
Males	11-12	<b>52.3</b> (49.0-55.8)	<b>48.4</b> (43.4-54.6)	<b>82.5</b> (73.5-92.8)	<b>145</b> (124-159)	<b>187</b> (159-230)	1250
Females	11-12	<b>54.3</b> (49.5-59.6)	<b>50.3</b> (46.8-53.7)	<b>82.0</b> (73.7-93.9)	<b>155</b> (127-175)	<b>210</b> (170-283)	1214
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>54.9</b> (45.6-66.1)	<b>53.2</b> (45.3-61.0)	<b>86.8</b> (69.9-104)	<b>137</b> (104-183)	<b>183</b> (135-215)	313
Non-Hispanic blacks	11-12	<b>46.2</b> (42.7-50.0)	<b>43.2</b> (41.0-46.4)	<b>74.7</b> (66.4-80.8)	<b>134</b> (110-156)	<b>175</b> (148-210)	662
Non-Hispanic whites	11-12	<b>56.8</b> (52.7-61.2)	<b>51.7</b> (48.5-55.3)	<b>88.1</b> (79.3-98.1)	<b>159</b> (129-186)	<b>215</b> (170-306)	808
All Hispanics	11-12	<b>48.6</b> (41.8-56.3)	<b>46.4</b> (42.0-50.7)	<b>76.5</b> (65.7-87.6)	<b>122</b> (101-143)	<b>173</b> (127-215)	566
Asians	11-12	<b>42.5</b> (38.4-47.0)	<b>40.9</b> (35.5-45.1)	<b>69.0</b> (58.1-79.3)	<b>106</b> (94.3-126)	<b>154</b> (124-166)	341

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Acrylamide\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Acrylamide_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Acrylamide\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Acrylamide_FactSheet.html)

## Urinary N-Acetyl-S-(2-carbamoyl-2-hydroxyethyl)-L-cysteine (2011 - 2012)

Metabolite of Acrylamide

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	15.4 (14.5-16.3)	14.7 (13.7-15.6)	24.6 (22.5-26.9)	44.2 (41.8-48.0)	64.1 (54.1-78.0)	2466
<b>Age group</b>							
6-11 years	11-12	15.3 (14.0-16.6)	15.9 (13.9-18.2)	23.9 (21.8-26.3)	38.1 (31.0-45.1)	50.9 (36.5-60.8)	394
12-19 years	11-12	16.6 (14.5-19.0)	16.4 (12.0-20.4)	27.8 (22.9-35.5)	49.0 (38.5-65.4)	68.0 (52.0-85.0)	384
20 years and older	11-12	15.2 (14.3-16.3)	14.3 (13.0-15.7)	24.1 (21.8-26.7)	43.5 (39.7-49.0)	64.5 (52.2-85.2)	1688
<b>Gender</b>							
Males	11-12	16.6 (15.3-18.0)	16.1 (14.5-17.7)	26.3 (24.1-29.7)	43.6 (39.7-48.8)	63.4 (52.5-74.8)	1251
Females	11-12	14.3 (13.3-15.3)	12.8 (11.5-14.4)	22.4 (21.0-25.4)	44.8 (36.6-50.6)	66.5 (50.7-88.9)	1215
<b>Race/ethnicity</b>							
Mexican Americans	11-12	15.9 (14.2-17.9)	16.5 (15.1-17.9)	25.2 (21.9-30.2)	38.7 (30.2-51.9)	51.9 (38.7-71.5)	313
Non-Hispanic blacks	11-12	17.6 (16.0-19.4)	16.8 (15.2-19.6)	29.2 (24.5-34.7)	53.0 (45.4-62.6)	74.8 (64.0-90.8)	662
Non-Hispanic whites	11-12	15.5 (14.2-16.8)	14.5 (13.0-16.4)	25.0 (21.7-28.8)	44.9 (40.9-49.0)	66.3 (50.6-91.7)	810
All Hispanics	11-12	14.8 (13.4-16.3)	15.0 (12.9-15.9)	23.4 (20.8-26.5)	37.9 (30.2-50.1)	51.9 (41.2-64.2)	566
Asians	11-12	*	< LOD	17.2 (14.5-19.0)	24.1 (22.4-26.8)	29.9 (25.5-41.7)	341

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 9.4.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Acrylamide\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Acrylamide_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Acrylamide\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Acrylamide_FactSheet.html)

## Urinary N-Acetyl-S-(2-carbamoyl-2-hydroxyethyl)-L-cysteine (creatinine corrected) (2011 - 2012)

Metabolite of Acrylamide

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	17.6 (16.6-18.6)	16.6 (15.9-17.5)	26.6 (24.6-27.7)	39.3 (36.6-44.3)	59.8 (50.0-66.5)	2464
<b>Age group</b>							
6-11 years	11-12	21.8 (20.1-23.7)	20.1 (19.0-21.5)	29.5 (27.6-32.2)	42.3 (36.6-52.6)	57.6 (40.0-76.1)	393
12-19 years	11-12	16.2 (14.2-18.4)	14.8 (13.2-16.2)	21.9 (19.0-26.6)	39.7 (29.6-67.7)	69.5 (37.5-95.0)	384
20 years and older	11-12	17.4 (16.4-18.4)	16.6 (15.6-17.5)	26.6 (24.6-27.7)	39.1 (36.5-44.1)	59.1 (44.6-66.7)	1687
<b>Gender</b>							
Males	11-12	15.6 (14.7-16.5)	14.8 (14.1-15.5)	22.9 (20.7-24.9)	36.0 (33.3-38.5)	46.0 (39.1-55.4)	1250
Females	11-12	19.7 (18.3-21.2)	19.0 (17.5-20.3)	28.8 (27.0-31.6)	47.5 (38.9-59.5)	66.7 (58.2-73.9)	1214
<b>Race/ethnicity</b>							
Mexican Americans	11-12	18.0 (15.5-20.8)	17.5 (14.9-20.3)	24.9 (21.3-30.2)	35.1 (28.9-45.5)	48.4 (33.4-62.0)	313
Non-Hispanic blacks	11-12	13.7 (12.6-15.0)	13.5 (12.1-14.6)	21.0 (18.9-23.8)	34.0 (29.3-37.4)	42.1 (38.9-44.3)	662
Non-Hispanic whites	11-12	18.9 (17.7-20.2)	17.7 (16.6-19.0)	27.7 (26.6-28.9)	41.6 (36.9-54.1)	63.9 (55.6-70.0)	808
All Hispanics	11-12	16.5 (14.8-18.5)	16.0 (13.9-18.5)	23.5 (20.4-27.7)	35.0 (30.6-39.8)	44.3 (35.1-55.4)	566
Asians	11-12	*	< LOD	22.0 (18.8-24.1)	31.7 (27.0-37.3)	44.3 (31.8-51.2)	341

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Acrylamide\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Acrylamide_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Acrylamide\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Acrylamide_FactSheet.html)



## Urinary N-Acetyl-S-(2-cyanoethyl)-L-cysteine (2011 - 2012)

*Metabolite of Acrylonitrile*

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Total</b>	11-12	<b>3.40</b> (2.97-3.90)	<b>1.71</b> (1.61-1.86)	<b>5.42</b> (4.03-8.55)	<b>136</b> (100-172)	<b>276</b> (238-323)	2466
<b>Age group</b>							
6-11 years	11-12	<b>1.47</b> (1.35-1.60)	<b>1.38</b> (1.30-1.58)	<b>2.44</b> (2.18-2.90)	<b>4.27</b> (3.15-5.40)	<b>6.71</b> (4.26-9.62)	394
12-19 years	11-12	<b>2.65</b> (2.07-3.39)	<b>1.68</b> (1.36-2.13)	<b>3.79</b> (2.90-5.85)	<b>40.6</b> (9.71-88.9)	<b>135</b> (43.9-276)	384
20 years and older	11-12	<b>3.87</b> (3.32-4.52)	<b>1.78</b> (1.61-1.98)	<b>10.3</b> (5.71-19.9)	<b>164</b> (131-203)	<b>310</b> (239-385)	1688
<b>Gender</b>							
Males	11-12	<b>4.27</b> (3.60-5.06)	<b>2.14</b> (1.92-2.35)	<b>9.79</b> (5.39-17.1)	<b>166</b> (117-207)	<b>294</b> (217-439)	1251
Females	11-12	<b>2.73</b> (2.16-3.46)	<b>1.42</b> (1.26-1.61)	<b>3.72</b> (2.83-5.55)	<b>118</b> (74.4-142)	<b>260</b> (142-310)	1215
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>2.51</b> (1.88-3.36)	<b>1.61</b> (1.31-1.87)	<b>3.50</b> (2.74-6.61)	<b>51.6</b> (12.6-105)	<b>105</b> (38.8-174)	313
Non-Hispanic blacks	11-12	<b>5.02</b> (3.99-6.32)	<b>2.63</b> (2.16-3.11)	<b>9.18</b> (5.27-24.4)	<b>166</b> (123-228)	<b>339</b> (234-429)	662
Non-Hispanic whites	11-12	<b>3.46</b> (2.95-4.07)	<b>1.63</b> (1.47-1.82)	<b>6.33</b> (3.97-12.6)	<b>146</b> (117-203)	<b>280</b> (228-350)	810
All Hispanics	11-12	<b>2.57</b> (2.01-3.28)	<b>1.57</b> (1.41-1.79)	<b>3.49</b> (2.78-5.42)	<b>58.5</b> (17.3-105)	<b>158</b> (74.3-253)	566
Asians	11-12	<b>1.90</b> (1.65-2.21)	<b>1.40</b> (1.24-1.65)	<b>2.73</b> (2.18-3.10)	<b>12.3</b> (4.53-48.4)	<b>91.4</b> (24.4-133)	341

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 0.5.

## Urinary N-Acetyl-S-(2-cyanoethyl)-L-cysteine (creatinine corrected) (2011 - 2012)

*Metabolite of Acrylonitrile*

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Total</b>	11-12	<b>3.89</b> (3.44-4.40)	<b>1.83</b> (1.73-1.93)	<b>5.28</b> (4.08-7.59)	<b>157</b> (119-194)	<b>256</b> (224-300)	2464
<b>Age group</b>							
6-11 years	11-12	<b>2.11</b> (1.91-2.33)	<b>2.00</b> (1.81-2.22)	<b>2.95</b> (2.53-3.59)	<b>5.00</b> (3.92-5.78)	<b>6.31</b> (5.74-7.95)	393
12-19 years	11-12	<b>2.58</b> (2.10-3.18)	<b>1.73</b> (1.51-1.88)	<b>3.28</b> (2.35-5.84)	<b>19.3</b> (7.61-58.9)	<b>157</b> (17.6-228)	384
20 years and older	11-12	<b>4.43</b> (3.85-5.09)	<b>1.82</b> (1.66-2.00)	<b>8.86</b> (5.46-20.6)	<b>188</b> (151-224)	<b>292</b> (238-339)	1687
<b>Gender</b>							
Males	11-12	<b>4.02</b> (3.34-4.83)	<b>1.76</b> (1.61-1.93)	<b>7.71</b> (4.18-20.2)	<b>153</b> (116-220)	<b>238</b> (220-278)	1250
Females	11-12	<b>3.77</b> (3.01-4.73)	<b>1.87</b> (1.71-2.09)	<b>4.37</b> (3.22-6.59)	<b>158</b> (86.4-228)	<b>292</b> (229-315)	1214
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>2.84</b> (2.20-3.66)	<b>1.65</b> (1.49-1.86)	<b>3.52</b> (2.40-7.27)	<b>41.8</b> (20.0-93.2)	<b>128</b> (39.4-345)	313
Non-Hispanic blacks	11-12	<b>3.91</b> (3.18-4.81)	<b>1.92</b> (1.74-2.10)	<b>7.14</b> (3.58-33.5)	<b>120</b> (92.2-139)	<b>199</b> (145-241)	662
Non-Hispanic whites	11-12	<b>4.25</b> (3.67-4.92)	<b>1.85</b> (1.74-1.97)	<b>6.40</b> (4.02-13.7)	<b>200</b> (157-230)	<b>292</b> (238-342)	808
All Hispanics	11-12	<b>2.88</b> (2.37-3.49)	<b>1.62</b> (1.53-1.78)	<b>3.38</b> (2.65-4.56)	<b>54.1</b> (31.6-91.7)	<b>146</b> (67.8-230)	566
Asians	11-12	<b>2.55</b> (2.26-2.87)	<b>1.76</b> (1.61-2.15)	<b>3.50</b> (2.89-4.18)	<b>13.0</b> (5.64-37.8)	<b>68.0</b> (26.8-98.5)	341

## Urinary N-Acetyl-S-(2-hydroxyethyl)-L-cysteine (2011 - 2012)

Metabolite of Acrylonitrile, Ethylene oxide, and Vinyl chloride

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	<b>.697</b> (.618-.792)	<b>1.33</b> (1.21-1.46)	<b>2.77</b> (2.39-3.47)	<b>4.61</b> (3.96-5.26)	2466
<b>Age group</b>							
6-11 years	11-12	<b>.904</b> (.800-1.02)	<b>.888</b> (.740-.961)	<b>1.42</b> (1.22-1.75)	<b>2.42</b> (2.05-2.96)	<b>3.44</b> (2.59-3.82)	394
12-19 years	11-12	<b>.963</b> (.841-1.10)	<b>.898</b> (.697-1.00)	<b>1.57</b> (1.26-1.95)	<b>2.82</b> (2.17-4.01)	<b>4.53</b> (3.66-5.54)	384
20 years and older	11-12	*	<b>.678</b> (<LOD-.766)	<b>1.28</b> (1.09-1.47)	<b>2.81</b> (2.32-3.57)	<b>4.86</b> (4.01-5.73)	1688
<b>Gender</b>							
Males	11-12	*	<b>.694</b> (<LOD-.829)	<b>1.29</b> (1.12-1.47)	<b>2.51</b> (2.00-3.04)	<b>3.96</b> (3.16-5.04)	1251
Females	11-12	*	<b>.714</b> (<LOD-.852)	<b>1.38</b> (1.19-1.63)	<b>3.38</b> (2.59-3.84)	<b>5.08</b> (3.84-6.49)	1215
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>.907</b> (.792-1.04)	<b>.788</b> (.693-.910)	<b>1.40</b> (1.12-1.68)	<b>2.94</b> (2.14-3.66)	<b>3.91</b> (3.57-4.82)	313
Non-Hispanic blacks	11-12	<b>1.08</b> (.965-1.21)	<b>.976</b> (.835-1.14)	<b>1.81</b> (1.51-2.16)	<b>3.57</b> (2.71-5.26)	<b>6.40</b> (4.81-7.41)	662
Non-Hispanic whites	11-12	*	<b>.669</b> (<LOD-.766)	<b>1.24</b> (1.08-1.41)	<b>2.72</b> (2.17-3.47)	<b>4.55</b> (3.75-5.54)	810
All Hispanics	11-12	*	<b>.730</b> (.647-.817)	<b>1.32</b> (1.10-1.59)	<b>2.61</b> (2.16-3.45)	<b>3.91</b> (2.94-5.25)	566
Asians	11-12	*	<b>&lt; LOD</b>	<b>.977</b> (.858-1.06)	<b>1.75</b> (1.22-2.05)	<b>2.51</b> (1.90-3.58)	341

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 0.6.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

## Urinary N-Acetyl-S-(2-hydroxyethyl)-L-cysteine (creatinine corrected) (2011 - 2012)

Metabolite of Acrylonitrile, Ethylene oxide, and Vinyl chloride

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	<b>.941</b> (.883-1.01)	<b>1.70</b> (1.57-1.82)	<b>3.11</b> (2.81-3.43)	<b>4.75</b> (3.86-5.69)	2464
<b>Age group</b>							
6-11 years	11-12	<b>1.28</b> (1.13-1.44)	<b>1.29</b> (1.11-1.43)	<b>2.00</b> (1.70-2.36)	<b>2.95</b> (2.46-3.48)	<b>3.86</b> (2.83-5.26)	393
12-19 years	11-12	<b>.938</b> (.853-1.03)	<b>.883</b> (.753-.959)	<b>1.52</b> (1.22-1.87)	<b>2.69</b> (2.10-4.11)	<b>4.71</b> (2.92-6.06)	384
20 years and older	11-12	*	<b>.912</b> (<LOD-1.00)	<b>1.63</b> (1.51-1.83)	<b>3.23</b> (2.85-3.57)	<b>5.15</b> (3.94-5.74)	1687
<b>Gender</b>							
Males	11-12	*	<b>.744</b> (<LOD-.846)	<b>1.33</b> (1.17-1.54)	<b>2.49</b> (2.29-2.65)	<b>3.66</b> (3.03-4.41)	1250
Females	11-12	*	<b>1.12</b> (<LOD-1.21)	<b>1.96</b> (1.74-2.23)	<b>3.80</b> (2.93-5.26)	<b>5.50</b> (3.95-8.67)	1214
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>1.02</b> (.885-1.19)	<b>.964</b> (.865-1.11)	<b>1.71</b> (1.43-1.96)	<b>3.02</b> (2.23-4.21)	<b>4.51</b> (3.14-5.45)	313
Non-Hispanic blacks	11-12	<b>.841</b> (.774-.913)	<b>.749</b> (.674-.861)	<b>1.50</b> (1.28-1.65)	<b>2.83</b> (2.43-3.24)	<b>4.00</b> (3.35-4.43)	662
Non-Hispanic whites	11-12	*	<b>.986</b> (<LOD-1.06)	<b>1.70</b> (1.57-1.91)	<b>3.25</b> (2.65-3.86)	<b>5.15</b> (3.41-6.58)	808
All Hispanics	11-12	*	<b>.918</b> (.831-1.05)	<b>1.60</b> (1.38-1.83)	<b>2.76</b> (2.22-3.41)	<b>4.35</b> (3.11-5.19)	566
Asians	11-12	*	<b>&lt; LOD</b>	<b>1.46</b> (1.28-1.88)	<b>2.49</b> (1.93-3.26)	<b>3.59</b> (2.50-6.06)	341

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

## Urinary N-Acetyl-S-(phenyl)-L-cysteine (2011 - 2012)

Metabolite of Benzene

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	1.07 (.985-1.14)	1.95 (1.72-2.30)	3.01 (2.65-3.32)	2466
<b>Age group</b>							
6-11 years	11-12	*	< LOD	1.28 (1.10-1.52)	2.36 (1.93-2.63)	2.98 (2.40-3.67)	394
12-19 years	11-12	*	< LOD	1.12 (.963-1.41)	1.96 (1.57-2.52)	2.81 (2.03-3.27)	384
20 years and older	11-12	*	< LOD	1.02 (.943-1.12)	1.91 (1.63-2.40)	3.05 (2.56-3.45)	1688
<b>Gender</b>							
Males	11-12	*	.645 (<LOD-.765)	1.20 (1.07-1.28)	2.12 (1.76-2.51)	3.11 (2.65-3.76)	1251
Females	11-12	*	< LOD	.964 (.834-1.07)	1.91 (1.56-2.38)	2.84 (2.12-3.32)	1215
<b>Race/ethnicity</b>							
Mexican Americans	11-12	*	.661 (<LOD-.958)	1.44 (.995-1.68)	2.54 (1.75-2.93)	2.96 (2.52-5.19)	313
Non-Hispanic blacks	11-12	*	< LOD	1.05 (.963-1.16)	1.84 (1.59-2.11)	2.62 (2.19-3.06)	662
Non-Hispanic whites	11-12	*	< LOD	1.04 (.931-1.13)	1.92 (1.61-2.40)	3.08 (2.44-3.50)	810
All Hispanics	11-12	*	< LOD	1.20 (1.00-1.45)	2.26 (1.75-2.62)	2.85 (2.49-3.33)	566
Asians	11-12	*	< LOD	.932 (.806-1.09)	1.84 (1.45-2.16)	2.56 (2.13-3.48)	341

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 0.6.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Benzene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Benzene_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Benzene\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Benzene_FactSheet.html)

## Urinary N-Acetyl-S-(phenyl)-L-cysteine (creatinine corrected) (2011 - 2012)

Metabolite of Benzene

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	1.29 (1.18-1.41)	2.10 (1.86-2.37)	3.03 (2.62-3.53)	2464
<b>Age group</b>							
6-11 years	11-12	*	< LOD	1.95 (1.64-2.24)	2.68 (2.44-3.45)	3.58 (2.66-4.71)	393
12-19 years	11-12	*	< LOD	1.14 (.942-1.41)	1.70 (1.29-2.23)	2.35 (1.70-4.39)	384
20 years and older	11-12	*	< LOD	1.26 (1.15-1.39)	2.02 (1.77-2.42)	3.03 (2.50-3.53)	1687
<b>Gender</b>							
Males	11-12	*	.704 (<LOD-.771)	1.12 (1.00-1.25)	1.89 (1.64-2.21)	2.55 (2.23-2.98)	1250
Females	11-12	*	< LOD	1.46 (1.30-1.62)	2.35 (2.02-2.73)	3.46 (2.73-4.71)	1214
<b>Race/ethnicity</b>							
Mexican Americans	11-12	*	.883 (<LOD-.986)	1.45 (1.15-1.82)	2.15 (1.66-3.04)	3.04 (1.93-5.59)	313
Non-Hispanic blacks	11-12	*	< LOD	.847 (.742-.924)	1.35 (1.18-1.57)	1.88 (1.57-2.36)	662
Non-Hispanic whites	11-12	*	< LOD	1.36 (1.22-1.46)	2.23 (1.92-2.55)	3.26 (2.55-4.15)	808
All Hispanics	11-12	*	< LOD	1.34 (1.11-1.64)	1.93 (1.68-2.62)	2.68 (2.04-3.39)	566
Asians	11-12	*	< LOD	1.46 (1.27-1.66)	2.23 (1.91-3.03)	3.03 (2.37-4.95)	341

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Benzene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Benzene_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Benzene\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Benzene_FactSheet.html)

## Urinary N-Acetyl-S-(n-propyl)-L-cysteine (2011 - 2012)

Metabolite of 1-Bromopropane

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>4.08</b> (3.67-4.52)	<b>3.70</b> (3.18-4.14)	<b>10.3</b> (8.86-11.8)	<b>26.5</b> (23.0-29.9)	<b>43.7</b> (37.0-60.9)	2396
<b>Age group</b>							
6-11 years	11-12	<b>2.44</b> (2.15-2.78)	<b>1.74</b> (1.44-2.30)	<b>5.09</b> (4.38-6.26)	<b>12.1</b> (8.91-20.7)	<b>24.8</b> (15.7-32.0)	387
12-19 years	11-12	<b>3.13</b> (2.41-4.08)	<b>2.46</b> (1.50-4.28)	<b>7.10</b> (4.72-10.3)	<b>18.1</b> (11.1-31.5)	<b>31.6</b> (18.1-49.3)	366
20 years and older	11-12	<b>4.48</b> (4.00-5.02)	<b>4.10</b> (3.64-4.63)	<b>11.4</b> (9.69-13.8)	<b>28.9</b> (24.6-33.1)	<b>49.7</b> (36.1-72.4)	1643
<b>Gender</b>							
Males	11-12	<b>4.27</b> (3.73-4.89)	<b>3.75</b> (3.13-4.51)	<b>10.4</b> (8.86-12.2)	<b>28.4</b> (23.0-33.9)	<b>48.9</b> (33.1-72.9)	1218
Females	11-12	<b>3.90</b> (3.44-4.41)	<b>3.58</b> (2.85-4.23)	<b>10.2</b> (8.23-12.7)	<b>24.8</b> (20.2-30.2)	<b>43.0</b> (32.4-52.3)	1178
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>5.51</b> (4.37-6.95)	<b>5.59</b> (4.13-8.24)	<b>14.3</b> (11.1-20.8)	<b>29.0</b> (22.3-40.5)	<b>40.5</b> (28.2-60.8)	293
Non-Hispanic blacks	11-12	<b>5.15</b> (4.24-6.27)	<b>4.52</b> (3.51-5.67)	<b>13.1</b> (10.3-16.4)	<b>38.3</b> (27.3-52.2)	<b>66.0</b> (43.0-93.2)	655
Non-Hispanic whites	11-12	<b>3.52</b> (3.10-3.99)	<b>3.09</b> (2.38-3.75)	<b>8.33</b> (6.46-10.5)	<b>21.7</b> (17.5-27.4)	<b>39.6</b> (25.8-61.8)	795
All Hispanics	11-12	<b>5.18</b> (4.34-6.20)	<b>5.16</b> (4.22-6.36)	<b>12.9</b> (11.1-17.2)	<b>28.9</b> (24.0-34.9)	<b>43.5</b> (33.7-60.8)	544
Asians	11-12	<b>6.94</b> (5.71-8.45)	<b>6.33</b> (4.70-9.11)	<b>20.9</b> (16.9-27.0)	<b>42.2</b> (32.8-58.0)	<b>69.7</b> (48.9-98.7)	316

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 1.2.



## Urinary N-Acetyl-S-(n-propyl)-L-cysteine (creatinine corrected) (2011 - 2012)

*Metabolite of 1-Bromopropane*

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Total</b>	11-12	<b>4.64</b> (4.23-5.09)	<b>4.19</b> (3.69-4.72)	<b>11.3</b> (9.46-12.8)	<b>28.8</b> (24.2-32.7)	<b>46.1</b> (36.4-58.4)	2394
<b>Age group</b>							
6-11 years	11-12	<b>3.39</b> (3.01-3.82)	<b>3.15</b> (2.58-3.87)	<b>6.54</b> (5.46-7.71)	<b>14.0</b> (10.7-17.1)	<b>21.5</b> (14.5-30.0)	386
12-19 years	11-12	<b>3.08</b> (2.31-4.10)	<b>2.59</b> (1.74-4.24)	<b>7.14</b> (4.29-10.6)	<b>15.6</b> (9.44-23.4)	<b>23.8</b> (15.6-43.1)	366
20 years and older	11-12	<b>5.10</b> (4.61-5.64)	<b>4.72</b> (4.17-5.32)	<b>12.7</b> (11.1-13.9)	<b>31.2</b> (25.1-40.0)	<b>50.3</b> (37.9-64.4)	1642
<b>Gender</b>							
Males	11-12	<b>4.01</b> (3.59-4.47)	<b>3.59</b> (3.24-4.03)	<b>9.20</b> (7.62-11.1)	<b>24.6</b> (19.2-31.0)	<b>40.0</b> (33.8-47.6)	1217
Females	11-12	<b>5.34</b> (4.58-6.24)	<b>4.88</b> (4.12-6.06)	<b>12.9</b> (10.6-16.2)	<b>30.3</b> (25.1-37.1)	<b>50.3</b> (36.7-65.1)	1177
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>6.14</b> (5.18-7.29)	<b>5.61</b> (3.86-8.70)	<b>15.0</b> (12.5-21.8)	<b>32.4</b> (22.7-45.2)	<b>46.3</b> (27.4-67.1)	293
Non-Hispanic blacks	11-12	<b>4.02</b> (3.29-4.91)	<b>3.76</b> (2.94-4.71)	<b>9.20</b> (6.72-12.9)	<b>28.1</b> (17.7-45.7)	<b>56.6</b> (33.4-72.3)	655
Non-Hispanic whites	11-12	<b>4.30</b> (3.80-4.87)	<b>3.83</b> (3.27-4.54)	<b>9.88</b> (8.31-12.1)	<b>25.6</b> (19.1-31.0)	<b>42.2</b> (29.3-54.5)	793
All Hispanics	11-12	<b>5.76</b> (5.02-6.61)	<b>5.44</b> (4.25-6.61)	<b>13.8</b> (11.9-16.3)	<b>30.9</b> (24.8-37.6)	<b>45.8</b> (34.7-63.0)	544
Asians	11-12	<b>9.12</b> (7.40-11.2)	<b>8.93</b> (7.06-11.8)	<b>23.6</b> (16.6-36.7)	<b>54.2</b> (43.1-65.0)	<b>72.0</b> (60.4-107)	316

## Urinary N-Acetyl-S-(3,4-dihydroxybutyl)-L-cysteine (2011 - 2012)

*Metabolite of 1,3-Butadiene*

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Total</b>	11-12	<b>252</b> (235-271)	<b>271</b> (254-296)	<b>454</b> (421-482)	<b>650</b> (608-711)	<b>848</b> (751-939)	2466
<b>Age group</b>							
6-11 years	11-12	<b>255</b> (227-286)	<b>273</b> (239-334)	<b>450</b> (401-494)	<b>731</b> (533-884)	<b>903</b> (583-1430)	394
12-19 years	11-12	<b>256</b> (220-298)	<b>273</b> (224-340)	<b>506</b> (414-529)	<b>651</b> (606-687)	<b>729</b> (651-882)	384
20 years and older	11-12	<b>252</b> (232-273)	<b>271</b> (247-299)	<b>450</b> (412-481)	<b>647</b> (597-742)	<b>848</b> (751-944)	1688
<b>Gender</b>							
Males	11-12	<b>299</b> (273-326)	<b>328</b> (288-368)	<b>487</b> (458-528)	<b>697</b> (623-809)	<b>927</b> (770-1180)	1251
Females	11-12	<b>214</b> (196-234)	<b>224</b> (207-249)	<b>407</b> (370-426)	<b>604</b> (554-636)	<b>776</b> (639-879)	1215
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>248</b> (213-290)	<b>275</b> (220-334)	<b>442</b> (387-472)	<b>571</b> (502-694)	<b>730</b> (592-881)	313
Non-Hispanic blacks	11-12	<b>316</b> (291-343)	<b>356</b> (308-385)	<b>517</b> (479-563)	<b>751</b> (666-820)	<b>916</b> (843-1030)	662
Non-Hispanic whites	11-12	<b>249</b> (229-270)	<b>265</b> (231-292)	<b>454</b> (409-502)	<b>665</b> (607-745)	<b>876</b> (721-1000)	810
All Hispanics	11-12	<b>244</b> (212-280)	<b>267</b> (229-317)	<b>437</b> (384-476)	<b>562</b> (503-648)	<b>715</b> (597-813)	566
Asians	11-12	<b>186</b> (164-210)	<b>212</b> (186-238)	<b>328</b> (288-393)	<b>481</b> (425-547)	<b>602</b> (518-726)	341

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 5.0.

## Urinary N-Acetyl-S-(3,4-dihydroxybutyl)-L-cysteine (creatinine corrected) (2011 - 2012)

Metabolite of 1,3-Butadiene

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>288</b> (275-302)	<b>283</b> (271-297)	<b>374</b> (360-389)	<b>488</b> (460-518)	<b>583</b> (549-623)	2464
<b>Age group</b>							
6-11 years	11-12	<b>366</b> (341-393)	<b>366</b> (334-386)	<b>459</b> (431-507)	<b>622</b> (561-648)	<b>728</b> (631-746)	393
12-19 years	11-12	<b>249</b> (232-268)	<b>249</b> (235-259)	<b>304</b> (274-341)	<b>389</b> (341-410)	<b>418</b> (394-462)	384
20 years and older	11-12	<b>287</b> (273-302)	<b>281</b> (270-298)	<b>370</b> (357-389)	<b>484</b> (457-518)	<b>563</b> (539-623)	1687
<b>Gender</b>							
Males	11-12	<b>281</b> (266-295)	<b>275</b> (261-284)	<b>369</b> (350-389)	<b>476</b> (449-515)	<b>558</b> (509-651)	1250
Females	11-12	<b>296</b> (279-314)	<b>292</b> (275-309)	<b>378</b> (355-402)	<b>505</b> (473-530)	<b>588</b> (549-623)	1214
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>280</b> (236-333)	<b>280</b> (242-327)	<b>364</b> (327-400)	<b>473</b> (400-555)	<b>555</b> (474-625)	313
Non-Hispanic blacks	11-12	<b>246</b> (231-263)	<b>236</b> (225-252)	<b>316</b> (291-338)	<b>423</b> (376-461)	<b>501</b> (454-551)	662
Non-Hispanic whites	11-12	<b>305</b> (289-321)	<b>300</b> (284-312)	<b>395</b> (378-415)	<b>514</b> (473-554)	<b>623</b> (549-655)	808
All Hispanics	11-12	<b>273</b> (244-304)	<b>270</b> (244-297)	<b>353</b> (329-381)	<b>455</b> (415-484)	<b>522</b> (461-585)	566
Asians	11-12	<b>249</b> (234-265)	<b>243</b> (225-262)	<b>318</b> (298-342)	<b>399</b> (366-445)	<b>505</b> (410-563)	341

## Urinary N-Acetyl-S-(1-hydroxymethyl-2-propenyl)-L-cysteine (2011 - 2012)

Metabolite of 1,3-Butadiene

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2466
<b>Age group</b>							
6-11 years	11-12	*	< LOD	< LOD	< LOD	< LOD	394
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	384
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	1688
<b>Gender</b>							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	1251
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1215
<b>Race/ethnicity</b>							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	313
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	662
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	810
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	566
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	341

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 0.7.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

## Urinary N-Acetyl-S-(1-hydroxymethyl-2-propenyl)-L-cysteine (creatinine corrected) (2011 - 2012)

Metabolite of 1,3-Butadiene

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2464
<b>Age group</b>							
6-11 years	11-12	*	< LOD	< LOD	< LOD	< LOD	393
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	384
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	1687
<b>Gender</b>							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	1250
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1214
<b>Race/ethnicity</b>							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	313
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	662
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	808
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	566
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	341

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

## Urinary N-Acetyl-S-(2-hydroxy-3-butenyl)-L-cysteine (2011 - 2012)

Metabolite of 1,3-Butadiene

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	.985 (<LOD-1.33)	2.53 (2.03-3.34)	2466
<b>Age group</b>							
6-11 years	11-12	*	< LOD	< LOD	< LOD	< LOD	394
12-19 years	11-12	*	< LOD	< LOD	< LOD	1.51 (.882-2.12)	384
20 years and older	11-12	*	< LOD	< LOD	1.21 (.931-1.88)	3.23 (2.20-4.26)	1688
<b>Gender</b>							
Males	11-12	*	< LOD	< LOD	.931 (<LOD-1.25)	2.21 (1.33-3.23)	1251
Females	11-12	*	< LOD	< LOD	1.07 (<LOD-1.76)	2.90 (2.20-3.79)	1215
<b>Race/ethnicity</b>							
Mexican Americans	11-12	*	< LOD	< LOD	.785 (<LOD-1.24)	1.25 (.785-3.39)	313
Non-Hispanic blacks	11-12	*	< LOD	< LOD	.855 (<LOD-1.23)	2.71 (1.32-4.34)	662
Non-Hispanic whites	11-12	*	< LOD	< LOD	1.16 (.714-1.76)	2.90 (2.11-4.26)	810
All Hispanics	11-12	*	< LOD	< LOD	.711 (<LOD-1.23)	1.45 (.914-2.97)	566
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	341

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 0.7.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

## Urinary N-Acetyl-S-(2-hydroxy-3-butenyl)-L-cysteine (creatinine corrected) (2011 - 2012)

Metabolite of 1,3-Butadiene

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	2.15 (<LOD-2.65)	3.70 (2.75-5.20)	2464
<b>Age group</b>							
6-11 years	11-12	*	< LOD	< LOD	< LOD	< LOD	393
12-19 years	11-12	*	< LOD	< LOD	< LOD	2.61 (1.65-3.09)	384
20 years and older	11-12	*	< LOD	< LOD	2.32 (1.98-2.86)	4.27 (2.91-5.68)	1687
<b>Gender</b>							
Males	11-12	*	< LOD	< LOD	1.71 (<LOD-2.06)	2.91 (2.12-3.51)	1250
Females	11-12	*	< LOD	< LOD	2.65 (<LOD-3.30)	4.67 (3.06-6.21)	1214
<b>Race/ethnicity</b>							
Mexican Americans	11-12	*	< LOD	< LOD	1.71 (<LOD-2.32)	2.32 (1.71-4.76)	313
Non-Hispanic blacks	11-12	*	< LOD	< LOD	1.44 (<LOD-1.57)	2.06 (1.65-2.70)	662
Non-Hispanic whites	11-12	*	< LOD	< LOD	2.48 (1.98-2.91)	4.48 (2.91-5.67)	808
All Hispanics	11-12	*	< LOD	< LOD	1.98 (<LOD-2.32)	2.61 (2.15-3.30)	566
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	341

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.



## Urinary N-Acetyl-S-(4-hydroxy-2-butenyl)-L-cysteine (2011 - 2012)

Metabolite of 1,3-Butadiene

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>10.3</b> (9.31-11.5)	<b>9.74</b> (8.96-10.7)	<b>20.2</b> (17.7-23.5)	<b>56.3</b> (48.6-68.2)	<b>119</b> (90.2-142)	2466
<b>Age group</b>							
6-11 years	11-12	<b>8.29</b> (7.47-9.19)	<b>8.73</b> (7.22-10.1)	<b>16.8</b> (13.8-19.7)	<b>28.7</b> (21.2-37.8)	<b>37.8</b> (28.2-45.1)	394
12-19 years	11-12	<b>8.05</b> (6.29-10.3)	<b>9.52</b> (6.38-12.4)	<b>17.3</b> (14.6-19.4)	<b>30.9</b> (21.5-51.0)	<b>51.0</b> (27.3-105)	384
20 years and older	11-12	<b>11.0</b> (9.86-12.2)	<b>10.0</b> (9.01-11.1)	<b>21.9</b> (18.6-26.0)	<b>69.2</b> (56.2-86.2)	<b>128</b> (115-152)	1688
<b>Gender</b>							
Males	11-12	<b>12.4</b> (11.4-13.5)	<b>11.5</b> (10.7-12.8)	<b>21.5</b> (19.0-25.9)	<b>57.0</b> (46.6-75.1)	<b>120</b> (78.0-157)	1251
Females	11-12	<b>8.66</b> (7.27-10.3)	<b>7.70</b> (6.64-9.01)	<b>18.1</b> (15.4-22.6)	<b>56.2</b> (40.3-81.2)	<b>118</b> (82.7-146)	1215
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>9.25</b> (7.14-12.0)	<b>9.85</b> (7.95-12.0)	<b>19.3</b> (16.2-25.7)	<b>40.2</b> (32.7-47.7)	<b>48.9</b> (36.2-126)	313
Non-Hispanic blacks	11-12	<b>13.4</b> (12.0-15.0)	<b>12.9</b> (11.7-14.1)	<b>26.0</b> (23.6-29.1)	<b>63.6</b> (46.9-76.3)	<b>121</b> (82.1-153)	662
Non-Hispanic whites	11-12	<b>10.2</b> (8.84-11.8)	<b>9.23</b> (8.04-10.8)	<b>20.1</b> (16.3-24.5)	<b>63.0</b> (50.8-86.2)	<b>121</b> (90.9-144)	810
All Hispanics	11-12	<b>9.22</b> (7.64-11.1)	<b>9.36</b> (8.12-10.7)	<b>18.6</b> (16.6-21.9)	<b>40.5</b> (32.7-48.3)	<b>60.4</b> (45.9-94.8)	566
Asians	11-12	<b>7.81</b> (6.82-8.94)	<b>8.43</b> (7.18-9.42)	<b>15.4</b> (13.3-18.0)	<b>26.3</b> (22.2-38.8)	<b>59.9</b> (31.3-104)	341

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 0.6.

## Urinary N-Acetyl-S-(4-hydroxy-2-butenyl)-L-cysteine (creatinine corrected) (2011 - 2012)

Metabolite of 1,3-Butadiene

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>11.8</b> (10.7-13.0)	<b>9.76</b> (8.88-10.8)	<b>18.2</b> (16.2-20.7)	<b>60.4</b> (50.5-73.2)	<b>108</b> (77.1-151)	2464
<b>Age group</b>							
6-11 years	11-12	<b>11.8</b> (10.9-12.9)	<b>11.7</b> (10.8-12.6)	<b>16.6</b> (14.9-19.7)	<b>26.3</b> (21.2-32.3)	<b>34.0</b> (27.0-48.5)	393
12-19 years	11-12	<b>7.84</b> (6.60-9.31)	<b>7.83</b> (6.69-9.04)	<b>11.8</b> (10.7-14.3)	<b>21.9</b> (15.4-34.5)	<b>38.4</b> (23.0-64.3)	384
20 years and older	11-12	<b>12.5</b> (11.4-13.8)	<b>9.81</b> (8.78-11.1)	<b>20.2</b> (18.1-22.9)	<b>74.9</b> (60.4-86.0)	<b>130</b> (88.8-174)	1687
<b>Gender</b>							
Males	11-12	<b>11.6</b> (10.8-12.6)	<b>9.81</b> (8.82-10.9)	<b>18.3</b> (16.0-21.2)	<b>55.2</b> (39.6-75.1)	<b>84.7</b> (77.1-108)	1250
Females	11-12	<b>11.9</b> (10.2-14.0)	<b>9.73</b> (8.41-11.2)	<b>17.9</b> (14.3-24.1)	<b>63.4</b> (40.0-102)	<b>135</b> (92.4-171)	1214
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>10.4</b> (7.98-13.7)	<b>9.90</b> (8.41-11.5)	<b>18.0</b> (15.0-20.4)	<b>34.1</b> (24.1-55.1)	<b>59.0</b> (32.9-115)	313
Non-Hispanic blacks	11-12	<b>10.5</b> (9.64-11.4)	<b>9.14</b> (8.01-10.0)	<b>18.0</b> (15.8-21.1)	<b>42.6</b> (34.5-46.9)	<b>70.8</b> (52.3-81.0)	662
Non-Hispanic whites	11-12	<b>12.5</b> (11.1-14.1)	<b>9.89</b> (8.78-11.2)	<b>18.7</b> (15.8-22.6)	<b>75.6</b> (54.9-94.4)	<b>136</b> (81.9-179)	808
All Hispanics	11-12	<b>10.3</b> (8.79-12.1)	<b>9.47</b> (8.53-10.6)	<b>16.0</b> (14.8-18.5)	<b>34.4</b> (24.6-50.3)	<b>63.7</b> (39.6-93.7)	566
Asians	11-12	<b>10.5</b> (9.66-11.3)	<b>9.40</b> (8.97-10.4)	<b>16.0</b> (13.6-17.0)	<b>34.8</b> (22.5-43.8)	<b>53.3</b> (40.8-84.8)	341

## Urinary 2-Thioxothiazolidine-4-carboxylic acid (2011 - 2012)

*Metabolite of Carbon disulfide*

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Total</b>	11-12	<b>8.88</b> (8.00-9.85)	<b>6.91</b> (6.32-7.70)	<b>18.7</b> (15.2-23.3)	<b>52.9</b> (40.4-66.1)	<b>109</b> (74.8-144)	2466
<b>Age group</b>							
6-11 years	11-12	<b>6.70</b> (5.87-7.64)	<b>5.03</b> (4.17-5.87)	<b>11.2</b> (8.82-15.1)	<b>38.3</b> (25.3-51.9)	<b>59.7</b> (42.5-90.3)	394
12-19 years	11-12	<b>7.28</b> (5.89-9.00)	<b>5.94</b> (4.13-7.81)	<b>14.1</b> (8.39-22.2)	<b>40.3</b> (22.5-64.6)	<b>92.1</b> (40.3-137)	384
20 years and older	11-12	<b>9.44</b> (8.35-10.7)	<b>7.48</b> (6.59-8.26)	<b>20.6</b> (15.8-26.3)	<b>57.9</b> (43.7-70.6)	<b>118</b> (91.7-146)	1688
<b>Gender</b>							
Males	11-12	<b>10.3</b> (9.03-11.8)	<b>7.87</b> (7.02-9.01)	<b>24.3</b> (18.0-30.0)	<b>63.6</b> (47.9-96.5)	<b>123</b> (100-155)	1251
Females	11-12	<b>7.69</b> (6.88-8.59)	<b>5.99</b> (5.15-6.60)	<b>14.8</b> (11.7-19.2)	<b>38.0</b> (29.3-54.1)	<b>74.8</b> (51.0-133)	1215
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>7.73</b> (6.58-9.08)	<b>6.12</b> (4.96-6.96)	<b>16.7</b> (9.52-23.7)	<b>43.9</b> (33.8-60.5)	<b>66.5</b> (53.5-104)	313
Non-Hispanic blacks	11-12	<b>12.2</b> (10.4-14.3)	<b>10.5</b> (8.16-13.1)	<b>26.8</b> (22.2-30.8)	<b>64.2</b> (52.5-75.9)	<b>125</b> (75.9-175)	662
Non-Hispanic whites	11-12	<b>8.56</b> (7.39-9.91)	<b>6.61</b> (5.74-7.78)	<b>17.0</b> (12.4-24.5)	<b>47.9</b> (35.3-71.0)	<b>111</b> (66.8-157)	810
All Hispanics	11-12	<b>7.37</b> (6.41-8.47)	<b>5.42</b> (4.76-6.85)	<b>14.5</b> (10.7-20.1)	<b>40.2</b> (31.0-56.3)	<b>67.4</b> (56.3-98.0)	566
Asians	11-12	<b>12.6</b> (10.3-15.5)	<b>8.97</b> (7.38-11.3)	<b>32.3</b> (21.7-46.9)	<b>121</b> (69.0-177)	<b>220</b> (129-532)	341

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 3.5.

## Urinary 2-Thioxothiazolidine-4-carboxylic acid (creatinine corrected) (2011 - 2012)

*Metabolite of Carbon disulfide*

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Total</b>	11-12	<b>10.1</b> (9.09-11.3)	<b>8.23</b> (7.21-9.15)	<b>19.9</b> (17.0-22.9)	<b>53.6</b> (42.7-65.0)	<b>105</b> (82.0-136)	2464
<b>Age group</b>							
6-11 years	11-12	<b>9.35</b> (8.13-10.7)	<b>7.49</b> (6.31-9.88)	<b>17.3</b> (14.6-20.4)	<b>42.0</b> (30.1-54.5)	<b>91.4</b> (51.9-127)	393
12-19 years	11-12	<b>7.09</b> (5.81-8.65)	<b>5.68</b> (5.06-6.54)	<b>13.0</b> (7.92-25.0)	<b>32.2</b> (27.4-45.4)	<b>54.4</b> (30.3-93.0)	384
20 years and older	11-12	<b>10.8</b> (9.52-12.2)	<b>8.82</b> (7.64-9.93)	<b>21.2</b> (17.8-25.3)	<b>56.9</b> (46.3-73.3)	<b>127</b> (81.5-170)	1687
<b>Gender</b>							
Males	11-12	<b>9.68</b> (8.63-10.9)	<b>7.54</b> (6.37-9.01)	<b>20.4</b> (17.4-23.9)	<b>54.4</b> (43.8-71.0)	<b>107</b> (78.4-143)	1250
Females	11-12	<b>10.6</b> (9.25-12.1)	<b>8.70</b> (7.49-9.61)	<b>19.0</b> (15.5-24.2)	<b>50.9</b> (39.4-69.0)	<b>104</b> (69.0-144)	1214
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>8.73</b> (7.11-10.7)	<b>6.86</b> (5.37-9.57)	<b>18.6</b> (11.5-25.9)	<b>34.7</b> (26.0-57.5)	<b>59.4</b> (32.9-186)	313
Non-Hispanic blacks	11-12	<b>9.53</b> (8.34-10.9)	<b>7.75</b> (6.86-9.39)	<b>18.4</b> (15.4-21.3)	<b>54.3</b> (36.5-69.0)	<b>103</b> (73.1-136)	662
Non-Hispanic whites	11-12	<b>10.4</b> (8.97-12.1)	<b>8.36</b> (7.01-9.88)	<b>20.7</b> (15.7-26.8)	<b>53.7</b> (41.0-79.5)	<b>107</b> (78.4-146)	808
All Hispanics	11-12	<b>8.25</b> (6.92-9.83)	<b>6.52</b> (5.57-8.23)	<b>16.7</b> (11.2-20.6)	<b>38.2</b> (29.3-52.6)	<b>63.9</b> (52.6-104)	566
Asians	11-12	<b>16.9</b> (14.0-20.3)	<b>13.0</b> (10.2-16.4)	<b>41.5</b> (30.3-50.9)	<b>127</b> (76.3-153)	<b>222</b> (141-410)	341

## Urinary N-Acetyl-S-(3-hydroxypropyl-1-methyl)-L-cysteine (2011 - 2012)

*Metabolite of Crotonaldehyde*

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Total</b>	11-12	<b>443</b> (417-471)	<b>419</b> (383-446)	<b>806</b> (735-856)	<b>2000</b> (1720-2340)	<b>3700</b> (3100-4230)	2466
<b>Age group</b>							
6-11 years	11-12	<b>318</b> (291-347)	<b>347</b> (312-400)	<b>569</b> (501-629)	<b>861</b> (762-937)	<b>1190</b> (871-1500)	394
12-19 years	11-12	<b>350</b> (292-421)	<b>360</b> (301-439)	<b>631</b> (532-750)	<b>1130</b> (858-2190)	<b>2200</b> (1100-4040)	384
20 years and older	11-12	<b>477</b> (448-507)	<b>439</b> (392-470)	<b>874</b> (809-970)	<b>2350</b> (2000-2730)	<b>4160</b> (3580-4450)	1688
<b>Gender</b>							
Males	11-12	<b>507</b> (470-546)	<b>467</b> (425-502)	<b>848</b> (746-982)	<b>2010</b> (1520-2660)	<b>3840</b> (3010-4320)	1251
Females	11-12	<b>390</b> (349-435)	<b>352</b> (304-413)	<b>733</b> (630-834)	<b>2000</b> (1360-2490)	<b>3520</b> (2980-4190)	1215
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>389</b> (320-474)	<b>393</b> (300-496)	<b>767</b> (655-856)	<b>1330</b> (990-1800)	<b>2350</b> (1460-3010)	313
Non-Hispanic blacks	11-12	<b>511</b> (454-576)	<b>480</b> (446-525)	<b>794</b> (691-899)	<b>2190</b> (1530-2690)	<b>3350</b> (2650-4850)	662
Non-Hispanic whites	11-12	<b>449</b> (411-492)	<b>422</b> (366-456)	<b>834</b> (706-930)	<b>2120</b> (1680-2660)	<b>3880</b> (3290-4370)	810
All Hispanics	11-12	<b>398</b> (348-455)	<b>384</b> (333-451)	<b>751</b> (651-838)	<b>1460</b> (1080-2060)	<b>2600</b> (1910-3270)	566
Asians	11-12	<b>336</b> (294-383)	<b>339</b> (313-384)	<b>588</b> (521-694)	<b>1140</b> (944-1580)	<b>1830</b> (1160-3090)	341

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 2.0.

## Urinary N-Acetyl-S-(3-hydroxypropyl-1-methyl)-L-cysteine (creatinine corrected) (2011 - 2012)

*Metabolite of Crotonaldehyde*

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Total</b>	11-12	<b>506</b> (473-540)	<b>398</b> (370-419)	<b>683</b> (613-760)	<b>2050</b> (1720-2490)	<b>3970</b> (3220-5200)	2464
<b>Age group</b>							
6-11 years	11-12	<b>450</b> (421-480)	<b>425</b> (395-449)	<b>534</b> (501-611)	<b>843</b> (635-1110)	<b>1100</b> (785-1970)	393
12-19 years	11-12	<b>341</b> (300-388)	<b>308</b> (257-336)	<b>431</b> (376-502)	<b>909</b> (534-1430)	<b>1430</b> (763-2400)	384
20 years and older	11-12	<b>543</b> (508-581)	<b>408</b> (385-432)	<b>760</b> (693-920)	<b>2610</b> (2020-3280)	<b>4700</b> (3510-5830)	1687
<b>Gender</b>							
Males	11-12	<b>476</b> (442-511)	<b>377</b> (351-405)	<b>654</b> (600-770)	<b>1780</b> (1480-2170)	<b>3170</b> (2350-4230)	1250
Females	11-12	<b>536</b> (483-596)	<b>410</b> (379-444)	<b>698</b> (605-855)	<b>2700</b> (1570-3800)	<b>4700</b> (3350-5710)	1214
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>439</b> (361-535)	<b>362</b> (320-424)	<b>581</b> (479-698)	<b>1430</b> (1090-1850)	<b>2240</b> (1660-4310)	313
Non-Hispanic blacks	11-12	<b>399</b> (364-437)	<b>322</b> (293-360)	<b>536</b> (471-641)	<b>1450</b> (1050-1780)	<b>2070</b> (1800-2680)	662
Non-Hispanic whites	11-12	<b>548</b> (506-594)	<b>411</b> (388-444)	<b>730</b> (628-932)	<b>2700</b> (1720-3550)	<b>4700</b> (3280-6190)	808
All Hispanics	11-12	<b>445</b> (395-502)	<b>361</b> (325-405)	<b>607</b> (519-712)	<b>1650</b> (1220-2020)	<b>2700</b> (1850-3440)	566
Asians	11-12	<b>449</b> (415-486)	<b>393</b> (353-433)	<b>575</b> (508-640)	<b>1110</b> (806-1680)	<b>2000</b> (1350-2410)	341

## Urinary 2-Aminothiazoline-4-carboxylic acid (2011 - 2012)

*Metabolite of Cyanide*

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Total</b>	11-12	<b>110</b> (101-120)	<b>120</b> (106-133)	<b>234</b> (212-249)	<b>410</b> (364-441)	<b>558</b> (500-622)	2466
<b>Age group</b>							
6-11 years	11-12	<b>247</b> (227-270)	<b>270</b> (239-308)	<b>482</b> (394-583)	<b>718</b> (641-835)	<b>911</b> (749-1090)	394
12-19 years	11-12	<b>118</b> (97.2-143)	<b>133</b> (100-159)	<b>266</b> (232-334)	<b>435</b> (347-562)	<b>583</b> (435-923)	384
20 years and older	11-12	<b>99.8</b> (90.3-110)	<b>106</b> (98.9-121)	<b>201</b> (181-228)	<b>348</b> (304-407)	<b>483</b> (393-545)	1688
<b>Gender</b>							
Males	11-12	<b>92.0</b> (84.1-101)	<b>98.4</b> (82.4-109)	<b>191</b> (169-211)	<b>361</b> (314-386)	<b>493</b> (414-586)	1251
Females	11-12	<b>131</b> (116-148)	<b>147</b> (131-162)	<b>275</b> (246-303)	<b>447</b> (401-515)	<b>589</b> (514-757)	1215
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>135</b> (109-168)	<b>144</b> (106-184)	<b>271</b> (191-374)	<b>501</b> (364-671)	<b>728</b> (537-872)	313
Non-Hispanic blacks	11-12	<b>142</b> (124-163)	<b>163</b> (122-201)	<b>315</b> (264-383)	<b>534</b> (485-604)	<b>728</b> (651-816)	662
Non-Hispanic whites	11-12	<b>99.5</b> (91.2-109)	<b>107</b> (99.0-125)	<b>202</b> (182-229)	<b>356</b> (331-391)	<b>482</b> (419-553)	810
All Hispanics	11-12	<b>135</b> (117-156)	<b>139</b> (114-170)	<b>268</b> (212-310)	<b>483</b> (374-589)	<b>671</b> (537-835)	566
Asians	11-12	<b>114</b> (100-131)	<b>114</b> (102-130)	<b>225</b> (181-290)	<b>424</b> (335-520)	<b>543</b> (440-671)	341

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 15.0.



## Urinary 2-Aminothiazoline-4-carboxylic acid (creatinine corrected) (2011 - 2012)

*Metabolite of Cyanide*

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Total</b>	11-12	<b>126</b> (118-134)	<b>135</b> (123-147)	<b>249</b> (228-272)	<b>413</b> (380-438)	<b>539</b> (489-588)	2464
<b>Age group</b>							
6-11 years	11-12	<b>352</b> (323-384)	<b>375</b> (329-418)	<b>540</b> (472-628)	<b>742</b> (634-859)	<b>926</b> (747-1000)	393
12-19 years	11-12	<b>115</b> (101-131)	<b>125</b> (113-151)	<b>214</b> (183-240)	<b>338</b> (255-438)	<b>438</b> (307-591)	384
20 years and older	11-12	<b>114</b> (105-123)	<b>120</b> (111-134)	<b>221</b> (201-241)	<b>363</b> (336-379)	<b>444</b> (411-514)	1687
<b>Gender</b>							
Males	11-12	<b>86.4</b> (79.1-94.3)	<b>80.2</b> (73.1-91.6)	<b>169</b> (142-199)	<b>328</b> (298-375)	<b>471</b> (426-539)	1250
Females	11-12	<b>181</b> (166-196)	<b>189</b> (171-204)	<b>312</b> (286-337)	<b>440</b> (413-489)	<b>577</b> (520-624)	1214
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>153</b> (121-192)	<b>178</b> (149-215)	<b>300</b> (228-353)	<b>438</b> (363-539)	<b>585</b> (450-800)	313
Non-Hispanic blacks	11-12	<b>111</b> (98.4-125)	<b>125</b> (106-147)	<b>245</b> (212-276)	<b>396</b> (325-458)	<b>504</b> (445-544)	662
Non-Hispanic whites	11-12	<b>121</b> (113-131)	<b>123</b> (112-136)	<b>230</b> (217-256)	<b>413</b> (373-440)	<b>539</b> (458-605)	808
All Hispanics	11-12	<b>152</b> (130-177)	<b>178</b> (153-201)	<b>286</b> (253-331)	<b>423</b> (359-483)	<b>568</b> (454-749)	566
Asians	11-12	<b>153</b> (137-172)	<b>158</b> (141-190)	<b>265</b> (232-309)	<b>439</b> (342-525)	<b>547</b> (459-691)	341

## Urinary N-Acetyl-S-(N-methylcarbamoyl)-L-cysteine (2011 - 2012)

Metabolite of N,N-Dimethylformamide

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>123</b> (114-132)	<b>121</b> (110-129)	<b>257</b> (224-290)	<b>496</b> (428-588)	<b>755</b> (626-902)	2466
<b>Age group</b>							
6-11 years	11-12	<b>52.2</b> (47.1-57.9)	<b>56.8</b> (50.4-62.7)	<b>98.4</b> (86.8-106)	<b>141</b> (111-170)	<b>170</b> (124-193)	394
12-19 years	11-12	<b>77.7</b> (65.3-92.3)	<b>75.0</b> (62.1-91.8)	<b>145</b> (125-162)	<b>248</b> (199-367)	<b>397</b> (324-506)	384
20 years and older	11-12	<b>144</b> (134-156)	<b>145</b> (131-160)	<b>296</b> (268-324)	<b>583</b> (502-625)	<b>869</b> (689-1010)	1688
<b>Gender</b>							
Males	11-12	<b>136</b> (123-149)	<b>134</b> (117-156)	<b>257</b> (222-300)	<b>481</b> (397-592)	<b>786</b> (589-1010)	1251
Females	11-12	<b>111</b> (99.8-124)	<b>106</b> (95.3-122)	<b>255</b> (202-296)	<b>512</b> (406-625)	<b>747</b> (611-939)	1215
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>86.7</b> (73.4-102)	<b>84.3</b> (69.8-103)	<b>171</b> (143-187)	<b>259</b> (211-336)	<b>416</b> (281-652)	313
Non-Hispanic blacks	11-12	<b>108</b> (97.1-120)	<b>103</b> (93.6-117)	<b>204</b> (173-224)	<b>419</b> (321-509)	<b>620</b> (520-705)	662
Non-Hispanic whites	11-12	<b>139</b> (127-153)	<b>140</b> (124-160)	<b>296</b> (268-323)	<b>560</b> (468-625)	<b>864</b> (637-1010)	810
All Hispanics	11-12	<b>94.4</b> (77.6-115)	<b>96.1</b> (77.7-114)	<b>185</b> (141-230)	<b>331</b> (254-402)	<b>475</b> (374-646)	566
Asians	11-12	<b>70.7</b> (61.3-81.6)	<b>68.4</b> (58.5-81.3)	<b>143</b> (116-178)	<b>266</b> (209-356)	<b>465</b> (327-554)	341

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 5.5.

## Urinary N-Acetyl-S-(N-methylcarbamoyl)-L-cysteine (creatinine corrected) (2011 - 2012)

Metabolite of N,N-Dimethylformamide

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	140 (131-150)	129 (120-138)	248 (231-280)	482 (404-578)	757 (615-860)	2464
<b>Age group</b>							
6-11 years	11-12	74.9 (71.1-78.9)	72.8 (69.6-76.6)	97.5 (88.5-110)	135 (116-147)	152 (126-196)	393
12-19 years	11-12	75.6 (66.7-85.8)	68.6 (56.9-89.7)	107 (95.5-126)	169 (149-192)	234 (175-324)	384
20 years and older	11-12	165 (153-177)	156 (145-169)	299 (275-324)	578 (469-664)	795 (697-891)	1687
<b>Gender</b>							
Males	11-12	127 (116-140)	121 (107-135)	218 (183-260)	408 (337-527)	632 (489-746)	1250
Females	11-12	154 (140-168)	138 (128-153)	285 (241-322)	610 (435-713)	821 (757-885)	1214
<b>Race/ethnicity</b>							
Mexican Americans	11-12	97.9 (82.8-116)	87.4 (79.8-96.2)	150 (121-182)	255 (189-340)	394 (250-962)	313
Non-Hispanic blacks	11-12	84.0 (77.2-91.4)	76.6 (68.2-84.9)	137 (117-156)	258 (229-293)	390 (313-469)	662
Non-Hispanic whites	11-12	170 (159-183)	158 (141-175)	315 (275-335)	615 (476-745)	821 (755-891)	808
All Hispanics	11-12	106 (92.7-120)	96.0 (87.5-107)	163 (141-200)	299 (240-382)	443 (368-496)	566
Asians	11-12	94.6 (86.3-104)	94.6 (81.5-108)	154 (132-175)	249 (213-302)	353 (260-474)	341

## Urinary Phenylglyoxylic acid (2011 - 2012)

*Metabolite of Ethylbenzene and Styrene*

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	177 (165-191)	199 (184-212)	334 (314-359)	491 (451-559)	706 (630-789)	2466
<b>Age group</b>							
6-11 years	11-12	161 (148-176)	184 (161-202)	282 (255-312)	393 (347-456)	508 (393-594)	394
12-19 years	11-12	173 (152-197)	193 (165-222)	341 (307-392)	468 (423-579)	662 (505-872)	384
20 years and older	11-12	180 (165-197)	203 (184-219)	341 (314-369)	514 (448-596)	732 (653-842)	1688
<b>Gender</b>							
Males	11-12	201 (179-226)	225 (198-248)	369 (329-411)	540 (468-588)	789 (592-900)	1251
Females	11-12	157 (143-172)	171 (157-193)	298 (273-332)	447 (412-518)	660 (502-771)	1215
<b>Race/ethnicity</b>							
Mexican Americans	11-12	149 (123-181)	166 (141-185)	279 (209-347)	423 (347-505)	505 (431-706)	313
Non-Hispanic blacks	11-12	217 (198-237)	229 (204-255)	369 (342-390)	570 (489-647)	771 (683-937)	662
Non-Hispanic whites	11-12	180 (165-196)	205 (184-220)	340 (316-365)	493 (439-585)	726 (578-861)	810
All Hispanics	11-12	154 (130-183)	169 (146-192)	283 (233-359)	442 (393-558)	604 (464-711)	566
Asians	11-12	139 (120-160)	161 (131-187)	266 (221-302)	398 (330-489)	518 (410-617)	341

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 12.0.

### Biomonitoring Summaries

[http://www.cdc.gov/biomonitoring/Ethylbenzene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Ethylbenzene_BiomonitoringSummary.html)

[http://www.cdc.gov/biomonitoring/Styrene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Styrene_BiomonitoringSummary.html)

### Factsheets

<http://www.cdc.gov/biomonitoring/>

[http://www.cdc.gov/biomonitoring/Styrene\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Styrene_FactSheet.html)

## Urinary Phenylglyoxylic acid (creatinine corrected) (2011 - 2012)

*Metabolite of Ethylbenzene and Styrene*

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>202</b> (189-217)	<b>206</b> (195-219)	<b>285</b> (269-301)	<b>401</b> (377-426)	<b>518</b> (468-568)	2464
<b>Age group</b>							
6-11 years	11-12	<b>231</b> (219-244)	<b>239</b> (221-256)	<b>310</b> (297-323)	<b>411</b> (377-436)	<b>467</b> (416-502)	393
12-19 years	11-12	<b>168</b> (150-189)	<b>181</b> (167-193)	<b>239</b> (212-256)	<b>285</b> (261-336)	<b>368</b> (285-550)	384
20 years and older	11-12	<b>205</b> (191-220)	<b>207</b> (195-220)	<b>288</b> (272-310)	<b>413</b> (384-442)	<b>536</b> (482-602)	1687
<b>Gender</b>							
Males	11-12	<b>189</b> (174-205)	<b>194</b> (178-207)	<b>270</b> (244-299)	<b>400</b> (367-418)	<b>517</b> (481-538)	1250
Females	11-12	<b>217</b> (199-235)	<b>223</b> (202-239)	<b>291</b> (274-318)	<b>404</b> (366-460)	<b>536</b> (448-598)	1214
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>168</b> (135-210)	<b>177</b> (160-198)	<b>240</b> (220-265)	<b>311</b> (267-413)	<b>413</b> (311-520)	313
Non-Hispanic blacks	11-12	<b>169</b> (160-179)	<b>171</b> (158-180)	<b>233</b> (221-243)	<b>308</b> (291-334)	<b>395</b> (355-431)	662
Non-Hispanic whites	11-12	<b>220</b> (207-234)	<b>224</b> (210-233)	<b>304</b> (281-336)	<b>426</b> (395-481)	<b>562</b> (481-660)	808
All Hispanics	11-12	<b>173</b> (150-199)	<b>179</b> (164-197)	<b>243</b> (226-265)	<b>317</b> (295-344)	<b>390</b> (354-476)	566
Asians	11-12	<b>186</b> (169-204)	<b>187</b> (173-208)	<b>257</b> (241-277)	<b>336</b> (315-381)	<b>419</b> (351-515)	341

### Biomonitoring Summaries

[http://www.cdc.gov/biomonitoring/Ethylbenzene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Ethylbenzene_BiomonitoringSummary.html)

[http://www.cdc.gov/biomonitoring/Styrene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Styrene_BiomonitoringSummary.html)

### Factsheets

<http://www.cdc.gov/biomonitoring/>

[http://www.cdc.gov/biomonitoring/Styrene\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Styrene_FactSheet.html)

## Urinary N-Acetyl-S-(2-hydroxypropyl)-L-cysteine (2011 - 2012)

*Metabolite of Propylene oxide*

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Total</b>	11-12	<b>58.4</b> (53.4-63.9)	<b>56.0</b> (50.5-59.7)	<b>110</b> (102-118)	<b>226</b> (200-259)	<b>456</b> (330-572)	2466
<b>Age group</b>							
6-11 years	11-12	<b>45.2</b> (39.8-51.4)	<b>44.3</b> (38.7-54.1)	<b>74.7</b> (67.2-95.1)	<b>142</b> (116-174)	<b>235</b> (161-292)	394
12-19 years	11-12	<b>47.1</b> (38.4-57.7)	<b>47.5</b> (39.0-58.2)	<b>86.8</b> (72.4-107)	<b>149</b> (107-192)	<b>205</b> (150-371)	384
20 years and older	11-12	<b>62.1</b> (56.1-68.6)	<b>58.7</b> (53.7-61.8)	<b>120</b> (109-130)	<b>259</b> (220-305)	<b>523</b> (364-699)	1688
<b>Gender</b>							
Males	11-12	<b>63.3</b> (56.7-70.6)	<b>59.7</b> (54.3-65.6)	<b>112</b> (95.2-129)	<b>195</b> (175-256)	<b>370</b> (259-494)	1251
Females	11-12	<b>54.1</b> (46.7-62.6)	<b>48.9</b> (42.5-58.2)	<b>108</b> (91.2-124)	<b>250</b> (221-297)	<b>536</b> (305-808)	1215
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>60.1</b> (50.6-71.4)	<b>58.2</b> (46.6-67.7)	<b>98.0</b> (82.7-113)	<b>184</b> (148-325)	<b>375</b> (202-911)	313
Non-Hispanic blacks	11-12	<b>68.0</b> (60.3-76.7)	<b>65.0</b> (60.1-72.6)	<b>117</b> (106-130)	<b>220</b> (188-260)	<b>333</b> (270-386)	662
Non-Hispanic whites	11-12	<b>58.4</b> (52.1-65.5)	<b>54.3</b> (46.6-59.9)	<b>113</b> (100-125)	<b>238</b> (196-292)	<b>523</b> (325-716)	810
All Hispanics	11-12	<b>55.7</b> (48.0-64.7)	<b>52.8</b> (45.2-61.4)	<b>95.4</b> (77.8-121)	<b>184</b> (151-268)	<b>350</b> (253-429)	566
Asians	11-12	<b>45.0</b> (38.0-53.4)	<b>44.6</b> (39.8-53.1)	<b>88.5</b> (74.2-109)	<b>181</b> (144-214)	<b>370</b> (201-585)	341

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 1.3.

## Urinary N-Acetyl-S-(2-hydroxypropyl)-L-cysteine (creatinine corrected) (2011 - 2012)

*Metabolite of Propylene oxide*

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Total</b>	11-12	<b>66.6</b> (60.7-73.1)	<b>56.4</b> (53.0-59.0)	<b>101</b> (93.6-113)	<b>221</b> (192-262)	<b>403</b> (346-574)	2464
<b>Age group</b>							
6-11 years	11-12	<b>64.4</b> (58.0-71.4)	<b>59.1</b> (53.5-61.9)	<b>92.4</b> (82.1-102)	<b>161</b> (116-216)	<b>233</b> (161-344)	393
12-19 years	11-12	<b>45.8</b> (41.3-50.9)	<b>41.5</b> (38.0-44.2)	<b>61.5</b> (56.8-76.4)	<b>98.2</b> (79.7-139)	<b>156</b> (115-215)	384
20 years and older	11-12	<b>70.8</b> (63.9-78.4)	<b>58.3</b> (54.5-62.8)	<b>112</b> (97.9-129)	<b>258</b> (221-304)	<b>493</b> (363-782)	1687
<b>Gender</b>							
Males	11-12	<b>59.4</b> (54.4-64.8)	<b>53.1</b> (49.7-56.9)	<b>86.7</b> (79.7-97.9)	<b>161</b> (133-207)	<b>262</b> (216-368)	1250
Females	11-12	<b>74.5</b> (63.0-88.1)	<b>59.8</b> (52.7-66.1)	<b>125</b> (99.0-146)	<b>300</b> (223-381)	<b>594</b> (346-1610)	1214
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>67.9</b> (59.4-77.5)	<b>55.1</b> (51.9-62.8)	<b>95.9</b> (81.5-116)	<b>207</b> (148-256)	<b>350</b> (185-1660)	313
Non-Hispanic blacks	11-12	<b>53.0</b> (47.3-59.5)	<b>48.2</b> (42.8-55.0)	<b>81.3</b> (73.9-89.5)	<b>149</b> (122-171)	<b>223</b> (171-304)	662
Non-Hispanic whites	11-12	<b>71.3</b> (64.1-79.4)	<b>58.3</b> (53.5-62.1)	<b>111</b> (96.8-129)	<b>262</b> (203-327)	<b>488</b> (347-782)	808
All Hispanics	11-12	<b>62.3</b> (56.3-69.0)	<b>53.0</b> (50.7-57.1)	<b>86.9</b> (78.2-102)	<b>176</b> (136-233)	<b>295</b> (193-532)	566
Asians	11-12	<b>60.2</b> (49.5-73.3)	<b>55.3</b> (43.7-66.4)	<b>106</b> (82.5-130)	<b>216</b> (155-382)	<b>457</b> (245-681)	341



## Urinary N-Acetyl-S-(phenyl-2-hydroxyethyl)-L-cysteine\*\* (2011 - 2012)

Metabolite of Styrene

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	.933 (.843-1.04)	1.90 (1.74-2.17)	3.20 (2.75-3.63)	2466
<b>Age group</b>							
6-11 years	11-12	*	< LOD	.929 (<LOD-1.12)	1.98 (1.42-3.06)	3.21 (1.98-5.67)	394
12-19 years	11-12	*	< LOD	.882 (<LOD-1.11)	1.88 (1.42-2.16)	2.50 (1.90-4.61)	384
20 years and older	11-12	*	< LOD	.942 (.819-1.08)	1.91 (1.66-2.32)	3.26 (2.71-3.93)	1688
<b>Gender</b>							
Males	11-12	*	< LOD	.988 (.820-1.19)	2.06 (1.80-2.70)	3.60 (2.71-5.41)	1251
Females	11-12	*	< LOD	.887 (.807-.987)	1.75 (1.58-1.85)	2.95 (2.27-3.26)	1215
<b>Race/ethnicity</b>							
Mexican Americans	11-12	*	< LOD	.887 (.706-1.09)	1.69 (1.51-1.93)	2.39 (1.73-3.87)	313
Non-Hispanic blacks	11-12	*	< LOD	1.40 (1.23-1.58)	3.02 (2.39-3.56)	4.14 (3.56-5.65)	662
Non-Hispanic whites	11-12	*	< LOD	.807 (<LOD-.920)	1.79 (1.57-1.93)	2.95 (2.13-3.57)	810
All Hispanics	11-12	*	< LOD	1.04 (.865-1.26)	1.93 (1.69-2.39)	2.99 (2.24-3.69)	566
Asians	11-12	*	< LOD	< LOD	1.34 (1.01-1.73)	1.95 (1.35-2.83)	341

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 0.7.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

\*\* Concentrations of N-Acetyl-S(1-phenyl- + (2-phenyl-2-hydroxyethyl)-L-cysteine were measured together and are reported as N-Acetyl-S-(phenyl-2-hydroxyethyl)-L-cysteine.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Styrene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Styrene_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Styrene\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Styrene_FactSheet.html)

## Urinary N-Acetyl-S-(phenyl-2-hydroxyethyl)-L-cysteine\*\* (creatinine corrected) (2011 - 2012)

Metabolite of Styrene

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	1.34 (1.27-1.41)	2.28 (2.06-2.61)	3.34 (2.75-4.13)	2464
<b>Age group</b>							
6-11 years	11-12	*	< LOD	1.64 (<LOD-1.83)	2.61 (2.06-3.45)	3.81 (2.90-5.50)	393
12-19 years	11-12	*	< LOD	1.15 (<LOD-1.30)	1.96 (1.38-2.61)	3.09 (1.85-5.50)	384
20 years and older	11-12	*	< LOD	1.34 (1.27-1.43)	2.36 (2.06-2.64)	3.34 (2.75-4.13)	1687
<b>Gender</b>							
Males	11-12	*	< LOD	1.13 (1.05-1.24)	1.96 (1.71-2.17)	2.91 (2.61-3.34)	1250
Females	11-12	*	< LOD	1.60 (1.40-1.77)	2.48 (2.17-2.85)	3.81 (2.75-4.88)	1214
<b>Race/ethnicity</b>							
Mexican Americans	11-12	*	< LOD	1.21 (1.10-1.38)	2.23 (1.77-2.61)	2.69 (2.29-3.30)	313
Non-Hispanic blacks	11-12	*	< LOD	1.17 (1.05-1.26)	1.89 (1.72-2.38)	2.91 (2.47-3.54)	662
Non-Hispanic whites	11-12	*	< LOD	1.34 (<LOD-1.48)	2.35 (1.98-2.75)	3.45 (2.82-4.31)	808
All Hispanics	11-12	*	< LOD	1.36 (1.20-1.46)	2.19 (1.98-2.59)	2.75 (2.61-3.09)	566
Asians	11-12	*	< LOD	< LOD	2.36 (1.71-3.30)	3.54 (2.61-4.95)	341

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

\*\* Concentrations of N-Acetyl-S(1-phenyl- + (2-phenyl-2-hydroxyethyl)-L-cysteine were measured together and are reported as N-Acetyl-S-(phenyl-2-hydroxyethyl)-L-cysteine.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Styrene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Styrene_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Styrene\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Styrene_FactSheet.html)

## Urinary Mandelic acid (2011 - 2012)

*Metabolite of Styrene*

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Total</b>	11-12	<b>146</b> (134-160)	<b>152</b> (140-169)	<b>263</b> (236-297)	<b>424</b> (386-466)	<b>589</b> (510-677)	2466
<b>Age group</b>							
6-11 years	11-12	<b>111</b> (103-120)	<b>113</b> (103-131)	<b>195</b> (173-223)	<b>311</b> (235-359)	<b>384</b> (317-478)	394
12-19 years	11-12	<b>130</b> (114-149)	<b>140</b> (121-164)	<b>236</b> (201-288)	<b>335</b> (293-404)	<b>421</b> (356-638)	384
20 years and older	11-12	<b>153</b> (138-170)	<b>159</b> (141-180)	<b>275</b> (245-312)	<b>452</b> (414-499)	<b>638</b> (533-766)	1688
<b>Gender</b>							
Males	11-12	<b>170</b> (155-186)	<b>176</b> (150-196)	<b>285</b> (245-327)	<b>452</b> (388-542)	<b>677</b> (536-934)	1251
Females	11-12	<b>126</b> (112-143)	<b>135</b> (120-147)	<b>245</b> (210-272)	<b>410</b> (351-454)	<b>510</b> (431-619)	1215
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>143</b> (126-162)	<b>153</b> (139-170)	<b>236</b> (202-259)	<b>317</b> (288-354)	<b>419</b> (327-903)	313
Non-Hispanic blacks	11-12	<b>186</b> (169-205)	<b>189</b> (164-216)	<b>296</b> (267-348)	<b>507</b> (447-560)	<b>730</b> (587-845)	662
Non-Hispanic whites	11-12	<b>141</b> (125-158)	<b>146</b> (135-162)	<b>260</b> (220-308)	<b>430</b> (386-483)	<b>574</b> (498-665)	810
All Hispanics	11-12	<b>145</b> (124-169)	<b>153</b> (135-176)	<b>255</b> (205-296)	<b>337</b> (296-482)	<b>485</b> (356-903)	566
Asians	11-12	<b>122</b> (108-137)	<b>128</b> (114-146)	<b>210</b> (181-254)	<b>335</b> (280-395)	<b>448</b> (349-594)	341

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 12.0.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Styrene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Styrene_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Styrene\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Styrene_FactSheet.html)

## Urinary Mandelic acid (creatinine corrected) (2011 - 2012)

*Metabolite of Styrene*

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>167</b> (155-179)	<b>158</b> (146-168)	<b>232</b> (215-251)	<b>363</b> (328-392)	<b>513</b> (440-608)	2464
<b>Age group</b>							
6-11 years	11-12	<b>158</b> (147-171)	<b>161</b> (149-174)	<b>223</b> (199-246)	<b>289</b> (252-306)	<b>337</b> (294-389)	393
12-19 years	11-12	<b>127</b> (115-139)	<b>125</b> (110-137)	<b>173</b> (147-199)	<b>225</b> (215-233)	<b>291</b> (225-323)	384
20 years and older	11-12	<b>175</b> (162-188)	<b>162</b> (150-178)	<b>247</b> (225-271)	<b>394</b> (366-433)	<b>564</b> (475-622)	1687
<b>Gender</b>							
Males	11-12	<b>159</b> (150-170)	<b>148</b> (138-158)	<b>221</b> (190-249)	<b>349</b> (316-392)	<b>482</b> (420-564)	1250
Females	11-12	<b>174</b> (158-192)	<b>166</b> (150-184)	<b>245</b> (220-281)	<b>382</b> (335-423)	<b>531</b> (410-622)	1214
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>161</b> (142-183)	<b>148</b> (135-167)	<b>208</b> (187-223)	<b>290</b> (262-333)	<b>391</b> (290-657)	313
Non-Hispanic blacks	11-12	<b>145</b> (135-156)	<b>141</b> (128-155)	<b>193</b> (181-211)	<b>294</b> (262-335)	<b>440</b> (345-493)	662
Non-Hispanic whites	11-12	<b>172</b> (156-189)	<b>162</b> (144-184)	<b>247</b> (224-283)	<b>389</b> (354-452)	<b>559</b> (452-659)	808
All Hispanics	11-12	<b>162</b> (148-178)	<b>152</b> (143-163)	<b>209</b> (190-230)	<b>307</b> (262-350)	<b>400</b> (325-525)	566
Asians	11-12	<b>163</b> (152-175)	<b>159</b> (148-174)	<b>225</b> (205-237)	<b>296</b> (251-381)	<b>397</b> (305-553)	341

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Styrene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Styrene_BiomonitoringSummary.html)

### Factsheet

[http://www.cdc.gov/biomonitoring/Styrene\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Styrene_FactSheet.html)

## Urinary N-Acetyl-S-(trichlorovinyl)-L-cysteine (2011 - 2012)

Metabolite of Tetrachloroethene

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2466
<b>Age group</b>							
6-11 years	11-12	*	< LOD	< LOD	< LOD	< LOD	394
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	384
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	1688
<b>Gender</b>							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	1251
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1215
<b>Race/ethnicity</b>							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	313
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	662
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	810
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	566
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	341

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 3.0.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/HalogenatedSolvents\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/HalogenatedSolvents_BiomonitoringSummary.html)

## Urinary N-Acetyl-S-(trichlorovinyl)-L-cysteine (creatinine corrected) (2011 - 2012)

Metabolite of Tetrachloroethene

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2464
<b>Age group</b>							
6-11 years	11-12	*	< LOD	< LOD	< LOD	< LOD	393
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	384
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	1687
<b>Gender</b>							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	1250
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1214
<b>Race/ethnicity</b>							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	313
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	662
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	808
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	566
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	341

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/HalogenatedSolvents\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/HalogenatedSolvents_BiomonitoringSummary.html)

## Urinary N-Acetyl-S-(benzyl)-L-cysteine (2011 - 2012)

Metabolite of Toluene

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>6.47</b> (6.12-6.83)	<b>6.45</b> (6.01-6.88)	<b>12.3</b> (10.9-13.7)	<b>23.6</b> (20.4-27.2)	<b>37.9</b> (32.1-45.9)	2466
<b>Age group</b>							
6-11 years	11-12	<b>6.11</b> (5.37-6.96)	<b>6.63</b> (5.60-7.34)	<b>11.4</b> (9.82-14.2)	<b>23.1</b> (16.9-25.3)	<b>29.7</b> (24.9-48.2)	394
12-19 years	11-12	<b>6.51</b> (5.53-7.65)	<b>6.66</b> (5.73-7.56)	<b>12.8</b> (10.1-16.9)	<b>23.2</b> (17.8-33.4)	<b>36.5</b> (23.9-66.0)	384
20 years and older	11-12	<b>6.50</b> (6.02-7.02)	<b>6.31</b> (5.84-7.01)	<b>12.3</b> (10.5-14.7)	<b>23.7</b> (20.1-28.4)	<b>38.7</b> (31.9-53.9)	1688
<b>Gender</b>							
Males	11-12	<b>6.81</b> (6.34-7.31)	<b>6.83</b> (6.09-7.65)	<b>12.5</b> (11.1-14.0)	<b>23.6</b> (19.3-29.8)	<b>39.7</b> (29.9-62.7)	1251
Females	11-12	<b>6.15</b> (5.56-6.82)	<b>6.15</b> (5.77-6.64)	<b>12.1</b> (9.98-14.5)	<b>23.2</b> (19.5-28.7)	<b>35.4</b> (29.7-53.9)	1215
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>5.76</b> (4.82-6.87)	<b>5.87</b> (5.02-6.50)	<b>9.68</b> (7.99-12.3)	<b>19.1</b> (15.9-23.6)	<b>29.9</b> (19.1-42.8)	313
Non-Hispanic blacks	11-12	<b>11.0</b> (10.1-11.9)	<b>10.6</b> (9.57-11.9)	<b>21.6</b> (17.8-24.8)	<b>39.7</b> (34.2-45.5)	<b>68.3</b> (52.3-95.4)	662
Non-Hispanic whites	11-12	<b>5.90</b> (5.57-6.25)	<b>5.92</b> (5.35-6.47)	<b>10.9</b> (10.0-12.1)	<b>19.5</b> (17.7-23.2)	<b>32.1</b> (25.3-39.3)	810
All Hispanics	11-12	<b>6.52</b> (5.53-7.70)	<b>6.17</b> (5.50-7.39)	<b>12.2</b> (9.53-15.4)	<b>23.2</b> (18.3-31.6)	<b>39.1</b> (24.7-56.9)	566
Asians	11-12	<b>5.25</b> (4.39-6.28)	<b>5.30</b> (4.17-6.82)	<b>10.8</b> (8.50-12.9)	<b>20.5</b> (16.9-26.1)	<b>35.8</b> (23.1-51.5)	341

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 0.5.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Toluene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Toluene_BiomonitoringSummary.html)

## Urinary N-Acetyl-S-(benzyl)-L-cysteine (creatinine corrected) (2011 - 2012)

*Metabolite of Toluene*

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Total</b>	11-12	<b>7.39</b> (7.07-7.72)	<b>6.68</b> (6.36-7.00)	<b>12.2</b> (11.1-13.1)	<b>21.0</b> (19.3-23.9)	<b>36.4</b> (29.2-44.7)	2464
<b>Age group</b>							
6-11 years	11-12	<b>8.78</b> (8.11-9.50)	<b>7.88</b> (7.00-8.46)	<b>12.8</b> (11.8-14.1)	<b>24.5</b> (18.2-29.5)	<b>33.1</b> (23.7-56.4)	393
12-19 years	11-12	<b>6.34</b> (5.51-7.29)	<b>5.73</b> (4.72-6.94)	<b>10.0</b> (8.30-12.3)	<b>17.4</b> (13.3-20.2)	<b>25.7</b> (17.7-32.4)	384
20 years and older	11-12	<b>7.42</b> (6.98-7.89)	<b>6.70</b> (6.23-7.24)	<b>12.5</b> (11.1-13.7)	<b>21.9</b> (19.1-25.1)	<b>39.4</b> (30.1-49.1)	1687
<b>Gender</b>							
Males	11-12	<b>6.40</b> (6.04-6.78)	<b>5.78</b> (5.41-6.09)	<b>9.52</b> (8.74-10.5)	<b>17.7</b> (15.3-21.7)	<b>29.5</b> (21.3-39.6)	1250
Females	11-12	<b>8.49</b> (7.86-9.17)	<b>7.62</b> (7.11-8.30)	<b>14.2</b> (12.7-15.5)	<b>24.7</b> (22.2-27.0)	<b>40.4</b> (31.4-49.1)	1214
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>6.50</b> (5.31-7.96)	<b>5.99</b> (4.63-8.22)	<b>10.4</b> (8.29-12.9)	<b>17.9</b> (12.9-23.5)	<b>24.1</b> (20.0-30.6)	313
Non-Hispanic blacks	11-12	<b>8.56</b> (7.91-9.26)	<b>7.73</b> (6.92-8.43)	<b>14.4</b> (13.0-15.8)	<b>26.0</b> (22.5-31.9)	<b>46.9</b> (31.9-63.2)	662
Non-Hispanic whites	11-12	<b>7.21</b> (6.86-7.58)	<b>6.49</b> (5.91-6.98)	<b>11.8</b> (10.0-13.1)	<b>19.7</b> (17.3-24.5)	<b>37.9</b> (25.7-50.1)	808
All Hispanics	11-12	<b>7.30</b> (6.38-8.36)	<b>6.67</b> (5.87-7.70)	<b>11.4</b> (10.2-12.9)	<b>21.9</b> (19.1-24.4)	<b>30.4</b> (24.6-35.3)	566
Asians	11-12	<b>7.02</b> (6.14-8.04)	<b>6.59</b> (5.74-7.97)	<b>11.9</b> (10.3-13.8)	<b>24.6</b> (17.9-30.1)	<b>35.5</b> (27.0-63.6)	341

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Toluene\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Toluene_BiomonitoringSummary.html)



## Urinary N-Acetyl-S-(1,2-dichlorovinyl)-L-cysteine (2011 - 2012)

Metabolite of Trichloroethene

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2466
<b>Age group</b>							
6-11 years	11-12	*	< LOD	< LOD	< LOD	< LOD	394
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	384
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	1688
<b>Gender</b>							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	1251
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1215
<b>Race/ethnicity</b>							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	313
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	662
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	810
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	566
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	341

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 12.6.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/HalogenatedSolvents\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/HalogenatedSolvents_BiomonitoringSummary.html)

## Urinary N-Acetyl-S-(1,2-dichlorovinyl)-L-cysteine (creatinine corrected) (2011 - 2012)

Metabolite of Trichloroethene

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2464
<b>Age group</b>							
6-11 years	11-12	*	< LOD	< LOD	< LOD	< LOD	393
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	384
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	1687
<b>Gender</b>							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	1250
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1214
<b>Race/ethnicity</b>							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	313
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	662
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	808
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	566
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	341

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/HalogenatedSolvents\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/HalogenatedSolvents_BiomonitoringSummary.html)

## Urinary N-Acetyl-S-(2,2-dichlorovinyl)-L-cysteine (2011 - 2012)

Metabolite of Trichloroethene

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2466
<b>Age group</b>							
6-11 years	11-12	*	< LOD	< LOD	< LOD	< LOD	394
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	384
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	1688
<b>Gender</b>							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	1251
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1215
<b>Race/ethnicity</b>							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	313
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	662
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	810
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	566
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	341

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 6.5.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/HalogenatedSolvents\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/HalogenatedSolvents_BiomonitoringSummary.html)

## Urinary N-Acetyl-S-(2,2-dichlorovinyl)-L-cysteine (creatinine corrected) (2011 - 2012)

Metabolite of Trichloroethene

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2464
<b>Age group</b>							
6-11 years	11-12	*	< LOD	< LOD	< LOD	< LOD	393
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	384
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	1687
<b>Gender</b>							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	1250
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1214
<b>Race/ethnicity</b>							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	313
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	662
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	808
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	566
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	341

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/HalogenatedSolvents\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/HalogenatedSolvents_BiomonitoringSummary.html)

## Urinary N-Acetyl-S-(dimethylphenyl)-L-cysteine (2011 - 2012)

Metabolite of Xylene

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2466
<b>Age group</b>							
6-11 years	11-12	*	< LOD	< LOD	< LOD	< LOD	394
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	384
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	1688
<b>Gender</b>							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	1251
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1215
<b>Race/ethnicity</b>							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	313
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	662
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	810
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	566
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	341

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 0.5.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Xylenes\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Xylenes_BiomonitoringSummary.html)

## Urinary N-Acetyl-S-(dimethylphenyl)-L-cysteine (creatinine corrected) (2011 - 2012)

Metabolite of Xylene

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2464
<b>Age group</b>							
6-11 years	11-12	*	< LOD	< LOD	< LOD	< LOD	393
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	384
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	1687
<b>Gender</b>							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	1250
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1214
<b>Race/ethnicity</b>							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	313
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	662
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	808
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	566
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	341

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

\* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Xylenes\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Xylenes_BiomonitoringSummary.html)

## Urinary 2-Methylhippuric acid (2011 - 2012)

*Metabolite of Xylene*

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Total</b>	11-12	<b>32.8</b> (29.8-36.1)	<b>30.4</b> (27.4-34.1)	<b>76.1</b> (69.2-88.9)	<b>161</b> (133-192)	<b>221</b> (195-276)	2466
<b>Age group</b>							
6-11 years	11-12	<b>21.9</b> (19.6-24.4)	<b>19.4</b> (16.6-23.4)	<b>45.4</b> (35.8-54.9)	<b>97.4</b> (61.8-114)	<b>122</b> (97.2-168)	394
12-19 years	11-12	<b>31.0</b> (26.4-36.4)	<b>27.7</b> (24.7-34.5)	<b>68.3</b> (56.7-75.9)	<b>146</b> (104-166)	<b>173</b> (161-227)	384
20 years and older	11-12	<b>34.6</b> (30.9-38.6)	<b>32.8</b> (28.6-37.2)	<b>83.2</b> (72.6-94.5)	<b>170</b> (134-206)	<b>232</b> (200-327)	1688
<b>Gender</b>							
Males	11-12	<b>37.7</b> (32.3-44.0)	<b>33.0</b> (28.5-38.9)	<b>86.8</b> (72.9-104)	<b>180</b> (147-224)	<b>269</b> (195-407)	1251
Females	11-12	<b>28.6</b> (25.3-32.4)	<b>28.5</b> (25.4-32.5)	<b>69.2</b> (58.5-82.6)	<b>135</b> (113-151)	<b>197</b> (159-227)	1215
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>30.5</b> (24.7-37.7)	<b>29.1</b> (24.9-34.1)	<b>62.3</b> (51.0-72.0)	<b>129</b> (84.1-171)	<b>198</b> (133-250)	313
Non-Hispanic blacks	11-12	<b>35.6</b> (31.2-40.6)	<b>33.0</b> (28.2-40.7)	<b>78.4</b> (66.9-97.5)	<b>155</b> (131-192)	<b>212</b> (181-269)	662
Non-Hispanic whites	11-12	<b>33.5</b> (30.0-37.3)	<b>31.5</b> (27.5-35.9)	<b>82.6</b> (70.5-94.5)	<b>166</b> (134-204)	<b>232</b> (188-351)	810
All Hispanics	11-12	<b>29.2</b> (25.0-34.1)	<b>26.5</b> (22.5-32.3)	<b>64.9</b> (51.0-72.7)	<b>131</b> (92.5-166)	<b>198</b> (144-227)	566
Asians	11-12	<b>26.2</b> (21.5-32.0)	<b>26.3</b> (20.9-33.8)	<b>56.4</b> (47.4-75.4)	<b>114</b> (79.4-155)	<b>165</b> (126-195)	341

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 5.0.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Xylenes\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Xylenes_BiomonitoringSummary.html)

## Urinary 2-Methylhippuric acid (creatinine corrected) (2011 - 2012)

*Metabolite of Xylene*

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Total</b>	11-12	<b>37.5</b> (33.9-41.4)	<b>35.2</b> (31.5-39.3)	<b>77.9</b> (69.0-87.6)	<b>159</b> (140-184)	<b>248</b> (187-303)	2464
<b>Age group</b>							
6-11 years	11-12	<b>31.2</b> (27.5-35.3)	<b>26.9</b> (24.1-31.9)	<b>48.5</b> (44.9-61.0)	<b>101</b> (70.9-155)	<b>173</b> (102-209)	393
12-19 years	11-12	<b>30.2</b> (25.4-35.9)	<b>29.6</b> (22.7-38.6)	<b>54.5</b> (47.6-68.9)	<b>103</b> (74.3-160)	<b>175</b> (106-277)	384
20 years and older	11-12	<b>39.5</b> (35.5-43.9)	<b>37.4</b> (33.6-42.1)	<b>87.0</b> (77.3-96.9)	<b>168</b> (142-201)	<b>270</b> (190-331)	1687
<b>Gender</b>							
Males	11-12	<b>35.5</b> (30.8-40.8)	<b>34.3</b> (28.6-39.8)	<b>75.0</b> (62.5-86.4)	<b>144</b> (121-171)	<b>251</b> (161-336)	1250
Females	11-12	<b>39.5</b> (35.2-44.2)	<b>36.4</b> (31.2-41.1)	<b>83.7</b> (69.0-97.2)	<b>170</b> (146-198)	<b>245</b> (187-301)	1214
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>34.5</b> (27.7-42.9)	<b>29.3</b> (24.1-36.1)	<b>62.9</b> (49.1-76.1)	<b>127</b> (88.8-175)	<b>188</b> (109-300)	313
Non-Hispanic blacks	11-12	<b>27.7</b> (24.7-31.1)	<b>26.2</b> (20.8-32.6)	<b>58.9</b> (49.8-71.3)	<b>104</b> (87.5-120)	<b>146</b> (114-182)	662
Non-Hispanic whites	11-12	<b>40.9</b> (36.9-45.4)	<b>39.4</b> (34.3-43.6)	<b>88.3</b> (76.3-99.7)	<b>180</b> (146-233)	<b>281</b> (201-333)	808
All Hispanics	11-12	<b>32.7</b> (28.7-37.1)	<b>27.6</b> (25.2-32.6)	<b>60.8</b> (52.1-70.1)	<b>127</b> (98.5-142)	<b>170</b> (139-238)	566
Asians	11-12	<b>35.1</b> (30.4-40.5)	<b>34.3</b> (27.2-39.6)	<b>71.3</b> (59.3-81.0)	<b>123</b> (105-161)	<b>177</b> (135-215)	341

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Xylenes\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Xylenes_BiomonitoringSummary.html)



## Urinary 3-and 4-Methylhippuric acid (2011 - 2012)

Metabolite of Xylene

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	<b>221</b> (202-241)	<b>212</b> (197-229)	<b>563</b> (485-624)	<b>1190</b> (1000-1410)	<b>1710</b> (1520-2040)	2466
<b>Age group</b>							
6-11 years	11-12	<b>152</b> (134-172)	<b>136</b> (107-180)	<b>311</b> (254-368)	<b>616</b> (441-747)	<b>889</b> (644-1140)	394
12-19 years	11-12	<b>214</b> (185-248)	<b>209</b> (176-238)	<b>499</b> (374-592)	<b>1210</b> (879-1570)	<b>1680</b> (1510-2100)	384
20 years and older	11-12	<b>231</b> (209-256)	<b>222</b> (206-249)	<b>601</b> (523-667)	<b>1230</b> (1050-1470)	<b>1740</b> (1560-2050)	1688
<b>Gender</b>							
Males	11-12	<b>251</b> (217-290)	<b>224</b> (203-264)	<b>590</b> (477-708)	<b>1340</b> (1050-1590)	<b>1720</b> (1470-2260)	1251
Females	11-12	<b>195</b> (173-220)	<b>202</b> (176-215)	<b>547</b> (431-602)	<b>1020</b> (866-1230)	<b>1650</b> (1470-1890)	1215
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>178</b> (141-224)	<b>165</b> (118-224)	<b>388</b> (288-446)	<b>879</b> (569-1110)	<b>1230</b> (886-2120)	313
Non-Hispanic blacks	11-12	<b>257</b> (226-293)	<b>246</b> (200-275)	<b>600</b> (495-725)	<b>1270</b> (1090-1440)	<b>1830</b> (1490-2060)	662
Non-Hispanic whites	11-12	<b>231</b> (209-256)	<b>221</b> (205-251)	<b>599</b> (499-681)	<b>1250</b> (1050-1510)	<b>1720</b> (1510-2190)	810
All Hispanics	11-12	<b>176</b> (141-219)	<b>161</b> (118-215)	<b>400</b> (294-498)	<b>886</b> (597-1230)	<b>1290</b> (935-1920)	566
Asians	11-12	<b>141</b> (109-183)	<b>128</b> (96.4-185)	<b>346</b> (251-486)	<b>760</b> (598-1030)	<b>1160</b> (892-1610)	341

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 8.0.

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Xylenes\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Xylenes_BiomonitoringSummary.html)

## Urinary 3-and 4-Methylhippuric acid (creatinine corrected) (2011 - 2012)

*Metabolite of Xylene*

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

	<b>Survey years</b>	<b>Geometric mean</b> (95% conf. interval)	<b>50th Percentile</b> (95% conf. interval)	<b>75th Percentile</b> (95% conf. interval)	<b>90th Percentile</b> (95% conf. interval)	<b>95th Percentile</b> (95% conf. interval)	<b>Sample size</b>
<b>Total</b>	11-12	<b>252</b> (232-275)	<b>212</b> (185-241)	<b>565</b> (510-617)	<b>1050</b> (982-1130)	<b>1540</b> (1370-1690)	2464
<b>Age group</b>							
6-11 years	11-12	<b>218</b> (192-247)	<b>189</b> (153-230)	<b>302</b> (258-376)	<b>603</b> (477-669)	<b>911</b> (603-1200)	393
12-19 years	11-12	<b>208</b> (178-244)	<b>175</b> (136-227)	<b>459</b> (314-585)	<b>812</b> (660-982)	<b>1130</b> (864-1500)	384
20 years and older	11-12	<b>264</b> (242-288)	<b>227</b> (195-253)	<b>612</b> (545-692)	<b>1120</b> (1050-1220)	<b>1610</b> (1420-1940)	1687
<b>Gender</b>							
Males	11-12	<b>236</b> (209-266)	<b>197</b> (170-229)	<b>511</b> (462-549)	<b>930</b> (806-1030)	<b>1420</b> (1110-1870)	1250
Females	11-12	<b>269</b> (244-297)	<b>226</b> (189-253)	<b>631</b> (551-723)	<b>1170</b> (1040-1360)	<b>1660</b> (1470-1830)	1214
<b>Race/ethnicity</b>							
Mexican Americans	11-12	<b>201</b> (159-253)	<b>144</b> (127-179)	<b>415</b> (284-515)	<b>798</b> (595-1020)	<b>1050</b> (792-1920)	313
Non-Hispanic blacks	11-12	<b>201</b> (180-223)	<b>182</b> (143-219)	<b>442</b> (387-496)	<b>763</b> (640-856)	<b>1030</b> (841-1360)	662
Non-Hispanic whites	11-12	<b>283</b> (262-306)	<b>245</b> (214-287)	<b>648</b> (553-723)	<b>1210</b> (1050-1360)	<b>1690</b> (1470-2050)	808
All Hispanics	11-12	<b>197</b> (168-230)	<b>145</b> (128-175)	<b>415</b> (284-492)	<b>792</b> (660-942)	<b>1040</b> (870-1350)	566
Asians	11-12	<b>189</b> (155-231)	<b>159</b> (130-203)	<b>447</b> (308-581)	<b>767</b> (634-1070)	<b>1110</b> (748-1380)	341

### Biomonitoring Summary

[http://www.cdc.gov/biomonitoring/Xylenes\\_BiomonitoringSummary.html](http://www.cdc.gov/biomonitoring/Xylenes_BiomonitoringSummary.html)

### Appendix C. Limit of Detection Table

The analytical limit of detection (LOD) for each of the different chemical measurements is presented in the table below. The LOD is the concentration at which the measurement has a 95% probability of being greater than zero (Taylor, 1987). As analytical methods improve, LODs will often change. For this reason, LOD results are reported by survey periods (e.g., 1999-2000, 2001-2002, etc.).

Reference: Taylor JK. Quality Assurance of Chemical Measurements. Chelsea (MI): Lewis Publishing. 1987.

Chemical, matrix, units	1999-2000	2001-2002	2003-2004	2005-2006	2007-2008	2009-2010	2011-2012	2013-2014
<b>Adducts of Hemoglobin in packed rbc's, pmol/g hemoglobin</b>								
Acrylamide			3.0	0.11				
Glycidamide			4.0	0.66				
<b>Tobacco Smoke</b>								
Cotinine in serum, ng/mL	0.05	0.05	0.015	0.015	0.015	0.015	0.015	
NNAL in urine, pg/mL					1	0.6	0.6	
<b>Disinfection By-Products in blood, pg/mL</b>								
Bromodichloromethane		0.233	0.62	0.62	0.62			
Dibromochloromethane		0.271	0.62	0.62	0.62			
Tribromomethane (Bromoform)		0.596	1.5	1.0	1.0			
Trichloromethane (Chloroform)		2.37	2.11	2.1	2.1			
<b>Personal Care and Consumer Product Chemicals and Metabolites in urine, µg/L</b>								
Benzophenone-3			0.3	0.4	0.4	0.4	0.4	0.4
Bisphenol A			0.4	0.4	0.4	0.4	0.4	0.2
4-tert-Octylphenol				0.2	0.2	0.2		
Triclocarban								0.1
Triclosan			2.3	2.3	2.3	2.3	2.3	1.7
Butyl paraben				0.2	0.2	0.2	0.2	0.1
Ethyl paraben				1	1	1	1	1
Methyl paraben				1	1	1	1	1
n-Propyl paraben				0.2	0.2	0.2	0.2	0.1
2,4-Dichlorophenol			0.17	0.2	0.2	0.2	0.2	0.1
2,5-Dichlorophenol			0.12	0.2	0.2	0.2	0.2	0.1
<b>Fungicides and Metabolites in urine, µg/L</b>								
ortho-Phenylphenol			0.1	0.1	0.1	0.2		
Ethylene thiourea			0.1	0.24	0.21			
Pentachlorophenol			0.5					
Propylene thiourea			0.1	0.37	0.36			
<b>Herbicides and Metabolites in urine, µg/L</b>								
Atrazine					0.5			
Atrazine mercapturate					0.5			
Desethyl atrazine					0.25			
Desisopropyl atrazine					0.25			
Desisopropyl atrazine mercapturate					0.1			
Diaminochlorotriazine					0.5			
2,4-Dichlorophenoxyacetic acid	0.952	0.2	0.1		0.4	0.15		
2,4,5-Trichlorophenoxyacetic acid	1.2	0.1	0.1		0.10	0.1		
<b>Sulfonyl Urea Herbicides in urine, µg/L</b>								
Urinary Bensulfuron-methyl			0.05	0.05	0.05			
Urinary Chlorsulfuron			0.06	0.06	0.06			
Urinary Ethametsulfuron-methyl			0.1	0.1	0.1			
Urinary Foramsulfuron			0.05	0.05	0.05			
Urinary Halosulfuron			0.1	0.1	0.1			
Urinary Mesosulfuron-methyl			0.06	0.06	0.06			
Urinary Metsulfuron-methyl			0.05	0.05	0.05			
Urinary Nicosulfuron			0.1	0.1	0.1			
Urinary Oxasulfuron			0.06	0.06	0.06			
Urinary Primisulfuron-methyl			0.07	0.07	0.07			
Urinary Prosulfuron			0.05	0.05	0.05			
Urinary Rimsulfuron			0.05	0.05	0.05			
Urinary Sulfometuron-methyl			0.05	0.05	0.05			
Urinary Sulfosulfuron			0.1	0.1	0.1			
Urinary Thifensulfuron-methyl			0.08	0.08	0.08			
Urinary Triasulfuron			0.07	0.07	0.07			
Urinary Triflusulfuron-methyl			0.05	0.05	0.05			
<b>Insect Repellent and Metabolites in urine, µg/L</b>								
N,N-Diethyl-meta-toluamide (DEET)					0.089	0.089		
3-(Diethylcarbamoyl) benzoic acid (DCBA)					0.83	0.475		
N,N-Diethyl-3-(hydroxymethyl) benzamide (DHMB)					0.083	0.083		

Chemical, matrix, units	1999-2000	2001-2002	2003-2004	2005-2006	2007-2008	2009-2010	2011-2012	2013-2014
<b>Carbamate Pesticide Metabolites in urine, µg/L</b>								
Carbofuranphenol	0.4	0.4	0.4					
2-isopropoxyphenol	1.1	0.4	0.4					
<b>Organochlorine Pesticides and Metabolites in urine, µg/L</b>								
2,4,5-Trichlorophenol			0.1	0.1	0.1	0.1		
2,4,6-Trichlorophenol			0.5	0.5	0.5	0.5		
<b>Organophosphorus Insecticides:Specific Metabolites in urine, µg/L</b>								
Acephate			0.1	0.25	0.27			
Dimethoate			0.1	0.25	0.1			
Methamidophos			0.1	0.37	0.41			
Omethoate			0.1	0.14	0.1			
Malathion dicarboxylic acid	2.64				0.5	0.5		
2-Isopropyl-4-methyl-pyrimidinol	7.2	0.7			0.1	0.1		
para -Nitrophenol	0.8	0.1			0.1	0.1		
3,5,6-Trichloro-2-pyridinol	0.4	0.4			0.1	0.1		
<b>Organophosphorus Insecticides:Dialkyl Phosphate Metabolites in urine, µg/L</b>								
Diethylphosphate (DEP)	0.2	0.2	0.1	0.37	0.37			
Dimethylphosphate (DMP)	0.58	0.5	0.5	0.47	0.47			
Diethylthiophosphate (DETP)	0.09	0.1	0.2	0.56	0.56			
Dimethylthiophosphate (DMTP)	0.18	0.4	0.5	0.55	0.55			
Diethyldithiophosphate (DEDTP)	0.05	0.1	0.1	0.39	0.39			
Dimethyldithiophosphate (DMDTP)	0.08	0.1	0.1	0.51	0.51			
<b>Pyrethroid Metabolites in urine, µg/L</b>								
trans-3-(2,2-Dichlorovinyl)-2,2-dimethylcyclopropane carboxylic acid	0.1	0.1			0.6	0.6		
cis-3-(2,2-Dibromovinyl)-2,2-dimethylcyclopropane carboxylic acid	0.1	0.1			0.5	0.5		
4-Fluoro-3-phenoxy-benzoic acid	0.2	0.2			0.1	0.1		
3-Phenoxybenzoic acid	0.1	0.1			0.1	0.1		
<b>Metals and Metalloids</b>								
Antimony in urine, µg/L	0.04	0.04	0.07	0.032	0.032	0.032	0.041	0.022
Arsenic, Total in urine, µg/L			0.74	0.74	0.74	0.74	1.25	0.26
Arsenic (V) Acid in urine, µg As/L			1	1	1	1	0.87	0.79
Arsenobetaine in urine, µg As/L			0.4	0.4	0.4	0.4	1.19	1.16
Arsenocholine in urine, µg As/L			0.6	0.6	0.6	0.6	0.28	0.11
Arsenous (III) Acid in urine, µg As/L			1.2	1.2	1.2	1.2	0.48	0.12
Dimethylarsinic Acid in urine, µg As/L			1.7	1.7	1.7	1.7	1.8	1.91
Monomethylarsonic Acid in urine, µg As/L			0.9	0.9	0.9	0.9	0.89	0.2
Inorganic-related Arsenic Species, in urine, µg As/g							4.04	3.02
Trimethylarsine oxide in urine, µg As/L			1	1	1	1	0.25	
Barium in urine, µg/L	0.12	0.12	0.31	0.12	0.12	0.12	0.1	0.06
Beryllium in urine, µg/L	0.13	0.13	0.13	0.072	0.072	0.072		
Cadmium in blood, µg/L	0.3	0.3	0.14	0.2	0.2	0.2	0.16	0.1
Cadmium in urine, µg/L	0.06	0.06	0.06	0.042	0.042	0.042	0.056	0.036
Cesium in urine, µg/L	0.14	0.14	0.2	0.066	0.066	0.066	0.12	0.086
Cobalt in urine, µg/L	0.07	0.07	0.08	0.041	0.041	0.041	0.048	0.023
Copper in serum, µg/dL							2.5	2.5
Lead in blood, µg/dL	0.3	0.3	0.28	0.25	0.25	0.25	0.25	0.07
Lead in urine, µg/L	0.1	0.1	0.33	0.1	0.1	0.1	0.08	0.03
Manganese in blood, µg/L							1.06	0.99
Manganese in urine, µg/L							0.08	0.13
Mercury, Total in blood, µg/L			0.2	0.33	0.33	0.33	0.16	0.28
Mercury, Inorganic in blood, µg/L			0.42	0.4	0.35	0.35	0.27	0.27
Mercury, Ethyl in blood, µg/L							0.16	0.16
Mercury, Methyl in blood, µg/L							0.12	0.12
Mercury in urine, µg/L			0.14	0.11	0.08	0.08	0.05	0.13
Molybdenum in urine, µg/L	0.8	0.8	1.5	0.92	0.92	0.92	0.99	0.8
Platinum in urine, µg/L	0.04	0.04	0.07	0.009	0.009	0.009		
Selenium in blood, µg/L							30	24.5
Selenium in serum, µg/L							4.5	4.5
Strontium in urine, µg/L							2.5	2.34
Thallium in urine, µg/L	0.02	0.02	0.02	0.015	0.015	0.015	0.02	0.018
Tin in urine, µg/L							0.22	0.09
Tungsten in urine, µg/L	0.04	0.04	0.04	0.021	0.021	0.021	0.026	0.018
Uranium in urine, µg/L	0.004	0.004	0.005	0.002	0.002	0.0017	0.0033	0.002
Zinc in serum, µg/dL							2.9	2.9

Chemical, matrix, units	1999-2000	2001-2002	2003-2004	2005-2006	2007-2008	2009-2010	2011-2012	2013-2014
<b>Perchlorate and Other Anions in urine</b>								
Nitrate, mg/L		0.7		0.7	0.7	0.7	0.7	0.7
Perchlorate, µg/L		0.05	0.05	0.05	0.05	0.05	0.05	0.05
Thiocyanate, mg/L		0.02		0.02	0.02	0.02	0.02	0.02
<b>Perfluoroalkyl and Polyfluoroalkyl Substances: Surfactants in serum, µg/L</b>								
Perfluorobutane sulfonic acid (PFBS)			0.4	0.1	0.1	0.1	0.1	0.1
Perfluorodecanoic acid (PFDeA)	0.2		0.3	0.2	0.2	0.1	0.1	0.1
Perfluorododecanoic acid (PFDoA)	0.2		1	0.2	0.2	0.1	0.1	0.1
Perfluoroheptanoic acid (PFHpA)	0.4		0.3	0.4	0.4	0.1	0.1	0.1
Perfluorohexane sulfonic acid (PFHxS)	0.1		0.3	0.1	0.1	0.1	0.1	0.1
Perfluorononanoic acid (PFNA)	0.1		0.1	0.1	0.082	0.082	0.082	0.1
Perfluorooctanoic acid (PFOA)	0.1		0.2	0.1	0.1	0.1	0.1	
n-Perfluorooctanoic acid (n-PFOA)								0.1
Branched Perfluorooctanoic acid isomers (Sb-PFOA)								0.1
Perfluorooctane sulfonic acid (PFOS)	0.2		0.4	0.2	0.2	0.2	0.2	
n-Perfluorooctane sulfonic acid (n-PFOS)								0.1
Perfluoromethylheptane sulfonic acid isomers (Sm-PFOS)								0.1
Perfluorooctane sulfonamide (PFOSA)	0.05		0.1	0.1	0.1	0.1	0.1	
2-(N-Ethyl-perfluorooctane sulfonamido) acetic acid (Et-PFOSA-AcOH)	0.2		0.4	0.2	0.2	0.1	0.1	
2-(N-Methyl-perfluorooctane sulfonamido) acetic acid (Me-PFOSA-AcOH)	0.174		0.523	0.174	0.174	0.087	0.087	0.1
Perfluoroundecanoic acid (PFUA)	0.2		0.3	0.2	0.2	0.1	0.1	0.1
<b>Phthalate and Phthalate Alternatives Metabolites in urine, µg/L</b>								
Mono-benzyl phthalate (MBzP)	0.576	0.216	0.072	0.216	0.216	0.216	0.3	
Mono-n-butyl phthalate (MnBP)	0.9	1.1	0.4	0.6	0.6	0.4	0.4	
Mono-isobutyl phthalate (MIBP)		1	0.3	0.3	0.3	0.2	0.2	
Mono-cyclohexyl phthalate (MCHP)	1.81	0.603	0.402	0.603	0.603	0.402		
Mono-ethyl phthalate (MEP)	0.792	0.594	0.264	0.528	0.462	0.396	0.6	
Mono-2-ethylhexyl phthalate (MEHP)	1.2	1	0.9	1.2	1.1	0.5	0.5	
Mono-(2-ethyl-5-hydroxyhexyl) phthalate (MEHHP)		1	0.3	0.7	0.7	0.2	0.2	
Mono-(2-ethyl-5-oxohexyl) phthalate (MEOHP)		1.1	0.5	0.7	0.6	0.2	0.2	
Mono-(2-ethyl-5-carboxypentyl) phthalate (MECPP)			0.3	0.6	0.5	0.2	0.2	
Mono-(carboxynonyl) phthalate (MCNP)				0.6	0.5	0.2	0.2	
Mono-isononyl phthalate (MiNP)	1.23	1.23	1.54	1.23	1.23	0.77	0.6	
Mono-(carboxyoctyl) phthalate (MCOP)				0.7	0.7	0.2	0.2	
Mono-methyl phthalate (MMP)		0.2	1	1.1	1.1	0.5	0.5	
Mono-(3-carboxypropyl) phthalate (MCP)		0.4	0.2	0.2	0.2	0.2	0.2	
Mono-n-octyl phthalate (MOP)	1.51	1.68	1.68	1.85	1.85	0.84		
Cyclohexane-1,2-dicarboxylic mono hydroxyisononyl ester (MHNCH)							0.4	
<b>Phytoestrogens and Metabolites in urine, µg/L</b>								
Urinary Daidzein	0.5	1.6	0.3	0.4	0.4	0.4		
Urinary Enterodiol	0.8	1.5	0.3	0.04	0.04	0.04		
Urinary Enterolactone	0.6	1.9	0.3	0.1	0.1	0.1		
Urinary Equol	3	3.3	0.3	0.06	0.06	0.6		
Urinary Genistein	0.3	0.8	0.3	1	0.2	0.2		
Urinary O-Desmethylangolensin	0.2	0.4	0.2	0.2	0.2	0.2		
<b>Polycyclic Aromatic Hydrocarbon Metabolites in urine, ng/L except as noted</b>								
2-Hydroxyfluorene			5	5	5	10	10	
3-Hydroxyfluorene		2	5	5	5	10	10	
9-Hydroxyfluorene			5	5	5	10	10	
1-Hydroxyphenanthrene		3.5	5	5	5	10	10	
2-Hydroxyphenanthrene		3.2	5	5	5	10	10	
3-Hydroxyphenanthrene		3.6	5	5	5	10	10	
4-Hydroxyphenanthrene			5	5				
1-Hydroxypyrene			5	5	5	10	10	
1-Hydroxynaphthalene (1-Naphthol), µg/L			0.047	0.048	0.045	0.044	0.044	
2-Hydroxynaphthalene (2-Naphthol), µg/L		0.002	0.031	0.013	0.042	0.042	0.042	

Chemical, matrix, units	1999-2000	2001-2002	2003-2004	2005-2006	2007-2008	2009-2010	2011-2012	2013-2014
<b>Volatile Organic Compounds (VOCs) in whole blood, ng/mL except as noted</b>								
1,1,1-Trichloroethane (Methyl chloroform)			0.048	0.01	0.01			
1,1,1,2-Tetrachloroethane					0.04			
1,1,1,2,2-Tetrachloroethane			0.05	0.01	0.01			
1,1,2-Trichloroethane			0.01	0.01	0.01			
1,2,3-Trichloropropane					0.04			
1,1-Dichloroethane			0.01	0.01	0.01			
1,1-Dichloroethene (Vinylidene chloride)			0.009	0.009	0.009			
1,2-Dibromo-3-chloropropane (DBCP)			0.1	0.1	0.1			
1,2-Dibromoethane					0.015			
1,2-Dichlorobenzene (o-Dichlorobenzene)			0.1	0.1	0.025			
1,2-Dichloroethane (Ethylene dichloride)			0.01	0.01	0.01			
cis-1,2-Dichloroethene			0.01	0.01	0.01			
trans-1,2-Dichloroethene			0.01	0.01	0.01			
1,2-Dichloropropane			0.008	0.008	0.01			
1,3-Dichlorobenzene			0.05	0.05	0.025			
1,4-Dichlorobenzene (Paradichlorobenzene)		0.12	0.12	0.011	0.04			
2,5-Dimethylfuran			0.012	0.011	0.011			
Benzene		0.024	0.024	0.024	0.024			
Chlorobenzene			0.011	0.011	0.011			
Dibromomethane			0.03	0.03	0.03			
Dichloromethane (Methylene chloride)			0.07	0.25	0.25			
Ethylbenzene		0.024	0.024	0.024	0.024			
Furan					0.25			
Hexachloroethane			0.011	0.011	0.011			
Isopropylbenzene (Cumene)					0.04			
Methyl-tert-butyl ether (MTBE), pg/mL		0.232	2	1.4	1.4			
Nitrobenzene			0.3	0.3	0.320			
Nitromethane, pg/mL					0.320			
Styrene		0.03	0.03	0.03	0.032			
Tetrachloroethene (Perchloroethylene)		0.048	0.048	0.048	0.048			
Tetrachloromethane (Carbon tetrachloride)			0.01	0.005	0.005	0.005		
Toluene		0.025	0.025	0.025	0.025			
Trichloroethene (Trichloroethylene)		0.012	0.012	0.012	0.012			
m-/p-Xylene		0.34	0.034	0.034	0.034			
o-Xylene		0.049	0.049	0.024	0.024			
<b>Volatile Organic Compound (VOC) Metabolites in urine, µg/L</b>								
N-Acetyl-S-(2-carboxyethyl)-L-cysteine							8	
N-Acetyl-S-(3-hydroxypropyl)-L-cysteine							13	
N-Acetyl-S-(2-carbamoyl-ethyl)-L-cysteine							2.2	
N-Acetyl-S-(2-carbamoyl-2-hydroxyethyl)-L-cysteine							9.4	
N-Acetyl-S-(2-cyanoethyl)-L-cysteine							0.5	
N-Acetyl-S-(2-hydroxyethyl)-L-cysteine							0.6	
N-Acetyl-S-(phenyl)-L-cysteine							0.6	
N-Acetyl-S-(n-propyl)-L-cysteine							1.2	
N-Acetyl-S-(3,4-dihydroxybutyl)-L-cysteine							5	
N-Acetyl-S-(1-hydroxymethyl-2-propenyl)-L-cysteine							0.7	
N-Acetyl-S-(2-hydroxy-3-butenyl)-L-cysteine							0.7	
N-Acetyl-S-(4-hydroxy-2-butenyl)-L-cysteine							0.6	
2-Thioxothiazolidine-4-carboxylic acid							3.5	
N-Acetyl-S-(3-hydroxypropyl-1-methyl)-L-cysteine							2	
2-Aminothiazoline-4-carboxylic acid							15	
N-Acetyl-S-(N-methylcarbamoyl)-L-cysteine							5.5	
Phenylglyoxylic acid							12	
N-Acetyl-S-(2-hydroxypropyl)-L-cysteine							1.3	
N-Acetyl-S-(phenyl-2-hydroxyethyl)-L-cysteine							0.7	
Mandelic acid							12	
N-Acetyl-S-(trichlorovinyl)-L-cysteine							3	
N-Acetyl-S-(benzyl)-L-cysteine							0.5	
N-Acetyl-S-(1,2-dichlorovinyl)-L-cysteine							12.6	
N-Acetyl-S-(2,2-dichlorovinyl)-L-cysteine							6.5	
N-Acetyl-S-(dimethylphenyl)-L-cysteine (DPMA)							0.5	
2-Methylhippuric acid							5	
3- & 4-Methylhippuric acid							8	

Chemical, matrix, units	1999-2000	2001-2002	2003-2004	2005-2006	2007-2008	2009-2010	2011-2012	2013-2014
<b>Organochlorine Pesticides and Metabolites (Pooled Samples after 2004) in serum, ng/g lipid</b>								
Aldrin		5.94	7.8					
Dieldrin		10.5	7.8					
Endrin		5.09	7.8					
Heptachlor epoxide		10.5	7.8					
Oxychlorodane	14.5	10.5	7.8	1.46	1.4			
trans-Nonachlor	14.5	10.5	7.8	0.77	1.4			
p,p'-DDT	20.7	17.4	7.8	1.46	1.4			
p,p'-DDE	18.6	8.3	7.8	4.02	1.4			
o,p'-DDT		17.4	7.8					
Hexachlorobenzene	118	31.4	7.8	4.17	1.4			
beta-Hexachlorocyclohexane	9.36	6.76	7.8	1.46	1.4			
gamma-Hexachlorocyclohexane	14.5	10.5	7.8	1.46	1.4			
Mirex	14.6	10.5	7.8	1.46	1.4			
<b>Polybrominated Diphenyl Ethers and PBB 153 (Pooled Samples after 2004) in serum, ng/g lipid</b>								
2,2',4'-Tribromodiphenyl ether (BDE 17)			1	0.6	0.6			
2,4,4'-Tribromodiphenyl ether (BDE 28)			0.8	0.6	0.6			
2,2',4,4'-Tetrabromodiphenyl ether (BDE 47)			4.2	1.6	0.6			
2,3',4,4'-Tetrabromodiphenyl ether (BDE 66)			1	0.6	0.6			
2,2',3,4,4'-Pentabromodiphenyl ether (BDE 85)			2.4	0.6	0.6			
2,2',4,4',5-Pentabromodiphenyl ether (BDE 99)			5	1.2	0.6			
2,2',4,4',6-Pentabromodiphenyl ether (BDE 100)			1.4	0.6	0.6			
2,2',4,4',5,5'-Hexabromodiphenyl ether (BDE 153)			2.2	0.6	0.6			
2,2',4,4',5,6'-Hexabromodiphenyl ether (BDE 154)			0.8	0.6	0.6			
2,2',3,4,4',5',6-Heptabromodiphenyl ether (BDE 183)			1.7	0.6	0.6			
2,2',3,3',4,4',5,5',6,6'-Decabromodiphenyl ether (BDE 209)				6	5.8			
2,2',4,4',5,5'-Hexabromobiphenyl (PBB 153)			0.8	0.6	0.6			
<b>Polychlorinated Dibenzo-p-dioxins (Pooled Samples) in serum, pg/g lipid</b>								
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	55.9	10.3	13	2.43	4.22			
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)		9	11.9	0.15	0.26			
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	20.1	9.1	12.3	0.12	0.2			
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	20.3	9.3	12.3	0.08	0.13			
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	329	319	218	13	22.6			
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	14.2	6	4.5	0.62	1.08			
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	12.1	5.8	3.8	0.42	0.74			
<b>Polychlorinated Dibenzofurans (Pooled Samples after 2004) in serum, pg/g lipid</b>								
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	13.5	7	8.6	1.03	1.78			
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)		7	8.6	0.19	0.33			
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	12.7	6.5	7.4	0.3	0.51			
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	12.6	6.1	7.9	0.1	0.18			
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	12.7	6	8.3	0.2	0.35			
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	12.9	5.8	8.2	0.11	0.2			
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	35.6	21	12	1.37	2.37			
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	13.2	5.8	7.1	0.47	0.81			
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	12.7	5.5	6.8	0.51	0.88			
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	11.9	5.2	6	0.26	0.45			
<b>Dioxin-like Polychlorinated Biphenyls: Coplanar PCBs (Pooled Samples after 2004) in serum, pg/g lipid</b>								
3,4,4',5-Tetrachlorobiphenyl (PCB 81)	68.4	26.8	13.1	1.86	3.23			
3,3',4,4',5-Pentachlorobiphenyl (PCB 126)	23.2	10.8	13.9	1.32	2.29			
3,3',4,4',5,5'-Hexachlorobiphenyl (PCB 169)	27	11	15.9	1.33	2.31			
<b>Dioxin-like Polychlorinated Biphenyls: mono-ortho-substituted PCBs (Pooled Samples after 2004) in serum, ng/g lipid</b>								
2,3,3',4,4'-Pentachlorobiphenyl (PCB 105)		12.4	10.5	0.4	0.31	0.3		
2,3,3',4,4'-Pentachlorobiphenyl (PCB 114)					0.31	0.3		
2,3',4,4',5-Pentachlorobiphenyl (PCB 118)	12.5	10.5	0.6	0.72	0.3			
2',3,4,4',5-Pentachlorobiphenyl (PCB 123)					0.31	0.3		
2,3,3',4,4',5-Hexachlorobiphenyl (PCB 156)	12.5	10.5	0.4	0.31	0.3			
2,3,3',4,4',5'-Hexachlorobiphenyl (PCB 157)	12.5	10.5	0.4	0.31	0.3			
2,3',4,4',5,5'-Hexachlorobiphenyl (PCB 167)	12.4	10.5	0.4	0.31	0.3			
2,3,3',4,4',5,5'-Heptachlorobiphenyl (PCB 189)		10.5	0.4	0.31	0.3			

Chemical, matrix, units	1999-2000	2001-2002	2003-2004	2005-2006	2007-2008	2009-2010	2011-2012	2013-2014
<b>Polychlorinated Biphenyls: Non-Dioxin-Like (Pooled Samples after 2004) in serum, ng/g lipid</b>								
2,4,4'-Trichlorobiphenyl (PCB 28)	32.4		1.7	2.54	0.7			
2,2',3,5'-Tetrachloro biphenyl (PCB 44)			0.4	0.36	0.3			
2,2',4,5'-Tetrachloro biphenyl (PCB 49)			0.4	0.31	0.3			
2,2',5,5'-Tetrachlorobiphenyl (PCB 52)	12.5	12.4	0.8	0.33	0.3			
2,3',4,4'-Tetrachlorobiphenyl (PCB 66)	12.4	12.4	0.8	0.4	0.3			
2,4,4',5'-Tetrachlorobiphenyl (PCB 74)	12.4	10.5	0.8	0.31	0.8			
2,2',3,4,5'-Pentachlorobiphenyl (PCB 87)		10.5	0.4	0.31	0.3			
2,2',4,4',5'-Pentachlorobiphenyl (PCB 99)	12.5	10.5	0.6	0.31	0.3			
2,2',4,5,5'-Pentachlorobiphenyl (PCB 101)	25.7	10.5	0.6	0.59	0.3			
2,3,3',4',6'-Pentachlorobiphenyl (PCB 110)		10.5	0.8	0.31	0.3			
2,2',3,3',4,4'-Hexachlorobiphenyl (PCB 128)	12.4	10.5	0.4	0.31	0.3			
2,2',3,4,4',5' and 2,3,3',4,4',6'-Hexachlorobiphenyl (PCB 138 & 158)	41.1	10.5	0.4	0.31	0.3			
2,2',3,4',5,5'-Hexachlorobiphenyl (PCB 146)	12.4	10.5	0.4	0.31	0.3			
2,2',3,4',5',6'-Hexachlorobiphenyl (PCB 149)	10.5		0.4	0.31	0.3			
2,2',3,5,5',6'-Hexachlorobiphenyl (PCB 151)		10.5	0.4	0.31	0.3			
2,2',4,4',5,5'-Hexachlorobiphenyl (PCB 153)	55.6	10.5	1.1	0.31	0.3			
2,2',3,3',4,4',5'-Heptachlorobiphenyl (PCB 170)	17.2	10.5	0.4	0.31	0.3			
2,2',3,3',4,5,5'-Heptachlorobiphenyl (PCB 172)	12.5	10.5	0.4	0.31	0.3			
2,2',3,3',4,5',6'-Heptachlorobiphenyl (PCB 177)	12.5	10.5	0.4	0.31	0.3			
2,2',3,3',5,5',6'-Heptachlorobiphenyl (PCB 178)	12.4	10.5	0.4	0.31	0.3			
2,2',3,4,4',5,5'-Heptachlorobiphenyl (PCB 180)	28.2	10.5	0.4	0.31	0.3			
2,2',3,4,4',5',6'-Heptachlorobiphenyl (PCB 183)	12.4	10.5	0.4	0.31	0.3			
2,2',3,4',5,5',6'-Heptachlorobiphenyl (PCB 187)	12.4	10.5	0.4	0.31	0.3			
2,2',3,3',4,4',5,5'-Octachlorobiphenyl (PCB 194)		10.5	0.4	0.31	0.3			
2,2',3,3',4,4',5,6'-Octachlorobiphenyl (PCB 195)		28.1	0.7	0.31	0.3			
2,2',3,3',4,4',5,6' and 2,2',3,4,4',5,5',6'-Octachlorobiphenyl (PCB 196 & 203)		10.5	0.4	0.31	0.3			
2,2',3,3',4,5,5',6'-Octachlorobiphenyl (PCB 199)		10.5	0.4	0.31	0.3			
2,2',3,3',4,4',5,5',6'-Nonachlorobiphenyl (PCB 206)		28.1	0.7	0.31	0.3			
2,2',3,3',4,4',5,5',6,6'-Decachlorobiphenyl (PCB 209)			0.7	0.31	0.3			



## **Appendix D. References for Biomonitoring Analytical Methods**

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