

Chemicals in CDC's *National Report on Human Exposure to Environmental Chemicals*

CDC's *National Report on Human Exposure to Environmental Chemicals* provides exposure data on the following chemicals or classes of chemicals. The *Report* contains cumulative data from national samples collected beginning in 1999–2000. Not all chemicals were measured in each national sample. The data tables are available at <https://www.cdc.gov/exposurereport/>.

Adducts

Acrylamide
Ethylene Oxide
Formaldehyde
Glycidamide
3-Chlorotyrosine
3,5-Dichlorotyrosine

Tobacco Alkaloids and Metabolites

Anabasine
Anatabine
Cotinine
Cotinine-n-oxide
Hydroxycotinine
Trans-3'-hydroxycotinine
1-(3-Pyridyl)-1-butanol-4-carboxylic acid
Nicotine
Nicotine 1'-oxide
Nornicotine

Tobacco-Specific Nitrosamines (TSNAs)

N'-Nitrosoanabasine (NAB)
N'-Nitrosoanatabine (NAT)
N'-Nitrosornicotine (NNN)
Total 4-(methylnitrosamino)-1-(3-pyridyl)-1-butanol (NNAL)

Volatile N-nitrosamines (VNAs)

N-Nitrosodiethylamine (NDEA)
N-Nitrosoethylmethylamine (NMEA)
N-Nitrosomorpholine (NMOR)
N-Nitrosopiperidine (NPIP)
N-Nitrosopyrrolidine (NPYR)

Disinfection By-Products

Bromodichloromethane

Dibromochloromethane

Tribromomethane (Bromoform)

Trichloromethane (Chloroform)

Personal Care and Consumer Product Chemicals and Metabolites

Benzophenone-3

Bisphenol A

Bisphenol F

Bisphenol S

4-tert-Octylphenol

Triclocarban

Triclosan

Butyl paraben

Ethyl paraben

Methyl paraben

n-Propyl paraben

2,4-Dichlorophenol

2,5-Dichlorophenol

Flame Retardant Metabolites

Bis(1-chloro-2-propyl) phosphate (BCPP)

Bis(2-chloroethyl) phosphate (BCEtP)

Bis(1,3-dichloro-2-propyl) phosphate (BDCPP)

Dibenzyl phosphate (DBzP)

Dibutyl phosphate (DBuP)

Di-o-cresylphosphate (DoCP)

Di-p-cresylphosphate (DpCP)

Diphenyl phosphate (DPhP)

Dicresyl phosphates (DCPs)

2-((Isopropyl)phenyl)phenyl phosphate (iPPPP)

4-((Tert-butyl)phenyl)phenyl phosphate (tBPPP)

2,3,4,5-Tetrabromobenzoic acid (TBBA)

Fungicides and Metabolites

ortho-Phenylphenol

Ethylene thiourea

Pentachlorophenol

Propylene thiourea

Herbicides and Metabolites

Atrazine

Atrazine mercapturate

Desethyl atrazine

Desisopropyl atrazine

Desisopropyl atrazine mercapturate

Diaminochlorotriazine

2,4-Dichlorophenoxyacetic acid

2,4,5-Trichlorophenoxyacetic acid

Sulfonyl Urea Herbicides

Bensulfuron-methyl

Chlorsulfuron

Ethametsulfuron-methyl

Foramsulfuron

Halosulfuron

Mesosulfuron-methyl

Metsulfuron-methyl

Nicosulfuron

Oxasulfuron

Primisulfuron-methyl

Prosulfuron

Rimsulfuron

Sulfometuron-methyl

Sulfosulfuron

Thifensulfuron-methyl

Triasulfuron

Triflusulfuron-methyl

Insect Repellent and Metabolites

N,N-Diethyl-meta-toluamide (DEET)

3-(Diethylcarbamoyl) benzoic acid (DCBA)

3-(Ethylcarbamoyl) benzoic acid (ECBA)

N,N-Diethyl-3-(hydroxymethyl) benzamide (DHMB)

Neonicotinoids

Acetamiprid

Clothianidin
N-desmethylacetamiprid
5-hydroxyimidacloprid
Imidacloprid
Thiacloprid

Carbamate Pesticide Metabolites

Carbofuranphenol
2-Isopropoxyphenol

Organochlorine Pesticide Metabolites

2,4,5-Trichlorophenol
2,4,6-Trichlorophenol

Organophosphorus Insecticides: Specific Metabolites

Acephate
Dimethoate
Methamidophos
Omethoate
Malathion dicarboxylic acid
2-Isopropyl-4-methyl-pyrimidinol (IMPY)
para-Nitrophenol
3,5,6-Trichloro-2-pyridinol

Organophosphorus Insecticides: Dialkyl Phosphate Metabolites

Diethylphosphate (DEP)
Dimethylphosphate (DMP)
Diethylthiophosphate (DETP)
Dimethylthiophosphate (DMTP)
Diethyldithiophosphate (DEDTP)
Dimethyldithiophosphate (DMDTP)

Pyrethroid Metabolites

trans-3-(2,2-Dichlorovinyl)-2,2-dimethylcyclopropane carboxylic acid (trans-DCCA)
cis-3-(2,2-Dibromovinyl)-2,2-dimethylcyclopropane carboxylic acid (cis-DBCA)
4-Fluoro-3-phenoxy-benzoic acid
3-Phenoxybenzoic acid

Metals and Metalloids

Antimony

Arsenic, Total

Inorganic Arsenic-related Species

Arsenic (V) acid

Arsenobetaine

Arsenocholine

Arsenous (III) acid

Dimethylarsinic acid

Monomethylarsonic acid

Trimethylarsine oxide

Barium

Beryllium

Cadmium

Cesium

Chromium

Cobalt

Copper

Lead

Manganese

Mercury

Molybdenum

Nickel

Platinum

Selenium

Strontium

Thallium

Tin

Tungsten

Uranium

Zinc

Perchlorate and Other Anions

Nitrate

Perchlorate

Thiocyanate

Perfluoroalkyl and Polyfluoroalkyl Substances

Perfluorobutanoic acid (PFBA)

Perfluorobutane sulfonic acid (PFBS)
Perfluorodecanoic acid (PFDA)
Perfluoroheptane sulfonic acid (PFHpS)
Perfluorododecanoic acid (PFDoA)
Perfluoroheptanoic acid (PFHpA)
Perfluorohexane sulfonic acid (PFHxS)
Perfluorohexanoic acid (PFHxA)
Perfluorononanoic acid (PFNA)
Perfluorooctanoic acid (PFOA)
n-Perfluorooctanoic acid (n-PFOA)
Branched Perfluorooctanoic acid (Sb-PFOA)
Perfluorooctane sulfonic acid (PFOS)
n-Perfluorooctane sulfonic acid (n-PFOS)
Branched Perfluoromethylheptane sulfonic acid (Sm-PFOS)
Perfluorooctane sulfonamide (PFOSA or FOSA)
Perfluoropentanoic acid (PFPeA)
Perfluoroundecanoic acid (PUFA or PFUnDA)
2-(N-Ethyl-perfluorooctane sulfonamido) acetic acid (EtFOSAA)
2-(N-Methyl-perfluorooctane sulfonamido) acetic acid (Me-PFOSA-AcOH or Me-FOSA-A)
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)
Adona (4,8-dioxa-3H-perfluorononanoate)
GenX (2,3,3,3-tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid (HFPO-DA))

Phthalate and Phthalate Alternative Metabolites

Mono-benzyl phthalate (MBzP)
Mono-3-hydroxybutyl phthalate (MHBP)
Mono-n-butyl phthalate (MnBP)
Mono-2-methyl-2-hydroxypropyl phthalate (MHBP)
Mono-isobutyl phthalate (MiBP)
Mono-cyclohexyl phthalate (MCHP)
Mono-ethyl phthalate (MEP)
Mono-2-ethylhexyl phthalate (MEHP)
Mono-(2-ethyl-5-hydroxyhexyl) phthalate (MEHHP)
Mono-(2-ethyl-5-oxohexyl) phthalate (MEOHP)
Mono-(2-ethyl-5-carboxypentyl) phthalate (MECPP)
Mono-(carboxynonyl) phthalate (MCNP)
Mono-isononyl phthalate (MiNP)
Mono-oxoisononyl phthalate (MONP)
Mono-(carboxyoctyl) phthalate (MCOP)

Mono-methyl phthalate (MMP)
Mono-(3-carboxypropyl) phthalate (MCP)
Mono-n-octyl phthalate (MOP)
Cyclohexane-1,2-dicarboxylic acid mono hydroxyisononyl ester (MHNCH)
Cyclohexane-1,2-dicarboxylic acid mono carboxyisooctyl ester (MCOCH)
Mono-2-ethyl-5-carboxypentyl terephthalate (MECPTP)
Mono-2-ethyl-5-hydroxyhexyl terephthalate (MEHHTP)

Phytoestrogens and Metabolites

Daidzein
Enterodiol
Enterolactone
Equol
Genistein
O-Desmethylangolensin

Sex Steroid Hormones and Binding Protein

Estradiol
Sex hormone-binding globulin (SHBG)
Total testosterone

Polycyclic Aromatic Hydrocarbon Metabolites

2-Hydroxyfluorene
3-Hydroxyfluorene
9-Hydroxyfluorene
1-Hydroxyphenanthrene
2-Hydroxyphenanthrene
3-Hydroxyphenanthrene
4-Hydroxyphenanthrene
1-Hydroxypyrene
1-Hydroxynaphthalene (1-Naphthol)
2-Hydroxynaphthalene (2-Naphthol)

Heterocyclic Amines

3-Amino-1,4-dimethyl-5H-pyrido[4,3-b]indole (Trp-P-1)
2-Amino-3-methyl-9H-pyrido[2,3-b]indole (MeA- α -C)
2-Amino-1-methyl-6-phenylimidazo[4,5-b]pyridine (PhIP)
2-Amino-9H-pyrido[2,3-b]indole (A- α -C)
2-Amino-3-methylimidazo[4,5-f]quinoline (IQ)

2-Amino-6-methyldipyrido[1,2-a:3',2'-d]imidazole (Glu-P1)

2-Aminodipyrido[1,2-a:3',2'-d]imidazole (Glu-P2)

1-Methyl-9H-pyrido[3,4-b]indole (Harman)

1-Methyl-3-amino-5H-pyrido[4,3-b]indole (Trp-P-2)

9H-pyrido[3,4-b]indole (Norharman)

Terpenes

α -Pinene

β -Pinene

Limonene

Volatile Organic Compounds (VOCs)

1,1,1-Trichloroethane (Methyl chloroform)

1,1,1,2-Tetrachloroethane

1,1,2,2-Tetrachloroethane

1,1,2-Trichloroethane

1,2,3-Trichloropropane

1,1-Dichloroethane

1,1-Dichloroethene (Vinylidene chloride) 1,2-Dibromo-3-chloropropane (DBCP)

1,2-Dibromoethane

1,2-Dichlorobenzene (o-Dichlorobenzene)

1,2-Dichloroethane (Ethylene dichloride)

cis-1,2-Dichloroethene

trans-1,2-Dichloroethene

1,2-Dichloropropane

1,3-Dichlorobenzene (m-Dichlorobenzene)

1,4-Dichlorobenzene (Paradichlorobenzene)

1,4-Dioxane

2,5-Dimethylfuran

Benzene

Benzonitrile

Chlorobenzene (Monochlorobenzene)

Chloroethane

Cyclohexane

Dibromomethane

Dichloromethane (Methylene chloride)

Diethylether

Ethyl acetate

Ethylbenzene

Furan
n-Heptane
Hexachloroethane
n-Hexane
Isobutyronitrile
Isopropylbenzene (Cumene)
Methyl-tert-butyl ether (MTBE)
Methylcyclopentane
Nitrobenzene
Nitromethane
n-Octane
Styrene
Tetrachloroethene (Perchloroethylene)
Tetrachloromethane (Carbon tetrachloride)
Tetrahydrofuran
Toluene
Trichloroethene (Trichloroethylene)
 α,α,α -Trifluorotoluene
Vinyl bromide
m-/p-Xylene
o-Xylene

Volatile Organic Compound (VOC) Metabolites

N-Acetyl-S-(2-carboxyethyl)-L-cysteine
N-Acetyl-S-(3-hydroxypropyl)-L-cysteine
N-Acetyl-S-(2-carbamoyl-ethyl)-L-cysteine
N-Acetyl-S-(2-carbamoyl-2-hydroxyethyl)-L-cysteine
N-Acetyl-S-(1-cyano-2-hydroxyethyl)-L-cysteine
N-Acetyl-S-(2-cyanoethyl)-L-cysteine
N-Acetyl-S-(2-hydroxyethyl)-L-cysteine
N-Acetyl-S-(phenyl)-L-cysteine
N-Acetyl-S-(n-propyl)-L-cysteine
N-Acetyl-S-(3,4-dihydroxybutyl)-L-cysteine
N-Acetyl-S-(1-hydroxymethyl-2-propenyl)-L-cysteine
N-Acetyl-S-(2-hydroxy-3-butenyl)-L-cysteine
N-Acetyl-S-(2-hydroxy-3-methyl-3-buten-1-yl)-L-cysteine + N-Acetyl-S-[1-(hydroxymethyl)-2-methyl-2-propen-1-yl]-L-cysteine
N-Acetyl-S-(4-hydroxy-2-butenyl)-L-cysteine
N-Acetyl-S-(4-hydroxy-2-methyl-2-buten-1-yl)-L-cysteine
2-Thioxothiazolidine-4-carboxylic acid

N-Acetyl-S-(3-hydroxypropyl-1-methyl)-L-cysteine
2-Aminothiazoline-4-carboxylic acid
N-Acetyl-S-(N-methylcarbamoyl)-L-cysteine
Phenylglyoxylic acid
N-Acetyl-S-(2-hydroxypropyl)-L-cysteine
N-Acetyl-S-(phenyl-2-hydroxyethyl)-L-cysteine
Mandelic acid
N-Acetyl-S-(trichlorovinyl)-L-cysteine
N-Acetyl-S-(benzyl)-L-cysteine
N-Acetyl-S-(1,2-dichlorovinyl)-L-cysteine
N-Acetyl-S-(2,2-dichlorovinyl)-L-cysteine
N-Acetyl-S-(dimethylphenyl)-L-cysteine
2-Methylhippuric acid
3- & 4-Methylhippuric acid
5-Hydroxymethyl-2-furancarboxylic acid
5-Hydroxymethyl-2-furoylglycine
trans, trans-Muconic acid
N-2-Furoylglycine
Phenylmercapturic acid

Aldehydes

Benzaldehyde
Butyraldehyde
Crotonaldehyde
Decanaldehyde
Heptanaldehyde
Hexanaldehyde
Isopentanaldehyde
Nonanaldehyde
Octanaldehyde
Pentanaldehyde
Propanaldehyde
O-Tolualdehyde

Aromatic Amines

4-Aminobiphenyl
1-Aminonaphthalene
2-Aminonaphthalene
O-Anisidine

2,6-Dimethylaniline

O-Toluidine

Aromatic Diamines

4,4'-Diaminodiphenylmethane (4MDA)

1,5-Diaminonaphthalene (5NDA)

2,4-Diaminotoluene (4TDA)

2,6-Diaminotoluene (6TDA)

P-Phenylenediamine (PPDA)

Organochlorine Pesticides and Metabolites (Pooled Samples after 2004)

Aldrin

Dieldrin

Endrin

Heptachlor epoxide

Oxychlorane

trans-Nonachlor

p,p'-DDT

p,p'-DDE

o,p'-DDT

Hexachlorobenzene

beta-Hexachlorocyclohexane

gamma-Hexachlorocyclohexane

Mirex

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

2,2',4'-Tribromodiphenyl ether (BDE 17)

2,4,4'-Tribromodiphenyl ether (BDE 28)

2,2',4,4'-Tetrabromodiphenyl ether (BDE 47)

2,3',4,4'-Tetrabromodiphenyl ether (BDE 66)

2,2',3,4,4'-Pentabromodiphenyl ether (BDE 85)

2,2',4,4',5-Pentabromodiphenyl ether (BDE 99)

2,2',4,4',6-Pentabromodiphenyl ether (BDE 100)

2,2',4,4',5,5'-Hexabromodiphenyl ether (BDE 153)

2,2',4,4',5,6'-Hexabromodiphenyl ether (BDE 154)

2,2',3,4,4',5',6'-Heptabromodiphenyl ether (BDE 183)

2,2',3,3',4,4',5,5',6,6'-Decabromodiphenyl ether (BDE 209)

2,2',4,4',5,5'-Hexabromobiphenyl (PBB 153)

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

1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)

Polychlorinated Dibenzofurans (Pooled Samples after 2004)

1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)
2,3,7,8-Tetrachlorodibenzofuran (TCDF)

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

3,4,4',5'-Tetrachlorobiphenyl (PCB 81)
3,3',4,4',5'-Pentachlorobiphenyl (PCB 126)
3,3',4,4',5,5'-Hexachlorobiphenyl (PCB 169)

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

2,3,3',4,4'-Pentachlorobiphenyl (PCB 105)
2,3,3',4,4'-Pentachlorobiphenyl (PCB 114)
2,3',4,4',5-Pentachlorobiphenyl (PCB 118)
2',3,4,4',5-Pentachlorobiphenyl (PCB 123)
2,3,3',4,4',5-Hexachlorobiphenyl (PCB 156)
2,3,3',4,4',5'-Hexachlorobiphenyl (PCB 157)
2,3',4,4',5,5'-Hexachlorobiphenyl (PCB 167)
2,3,3',4,4',5,5'-Heptachlorobiphenyl (PCB 189)

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

2,4,4'-Trichlorobiphenyl (PCB 28)
2,2'3,5'-Tetrachloro biphenyl (PCB 44)

2,2',4,5'-Tetrachloro biphenyl (PCB 49)
2,2',5,5'-Tetrachlorobiphenyl (PCB 52)
2,3',4,4'-Tetrachlorobiphenyl (PCB 66)
2,4,4',5-Tetrachlorobiphenyl (PCB 74)
2,2',3,4,5'-Pentachlorobiphenyl (PCB 87)
2,2',4,4',5-Pentachlorobiphenyl (PCB 99)
2,2',4,5,5'-Pentachlorobiphenyl (PCB 101)
2,3,3',4',6-Pentachlorobiphenyl (PCB 110)
2,2',3,3',4,4'-Hexachlorobiphenyl (PCB 128)
2,2',3,4,4',5' & 2,3,3',4,4',6-Hexachlorobiphenyl (PCB 138 & 158)
2,2',3,4',5,5'-Hexachlorobiphenyl (PCB 146)
2,2',3,4',5',6-Hexachlorobiphenyl (PCB 149)
2,2',3,5,5',6-Hexachlorobiphenyl (PCB 151)
2,2',4,4',5,5'-Hexachlorobiphenyl (PCB 153)
2,2',3,3',4,4',5-Heptachlorobiphenyl (PCB 170)
2,2',3,3',4,5,5'-Heptachlorobiphenyl (PCB 172)
2,2',3,3',4,5',6'-Heptachlorobiphenyl (PCB 177)
2,2',3,3',5,5',6-Heptachlorobiphenyl (PCB 178)
2,2',3,4,4',5,5'-Heptachlorobiphenyl (PCB 180)
2,2',3,4,4',5',6-Heptachlorobiphenyl (PCB 183)
2,2',3,4',5,5',6-Heptachlorobiphenyl (PCB 187)
2,2',3,3',4,4',5,5'-Octachlorobiphenyl (PCB 194)
2,2',3,3',4,4',5,6-Octachlorobiphenyl (PCB 195)
2,2',3,3',4,4',5,6' & 2,2',3,4,4',5,5',6-Octachlorobiphenyl (PCB 196 & 203)
2,2',3,3',4,5,5',6-Octachlorobiphenyl (PCB 199)
2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl (PCB 206)
2,2',3,3',4,4',5,5',6,6'-Decachlorobiphenyl (PCB 209)