

Phthalate and Phthalate Alternative Metabolites

Urinary Mono-benzyl phthalate (MBzP) (1999 - 2010)

CAS Number 2528-16-7

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.**

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	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
Total population	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
Total population	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
Total population	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
Total population	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
Total population	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 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
Age 6-11 years	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
Age 6-11 years	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
Age 6-11 years	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
Age 6-11 years	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
Age 6-11 years	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
Age 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
Age 12-19 years	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
Age 12-19 years	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
Age 12-19 years	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
Age 12-19 years	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
Age 12-19 years	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
Age 20+ years	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
Age 20+ years	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
Age 20+ years	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
Age 20+ years	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
Age 20+ years	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
Age 20+ years	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
Male	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
Male	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
Male	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
Male	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
Male	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
Male	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
Female	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
Female	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
Female	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
Female	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
Female	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
Female	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
Mexican American	99-00	10.0 (8.69-11.6)	11.3 (9.65-12.2)	23.8 (19.8-26.0)	48.6 (40.0-60.5)	71.1 (58.0-108)	814
Mexican American	01-02	9.49 (7.75-11.6)	10.7 (7.78-13.3)	21.2 (18.9-27.4)	50.7 (38.2-61.5)	68.2 (50.6-116)	677
Mexican American	03-04	10.7 (9.52-12.0)	11.2 (9.72-13.2)	23.3 (19.9-25.5)	51.4 (35.0-66.5)	71.9 (62.3-104)	652
Mexican American	05-06	8.95 (7.12-11.3)	10.2 (8.57-11.9)	20.1 (14.3-31.0)	43.1 (33.9-49.8)	59.8 (43.6-77.3)	637
Mexican American	07-08	7.87 (6.39-9.68)	9.43 (6.91-11.5)	18.7 (14.1-25.3)	38.0 (30.2-47.5)	60.4 (40.5-73.9)	531
Mexican American	09-10	7.58 (6.42-8.96)	7.39 (6.33-9.00)	17.1 (14.3-20.3)	33.8 (26.5-43.5)	54.5 (34.4-79.7)	566
Non-Hispanic Black	99-00	16.6 (14.9-18.4)	16.6 (14.8-18.4)	35.5 (31.7-40.0)	68.2 (57.6-93.4)	99.1 (76.6-174)	603
Non-Hispanic Black	01-02	17.1 (15.1-19.4)	17.4 (14.3-20.2)	36.4 (29.9-45.3)	72.6 (62.2-91.3)	103 (91.2-129)	703
Non-Hispanic Black	03-04	13.6 (11.8-15.7)	14.4 (11.1-17.7)	31.5 (28.0-35.3)	58.2 (50.4-76.0)	86.2 (71.8-124)	699
Non-Hispanic Black	05-06	11.9 (9.03-15.7)	12.7 (10.1-17.1)	26.1 (21.0-35.0)	60.6 (47.2-74.6)	83.2 (74.6-102)	678
Non-Hispanic Black	07-08	9.37 (8.28-10.6)	9.72 (8.35-11.7)	21.4 (18.4-24.8)	46.9 (34.3-61.6)	71.3 (63.7-89.6)	597
Non-Hispanic Black	09-10	8.98 (7.67-10.5)	9.14 (7.76-10.5)	21.0 (16.4-24.7)	38.9 (30.3-52.6)	67.4 (51.3-80.7)	516
Non-Hispanic White	99-00	10.3 (9.12-11.6)	11.6 (10.3-13.4)	24.5 (22.0-27.6)	42.3 (36.9-53.4)	73.9 (53.4-83.4)	912

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Non-Hispanic White	01-02	10.1 (9.12-11.1)	10.5 (9.65-11.2)	25.6 (23.2-28.4)	55.2 (47.6-65.0)	87.5 (67.1-112)	1216
Non-Hispanic White	03-04	9.25 (8.30-10.3)	9.50 (8.42-11.5)	22.0 (20.0-25.3)	45.9 (38.6-52.1)	65.9 (54.9-87.9)	1088
Non-Hispanic White	05-06	7.67 (6.61-8.90)	8.06 (6.98-10.1)	19.8 (17.1-23.5)	43.4 (32.4-52.5)	65.8 (52.5-76.8)	1038
Non-Hispanic White	07-08	7.10 (6.33-7.97)	8.14 (7.06-9.29)	17.9 (16.5-20.3)	37.7 (31.0-44.2)	57.0 (46.0-68.6)	1077
Non-Hispanic White	09-10	6.07 (5.24-7.03)	6.31 (5.54-7.23)	14.7 (12.4-16.7)	29.5 (23.4-36.9)	44.6 (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.

Urinary Mono-benzyl phthalate (MBzP) (creatinine corrected) (1999 - 2010)

CAS Number 2528-16-7

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.**

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	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
Total population	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
Total population	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
Total population	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
Total population	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
Total population	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 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)	328
Age 6-11 years	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
Age 6-11 years	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
Age 6-11 years	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
Age 6-11 years	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
Age 6-11 years	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
Age 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)	752
Age 12-19 years	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
Age 12-19 years	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
Age 12-19 years	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
Age 12-19 years	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
Age 12-19 years	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
Age 20+ years	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)	1461
Age 20+ years	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
Age 20+ years	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
Age 20+ years	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
Age 20+ years	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
Age 20+ years	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
Male	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)	1215
Male	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
Male	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
Male	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
Male	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
Male	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
Female	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)	1326
Female	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
Female	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
Female	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
Female	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
Female	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
Mexican American	99-00	9.10 (8.20-10.1)	8.60 (7.87-9.53)	17.4 (15.5-19.1)	33.5 (30.2-38.7)	49.1 (40.6-67.5)	814
Mexican American	01-02	8.95 (7.69-10.4)	8.55 (7.16-10.7)	17.1 (14.1-20.9)	33.6 (26.3-44.4)	51.5 (36.8-86.5)	677
Mexican American	03-04	9.66 (8.41-11.1)	9.00 (8.25-9.66)	17.3 (15.1-20.0)	38.2 (27.6-46.7)	56.0 (41.1-89.8)	652
Mexican American	05-06	8.05 (6.69-9.69)	8.38 (7.48-8.91)	16.0 (12.6-20.2)	31.0 (22.4-40.6)	45.7 (31.3-54.2)	637
Mexican American	07-08	7.68 (6.13-9.62)	8.06 (6.42-10.3)	15.5 (12.5-19.2)	29.1 (21.9-36.9)	42.9 (33.5-51.8)	531
Mexican American	09-10	7.53 (6.52-8.69)	7.29 (6.30-8.18)	13.3 (11.6-16.3)	32.3 (23.3-43.6)	52.2 (33.0-66.1)	566
Non-Hispanic Black	99-00	10.7 (9.75-11.7)	9.83 (8.76-10.9)	19.4 (16.2-22.9)	40.5 (28.4-54.7)	62.5 (46.4-71.9)	603
Non-Hispanic Black	01-02	12.0 (10.5-13.7)	11.3 (9.84-13.9)	24.1 (19.1-27.4)	43.3 (38.7-50.0)	77.7 (54.4-83.4)	703
Non-Hispanic Black	03-04	9.65 (8.46-11.0)	9.81 (8.32-11.2)	17.4 (15.8-20.7)	36.0 (29.6-41.6)	53.8 (42.5-65.2)	699
Non-Hispanic Black	05-06	8.38 (6.44-10.9)	8.24 (6.72-10.6)	16.1 (12.8-21.5)	34.1 (25.8-43.9)	52.3 (39.9-62.9)	678
Non-Hispanic Black	07-08	7.28 (6.51-8.14)	7.07 (5.97-8.28)	14.7 (12.2-16.0)	25.8 (22.6-31.5)	42.3 (32.6-50.3)	597
Non-Hispanic Black	09-10	6.50 (5.49-7.70)	6.50 (5.38-7.45)	11.7 (9.80-14.9)	23.9 (17.0-31.8)	34.4 (25.8-48.9)	516
Non-Hispanic White	99-00	10.0 (9.16-11.0)	9.66 (9.25-10.7)	18.2 (16.6-19.8)	38.3 (27.9-46.7)	56.1 (48.5-65.0)	912

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Non-Hispanic White	01-02	9.97 (9.24-10.8)	9.33 (8.69-10.3)	18.5 (17.1-20.1)	38.2 (33.5-42.1)	64.2 (49.7-78.5)	1216
Non-Hispanic White	03-04	9.14 (8.48-9.84)	8.97 (7.77-9.93)	17.6 (15.6-19.2)	30.2 (28.1-35.2)	47.2 (41.4-57.3)	1088
Non-Hispanic White	05-06	8.08 (7.17-9.10)	8.35 (7.31-9.49)	15.2 (13.7-17.4)	29.9 (25.1-36.5)	47.4 (40.0-57.1)	1038
Non-Hispanic White	07-08	7.42 (6.90-7.97)	7.38 (6.65-8.23)	14.0 (12.9-15.4)	28.3 (24.2-32.3)	44.5 (36.3-52.4)	1077
Non-Hispanic White	09-10	6.83 (6.08-7.67)	6.37 (5.58-7.34)	12.6 (11.1-14.5)	24.0 (19.5-27.6)	33.4 (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.

Urinary Mono-benzyl phthalate (MBzP) (2011 - 2018)†

CAS Number 2528-16-7

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.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	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
Total population	13-14	4.45 (4.07-4.86)	4.50 (4.10-5.00)	11.0 (9.50-12.7)	23.1 (20.5-25.6)	35.1 (28.4-40.2)	2685
Total population	15-16	4.47 (3.91-5.10)	4.30 (3.80-4.90)	10.7 (9.70-11.5)	26.0 (22.5-29.4)	44.8 (37.8-56.3)	2975
Total population	17-18	3.24 (2.87-3.65)	3.20 (2.80-3.60)	7.70 (6.70-8.60)	18.5 (14.9-22.1)	30.0 (25.7-35.9)	2762
Age 3-5 years	15-16	8.27 (6.78-10.1)	7.10 (5.50-9.00)	20.5 (16.2-26.0)	55.8 (44.4-76.5)	88.1 (75.1-134)	465
Age 3-5 years	17-18	5.30 (4.26-6.59)	4.90 (3.70-6.30)	13.7 (11.2-16.6)	33.7 (24.1-42.5)	52.6 (39.3-81.0)	379
Age 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
Age 6-11 years	13-14	8.55 (7.14-10.2)	8.40 (6.50-10.3)	20.2 (15.0-25.2)	36.6 (28.9-56.3)	59.9 (42.6-86.9)	409
Age 6-11 years	15-16	10.7 (8.58-13.3)	10.9 (8.40-13.8)	26.7 (20.6-33.3)	59.2 (41.6-73.2)	81.1 (61.8-174)	415
Age 6-11 years	17-18	5.54 (4.63-6.62)	5.20 (4.00-6.90)	12.4 (9.60-16.7)	27.8 (19.3-35.9)	36.2 (27.8-55.3)	330
Age 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
Age 12-19 years	13-14	6.55 (5.62-7.62)	7.50 (5.60-9.60)	14.7 (11.3-18.7)	25.0 (21.2-35.1)	38.8 (31.3-50.2)	462
Age 12-19 years	15-16	6.05 (4.33-8.45)	6.50 (4.70-8.40)	14.1 (10.5-17.5)	26.6 (20.8-34.5)	43.5 (25.8-80.6)	405
Age 12-19 years	17-18	4.54 (3.66-5.63)	4.70 (3.40-6.40)	12.1 (8.10-14.5)	24.9 (15.5-33.0)	33.0 (23.2-45.5)	353
Age 20+ years	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
Age 20+ years	13-14	3.91 (3.53-4.34)	4.00 (3.60-4.40)	9.10 (7.80-11.0)	21.2 (19.9-23.2)	30.9 (25.8-37.1)	1814
Age 20+ years	15-16	3.80 (3.39-4.27)	3.70 (3.20-4.30)	8.50 (8.00-9.30)	21.3 (18.1-24.5)	37.8 (29.9-46.8)	1690
Age 20+ years	17-18	2.85 (2.51-3.24)	2.80 (2.50-3.20)	6.60 (5.30-7.80)	14.5 (12.3-19.6)	27.2 (21.7-33.0)	1700
Male	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
Male	13-14	4.67 (4.20-5.19)	4.80 (4.30-5.40)	10.5 (9.10-12.0)	21.8 (19.9-23.8)	36.0 (28.6-42.7)	1285
Male	15-16	4.60 (3.99-5.29)	4.50 (4.00-5.10)	10.9 (9.50-12.1)	28.1 (21.8-32.5)	43.5 (32.9-58.5)	1474
Male	17-18	3.43 (2.93-4.02)	3.30 (2.90-3.90)	7.90 (6.60-9.50)	19.8 (14.2-24.5)	31.6 (23.2-39.3)	1363
Female	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
Female	13-14	4.25 (3.80-4.75)	4.30 (3.80-4.90)	11.8 (8.80-13.8)	24.7 (20.2-27.4)	35.1 (26.9-43.4)	1400
Female	15-16	4.35 (3.76-5.03)	4.20 (3.40-5.00)	10.2 (9.30-11.5)	23.9 (21.4-29.3)	47.6 (34.8-59.2)	1501
Female	17-18	3.06 (2.61-3.59)	2.90 (2.40-3.70)	7.40 (5.70-9.40)	16.8 (13.3-24.9)	28.1 (24.8-37.8)	1399
Mexican American	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
Mexican American	13-14	4.33 (3.82-4.90)	4.20 (3.70-5.20)	9.30 (8.00-11.3)	18.6 (15.5-22.3)	28.4 (20.1-45.3)	438
Mexican American	15-16	4.42 (3.34-5.86)	4.10 (3.10-5.60)	11.4 (6.90-15.7)	26.5 (17.1-40.0)	42.5 (26.2-83.6)	595
Mexican American	17-18	2.76 (2.11-3.62)	2.50 (2.00-3.50)	5.60 (3.90-8.90)	13.7 (9.70-21.7)	24.1 (14.2-33.5)	417
Non-Hispanic Black	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 Black	13-14	6.55 (5.72-7.49)	6.50 (5.60-8.10)	17.3 (14.9-19.5)	33.5 (28.4-37.6)	55.0 (37.6-75.3)	609
Non-Hispanic Black	15-16	7.00 (5.60-8.74)	6.50 (5.30-8.30)	16.6 (13.2-19.3)	39.3 (30.1-49.1)	57.8 (49.8-72.6)	698
Non-Hispanic Black	17-18	4.59 (3.90-5.39)	4.80 (3.70-5.90)	10.8 (8.60-13.4)	22.3 (18.1-30.0)	36.8 (30.0-49.1)	645
Non-Hispanic White	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
Non-Hispanic White	13-14	4.34 (3.87-4.86)	4.40 (3.90-5.10)	10.9 (8.70-13.3)	22.9 (20.1-25.9)	35.1 (26.9-42.7)	987
Non-Hispanic White	15-16	4.23 (3.58-4.99)	4.20 (3.50-5.00)	9.90 (8.40-11.2)	24.5 (21.1-30.1)	42.7 (32.6-52.6)	862
Non-Hispanic White	17-18	3.34 (2.90-3.84)	3.20 (2.80-3.90)	7.80 (6.60-9.20)	19.6 (14.2-24.5)	28.7 (24.1-34.9)	906
All Hispanic	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
All Hispanic	13-14	4.24 (3.88-4.63)	4.40 (3.80-4.80)	9.10 (8.10-10.7)	19.1 (16.3-20.8)	28.6 (21.2-39.5)	690
All Hispanic	15-16	4.50 (3.69-5.50)	4.20 (3.40-5.10)	11.8 (8.80-14.7)	27.6 (19.9-36.2)	44.2 (29.9-77.3)	971
All Hispanic	17-18	2.83 (2.28-3.51)	2.70 (2.20-3.30)	6.10 (4.80-8.20)	14.4 (9.70-24.1)	28.2 (14.4-43.8)	663
Non-Hispanic Asian	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
Non-Hispanic Asian	13-14	2.50 (2.02-3.08)	2.60 (1.90-3.80)	5.60 (4.20-7.60)	14.4 (9.40-17.5)	21.9 (17.0-24.1)	289
Non-Hispanic Asian	15-16	2.69 (1.83-3.96)	2.80 (1.60-4.70)	6.00 (3.80-11.7)	14.2 (8.00-23.4)	23.4 (14.8-29.8)	301
Non-Hispanic Asian	17-18	1.59 (1.19-2.12)	1.40 (1.10-2.00)	3.80 (2.90-5.20)	9.90 (5.60-14.4)	16.3 (9.20-37.4)	366

Limit of detection (LOD, see Data Analysis section) for Survey years 11-12, 13-14, 15-16, and 17-18 are 0.3, 0.3, 0.3, and 0.3, respectively.

† Participants are age 6+ years in Surveys 11-12 and 13-14; beginning with Survey 15-16, participants include those age 3+ years.

Urinary Mono-benzyl phthalate (MBzP) (creatinine corrected) (2011 - 2018)†

CAS Number 2528-16-7

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.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	11-12	5.15 (4.80-5.52)	4.96 (4.62-5.35)	9.49 (8.71-10.5)	17.4 (16.2-19.1)	26.7 (24.3-30.0)	2487
Total population	13-14	4.46 (4.13-4.81)	4.20 (3.78-4.62)	8.40 (7.56-9.32)	17.9 (15.6-19.5)	25.8 (21.3-32.1)	2684
Total population	15-16	4.63 (4.06-5.28)	4.17 (3.60-4.89)	9.83 (8.25-11.3)	21.0 (18.2-26.0)	36.8 (31.4-42.5)	2974
Total population	17-18	3.38 (3.01-3.79)	3.00 (2.60-3.51)	6.76 (5.64-7.87)	15.7 (13.8-17.8)	23.2 (20.2-27.5)	2762
Age 3-5 years	15-16	19.7 (16.3-24.0)	17.6 (13.9-21.7)	46.4 (32.9-64.2)	115 (82.6-142)	183 (131-211)	464
Age 3-5 years	17-18	11.5 (9.55-13.9)	10.0 (7.65-12.6)	23.3 (20.0-28.3)	52.4 (39.5-69.2)	101 (53.1-155)	379
Age 6-11 years	11-12	12.5 (10.8-14.5)	11.9 (10.0-14.3)	24.1 (18.5-28.9)	53.2 (35.9-67.4)	81.0 (54.1-97.7)	395
Age 6-11 years	13-14	10.8 (9.23-12.6)	10.3 (8.79-12.6)	19.9 (16.5-24.0)	39.6 (25.6-74.1)	78.1 (38.3-168)	409
Age 6-11 years	15-16	13.8 (11.3-16.8)	12.0 (10.0-15.6)	28.4 (20.7-42.2)	57.9 (49.0-85.7)	113 (57.9-156)	415
Age 6-11 years	17-18	6.45 (5.46-7.61)	5.45 (4.47-7.94)	13.6 (10.2-18.4)	25.6 (20.4-31.4)	36.8 (30.4-52.1)	330
Age 12-19 years	11-12	6.45 (5.81-7.16)	6.23 (5.39-7.54)	11.7 (10.1-13.2)	18.3 (15.2-22.1)	25.5 (20.3-39.9)	388
Age 12-19 years	13-14	5.31 (4.68-6.03)	5.04 (4.42-5.65)	9.90 (8.22-12.1)	17.9 (13.9-23.3)	30.6 (18.2-35.1)	462
Age 12-19 years	15-16	4.70 (3.68-6.00)	4.34 (3.80-5.50)	8.43 (6.32-11.2)	17.8 (11.6-24.8)	28.2 (17.8-36.8)	405
Age 12-19 years	17-18	3.92 (3.22-4.77)	3.42 (2.76-4.67)	7.75 (5.56-10.4)	16.7 (11.4-20.2)	20.9 (16.4-24.6)	353
Age 20+ years	11-12	4.52 (4.18-4.89)	4.46 (4.05-4.76)	8.08 (7.50-8.83)	15.1 (12.9-16.8)	21.6 (18.5-24.5)	1704
Age 20+ years	13-14	3.95 (3.59-4.34)	3.78 (3.36-4.18)	7.14 (6.39-8.04)	15.2 (13.2-17.7)	22.3 (18.7-26.5)	1813
Age 20+ years	15-16	3.87 (3.43-4.38)	3.44 (3.05-4.10)	8.11 (6.40-9.37)	15.4 (13.6-18.3)	27.6 (21.0-31.8)	1690
Age 20+ years	17-18	2.92 (2.59-3.29)	2.53 (2.17-3.08)	5.60 (4.82-6.76)	12.5 (10.6-15.1)	20.2 (15.9-24.4)	1700
Male	11-12	4.49 (4.01-5.04)	4.26 (3.91-4.73)	8.46 (7.56-9.10)	15.4 (13.8-18.3)	24.7 (18.3-37.0)	1258
Male	13-14	3.92 (3.62-4.25)	3.71 (3.33-4.08)	7.16 (6.42-7.87)	15.6 (13.7-17.7)	23.2 (19.4-27.7)	1284
Male	15-16	4.10 (3.53-4.76)	3.72 (3.08-4.30)	9.18 (7.22-11.3)	18.9 (15.2-24.8)	35.4 (27.6-44.8)	1474
Male	17-18	3.05 (2.67-3.47)	2.73 (2.34-3.20)	6.18 (5.00-7.57)	15.0 (10.7-18.3)	22.6 (18.3-25.9)	1363
Female	11-12	5.87 (5.43-6.35)	5.65 (5.00-6.43)	10.5 (9.45-12.1)	19.7 (16.4-23.3)	28.7 (24.5-34.8)	1229
Female	13-14	5.04 (4.60-5.52)	4.62 (4.25-5.17)	9.73 (8.18-11.5)	19.5 (16.2-24.2)	28.8 (23.6-37.7)	1400
Female	15-16	5.20 (4.57-5.92)	4.60 (4.02-5.22)	10.3 (8.57-11.9)	23.1 (19.8-28.0)	37.2 (31.3-45.0)	1500
Female	17-18	3.73 (3.18-4.38)	3.24 (2.64-4.12)	7.05 (5.81-9.38)	17.3 (13.7-20.0)	23.6 (20.2-31.5)	1399
Mexican American	11-12	5.76 (4.41-7.51)	5.86 (5.00-7.08)	10.2 (8.61-13.1)	17.8 (12.4-34.6)	28.3 (17.1-50.2)	316
Mexican American	13-14	4.41 (3.77-5.16)	4.00 (3.25-5.12)	7.57 (6.12-10.7)	16.5 (12.9-24.7)	26.4 (18.6-36.9)	438
Mexican American	15-16	4.81 (3.56-6.50)	4.27 (2.98-6.13)	10.0 (6.98-15.0)	26.3 (14.9-41.3)	41.4 (31.4-59.7)	595
Mexican American	17-18	2.99 (2.44-3.68)	2.67 (1.97-3.42)	5.46 (4.33-6.96)	13.9 (10.2-18.4)	25.0 (17.1-32.7)	417
Non-Hispanic Black	11-12	5.78 (4.83-6.92)	5.30 (4.49-6.16)	10.5 (8.68-13.6)	21.1 (17.4-27.5)	35.3 (25.2-53.4)	665
Non-Hispanic Black	13-14	4.83 (4.31-5.42)	4.77 (4.26-5.38)	9.71 (8.12-11.6)	19.9 (15.4-25.6)	29.4 (24.8-33.4)	609
Non-Hispanic Black	15-16	5.57 (4.72-6.58)	5.00 (4.18-5.98)	10.6 (8.52-14.2)	28.7 (19.5-38.8)	50.7 (39.2-67.9)	697
Non-Hispanic Black	17-18	3.46 (3.00-3.98)	3.19 (2.76-3.70)	6.89 (5.88-8.00)	14.7 (12.2-18.0)	24.2 (17.1-31.5)	645
Non-Hispanic White	11-12	5.04 (4.67-5.44)	4.82 (4.44-5.37)	9.11 (8.18-10.7)	16.6 (15.1-18.5)	24.7 (21.4-28.7)	811
Non-Hispanic White	13-14	4.57 (4.11-5.07)	4.24 (3.70-4.76)	8.50 (7.32-10.2)	18.5 (15.6-20.3)	25.8 (21.0-34.4)	987
Non-Hispanic White	15-16	4.54 (3.89-5.30)	4.00 (3.28-4.93)	9.91 (8.14-11.5)	20.3 (16.6-24.5)	35.5 (28.5-42.0)	862
Non-Hispanic White	17-18	3.56 (3.08-4.10)	3.15 (2.57-3.95)	7.14 (6.12-9.05)	16.5 (14.3-20.0)	23.0 (20.0-30.0)	906
All Hispanic	11-12	5.38 (4.45-6.51)	5.29 (4.55-6.14)	9.63 (7.95-12.7)	18.4 (13.9-34.6)	35.6 (18.4-49.3)	571
All Hispanic	13-14	4.21 (3.78-4.68)	3.91 (3.36-4.56)	7.57 (6.67-8.64)	15.6 (13.2-18.6)	24.7 (18.4-32.6)	690
All Hispanic	15-16	4.75 (3.79-5.94)	4.25 (3.23-5.38)	10.2 (7.54-13.8)	24.8 (15.2-35.4)	41.3 (31.1-55.0)	971
All Hispanic	17-18	3.04 (2.57-3.60)	2.74 (2.18-3.39)	5.46 (4.66-6.53)	13.6 (11.0-17.5)	23.0 (17.5-31.2)	663
Non-Hispanic Asian	11-12	4.01 (3.49-4.60)	3.96 (3.27-4.72)	7.74 (6.39-9.73)	13.4 (10.5-16.4)	20.5 (14.3-27.7)	352
Non-Hispanic Asian	13-14	3.16 (2.58-3.87)	3.29 (2.37-4.00)	6.33 (5.00-8.00)	14.7 (10.8-16.4)	17.8 (14.7-30.8)	288
Non-Hispanic Asian	15-16	3.33 (2.51-4.44)	3.17 (2.15-4.58)	6.30 (4.97-9.14)	13.3 (7.92-22.1)	20.0 (14.3-25.2)	301
Non-Hispanic Asian	17-18	2.35 (1.75-3.15)	2.07 (1.53-2.98)	4.47 (3.16-7.05)	10.2 (6.33-20.0)	20.0 (9.17-33.7)	366

† Participants are age 6+ years in Surveys 11-12 and 13-14; beginning with Survey 15-16, participants include those age 3+ years.

Urinary Mono-3-hydroxybutyl phthalate (MHBP) (2013 - 2018)†

CAS Number 57074-43-8

Metabolite of Di-n-butyl phthalate (DBP)

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

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	13-14	.805 (.745-.869)	.800 (.700-.900)	1.60 (1.40-1.70)	2.90 (2.60-3.20)	4.10 (3.60-4.60)	2327
Total population	15-16	.895 (.828-.968)	.900 (.800-.900)	1.70 (1.60-1.90)	3.40 (3.00-3.90)	4.70 (4.10-5.50)	2975
Total population	17-18	.823 (.770-.880)	.800 (.700-.900)	1.60 (1.50-1.70)	2.80 (2.60-3.20)	4.20 (3.70-4.80)	2762
Age 3-5 years	15-16	1.26 (1.13-1.39)	1.40 (1.00-1.50)	2.40 (2.10-2.70)	4.10 (3.20-4.90)	5.90 (4.70-7.30)	465
Age 3-5 years	17-18	1.21 (1.02-1.44)	1.30 (1.10-1.40)	2.50 (2.00-3.10)	4.20 (3.50-5.20)	5.80 (4.90-7.70)	379
Age 6-11 years	13-14	1.10 (.873-1.39)	1.20 (.800-1.50)	2.20 (1.70-2.60)	4.00 (2.60-5.30)	5.20 (3.80-10.3)	316
Age 6-11 years	15-16	1.50 (1.39-1.63)	1.70 (1.40-1.80)	2.80 (2.50-3.20)	4.10 (3.50-5.00)	5.60 (4.70-7.20)	415
Age 6-11 years	17-18	1.31 (1.12-1.53)	1.30 (1.20-1.60)	2.30 (1.90-3.00)	4.20 (3.20-5.20)	5.70 (4.40-8.90)	330
Age 12-19 years	13-14	1.02 (.917-1.12)	1.00 (.900-1.20)	1.90 (1.60-2.10)	3.50 (2.40-4.00)	4.10 (3.60-5.00)	376
Age 12-19 years	15-16	1.10 (.904-1.33)	1.10 (.900-1.30)	2.10 (1.50-2.80)	4.10 (3.10-5.20)	5.40 (4.20-6.10)	405
Age 12-19 years	17-18	.960 (.852-1.08)	1.00 (.800-1.30)	2.00 (1.60-2.40)	3.30 (2.50-4.20)	4.40 (3.40-5.60)	353
Age 20+ years	13-14	.752 (.693-.815)	.700 (.600-.800)	1.40 (1.20-1.60)	2.60 (2.30-3.00)	3.90 (3.30-4.40)	1635
Age 20+ years	15-16	.811 (.749-.879)	.800 (.700-.900)	1.50 (1.40-1.70)	3.10 (2.40-3.60)	4.50 (3.60-5.50)	1690
Age 20+ years	17-18	.754 (.703-.809)	.700 (.600-.800)	1.40 (1.30-1.50)	2.70 (2.30-2.90)	4.00 (3.20-4.40)	1700
Male	13-14	.800 (.724-.885)	.700 (.600-.900)	1.50 (1.30-1.70)	2.60 (2.20-3.30)	4.10 (3.00-5.10)	1119
Male	15-16	.847 (.770-.932)	.800 (.700-.900)	1.60 (1.40-1.80)	3.10 (2.60-3.60)	4.30 (3.60-5.50)	1474
Male	17-18	.811 (.767-.857)	.700 (.700-.800)	1.50 (1.40-1.60)	2.70 (2.50-3.20)	4.40 (3.40-5.10)	1363
Female	13-14	.809 (.735-.891)	.800 (.700-.900)	1.60 (1.30-1.90)	3.10 (2.60-3.40)	4.00 (3.40-4.40)	1208
Female	15-16	.944 (.862-1.03)	.900 (.800-1.00)	1.80 (1.70-1.90)	3.60 (3.20-4.30)	4.80 (4.30-5.90)	1501
Female	17-18	.836 (.752-.929)	.900 (.700-1.00)	1.60 (1.40-1.90)	2.90 (2.50-3.40)	4.20 (3.60-5.20)	1399
Mexican American	13-14	.763 (.696-.836)	.700 (.700-.800)	1.40 (1.10-1.70)	2.50 (2.00-3.40)	4.20 (3.20-5.20)	381
Mexican American	15-16	.901 (.800-1.01)	.800 (.700-1.00)	1.80 (1.50-2.10)	3.20 (2.60-4.00)	4.30 (3.70-5.30)	595
Mexican American	17-18	.744 (.647-.854)	.600 (.500-.900)	1.50 (1.20-1.70)	2.50 (2.10-3.00)	3.50 (2.70-4.70)	417
Non-Hispanic Black	13-14	.933 (.839-1.04)	1.00 (.800-1.10)	1.80 (1.60-1.90)	2.70 (2.50-3.30)	4.00 (3.30-4.40)	476
Non-Hispanic Black	15-16	1.06 (.944-1.18)	1.00 (.900-1.20)	2.10 (1.80-2.40)	4.10 (3.50-4.60)	5.80 (4.40-9.40)	698
Non-Hispanic Black	17-18	1.06 (.918-1.22)	1.00 (.800-1.30)	2.20 (1.80-2.60)	3.70 (3.30-4.40)	5.40 (4.10-6.80)	645
Non-Hispanic White	13-14	.795 (.710-.890)	.700 (.600-.900)	1.50 (1.30-1.80)	3.00 (2.40-3.20)	4.10 (3.40-4.90)	907
Non-Hispanic White	15-16	.869 (.795-.949)	.900 (.800-.900)	1.70 (1.50-1.80)	3.30 (2.70-4.00)	4.70 (3.90-5.60)	862
Non-Hispanic White	17-18	.804 (.722-.894)	.800 (.600-.900)	1.50 (1.30-1.70)	2.80 (2.40-3.20)	4.20 (3.20-4.70)	906
All Hispanic	13-14	.793 (.728-.863)	.800 (.700-.800)	1.60 (1.30-1.70)	3.00 (2.40-3.50)	4.20 (3.70-5.30)	611
All Hispanic	15-16	.917 (.853-.985)	.900 (.800-1.00)	1.80 (1.60-1.90)	3.30 (2.90-3.60)	4.30 (3.90-5.00)	971
All Hispanic	17-18	.797 (.706-.901)	.700 (.600-.900)	1.60 (1.30-1.80)	2.80 (2.20-3.30)	4.00 (3.30-5.00)	663
Non-Hispanic Asian	13-14	.650 (.551-.767)	.600 (.400-.700)	1.20 (1.00-1.60)	2.20 (1.80-2.90)	3.10 (2.20-4.00)	234
Non-Hispanic Asian	15-16	.830 (.647-1.07)	.800 (.600-.900)	1.50 (1.20-2.10)	3.00 (2.40-3.90)	5.00 (3.40-7.00)	301
Non-Hispanic Asian	17-18	.699 (.617-.792)	.600 (.500-.700)	1.40 (1.10-1.80)	2.60 (2.10-3.60)	4.00 (2.70-5.40)	366

Limit of detection (LOD, see Data Analysis section) for Survey years 13-14, 15-16, and 17-18 are 0.4, 0.4, and 0.4, respectively.

† Participants are age 6+ years in Survey 13-14; beginning with Survey 15-16, participants include those age 3+ years.

Urinary Mono-3-hydroxybutyl phthalate (MHBP) (creatinine corrected) (2013 - 2018)†

CAS Number 57074-43-8

Metabolite of Di-n-butyl phthalate (DBP)

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.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	13-14	.816 (.737-.903)	.813 (.718-.909)	1.33 (1.22-1.43)	2.24 (2.05-2.52)	3.30 (2.74-3.93)	2326
Total population	15-16	.927 (.877-.979)	.897 (.847-.966)	1.59 (1.47-1.71)	2.68 (2.46-2.97)	3.87 (3.51-4.30)	2974
Total population	17-18	.859 (.800-.923)	.824 (.755-.897)	1.46 (1.33-1.56)	2.55 (2.20-2.80)	3.79 (3.21-4.19)	2762
Age 3-5 years	15-16	2.99 (2.71-3.29)	3.04 (2.76-3.33)	4.71 (3.92-5.19)	7.57 (6.15-8.75)	9.75 (8.18-12.1)	464
Age 3-5 years	17-18	2.62 (2.31-2.98)	2.55 (2.20-2.94)	4.08 (3.54-4.71)	6.17 (5.26-7.91)	9.13 (6.50-10.5)	379
Age 6-11 years	13-14	1.42 (1.15-1.75)	1.39 (1.06-1.62)	2.39 (1.82-3.11)	4.09 (2.91-6.62)	6.62 (3.41-9.38)	316
Age 6-11 years	15-16	1.94 (1.77-2.12)	1.86 (1.74-2.00)	2.80 (2.55-3.30)	4.81 (4.11-6.07)	7.42 (5.39-9.09)	415
Age 6-11 years	17-18	1.52 (1.27-1.83)	1.57 (1.20-1.89)	2.62 (2.04-3.30)	4.00 (3.01-5.32)	5.37 (4.00-6.86)	330
Age 12-19 years	13-14	.857 (.738-.996)	.824 (.706-.980)	1.32 (1.06-1.55)	2.04 (1.59-3.10)	3.35 (1.82-6.06)	376
Age 12-19 years	15-16	.853 (.748-.973)	.825 (.704-.924)	1.43 (1.16-1.88)	2.50 (1.86-3.09)	3.09 (2.46-4.00)	405
Age 12-19 years	17-18	.829 (.728-.945)	.791 (.741-.933)	1.33 (1.07-1.54)	2.01 (1.59-2.72)	2.73 (2.13-3.40)	353
Age 20+ years	13-14	.763 (.685-.849)	.761 (.682-.874)	1.24 (1.13-1.38)	2.15 (1.84-2.34)	3.04 (2.46-3.38)	1634
Age 20+ years	15-16	.827 (.778-.879)	.811 (.752-.886)	1.39 (1.27-1.47)	2.16 (1.87-2.50)	3.06 (2.57-3.37)	1690
Age 20+ years	17-18	.773 (.723-.826)	.737 (.667-.824)	1.30 (1.17-1.40)	2.00 (1.80-2.38)	3.13 (2.55-3.64)	1700
Male	13-14	.678 (.606-.760)	.662 (.596-.741)	1.08 (.959-1.30)	1.88 (1.56-2.30)	3.09 (2.21-3.93)	1118
Male	15-16	.756 (.699-.817)	.732 (.647-.797)	1.26 (1.14-1.44)	2.27 (2.05-2.58)	3.37 (2.91-3.85)	1474
Male	17-18	.720 (.656-.791)	.671 (.619-.736)	1.17 (1.07-1.29)	2.23 (1.86-2.80)	3.33 (2.77-4.09)	1363
Female	13-14	.973 (.866-1.09)	.976 (.872-1.09)	1.54 (1.38-1.72)	2.50 (2.20-2.90)	3.58 (2.90-4.30)	1208
Female	15-16	1.13 (1.06-1.21)	1.10 (1.02-1.20)	1.82 (1.64-2.00)	3.03 (2.71-3.24)	4.34 (3.75-4.77)	1500
Female	17-18	1.02 (.915-1.13)	.971 (.870-1.11)	1.64 (1.49-1.80)	2.63 (2.50-2.97)	4.00 (3.24-4.55)	1399
Mexican American	13-14	.792 (.705-.889)	.744 (.681-.875)	1.43 (1.19-1.72)	2.39 (2.13-2.74)	3.37 (2.65-3.69)	381
Mexican American	15-16	.981 (.895-1.08)	1.00 (.886-1.07)	1.69 (1.47-1.82)	3.04 (2.61-3.70)	4.34 (3.91-5.41)	595
Mexican American	17-18	.806 (.705-.921)	.826 (.678-.933)	1.33 (1.15-1.55)	2.38 (2.01-2.73)	3.23 (2.62-4.21)	417
Non-Hispanic Black	13-14	.689 (.649-.731)	.694 (.647-.752)	1.17 (1.04-1.28)	1.73 (1.55-1.95)	2.23 (1.98-2.70)	476
Non-Hispanic Black	15-16	.841 (.763-.928)	.728 (.667-.853)	1.53 (1.32-1.82)	2.88 (2.56-3.62)	4.67 (3.90-6.71)	697
Non-Hispanic Black	17-18	.796 (.693-.914)	.762 (.649-.899)	1.40 (1.17-1.64)	2.33 (1.93-2.94)	3.53 (2.79-5.00)	645
Non-Hispanic White	13-14	.849 (.730-.987)	.867 (.718-1.00)	1.33 (1.19-1.55)	2.33 (2.04-2.80)	3.59 (2.69-4.82)	907
Non-Hispanic White	15-16	.934 (.880-.990)	.916 (.866-1.00)	1.61 (1.45-1.74)	2.55 (2.28-3.02)	3.58 (3.11-4.13)	862
Non-Hispanic White	17-18	.857 (.794-.924)	.800 (.737-.903)	1.44 (1.27-1.59)	2.46 (2.00-2.88)	3.73 (2.87-4.23)	906
All Hispanic	13-14	.797 (.719-.883)	.757 (.685-.872)	1.44 (1.28-1.62)	2.39 (2.13-2.74)	3.37 (2.82-3.62)	611
All Hispanic	15-16	.966 (.916-1.02)	.933 (.865-1.01)	1.65 (1.47-1.77)	2.90 (2.55-3.33)	4.24 (3.83-4.86)	971
All Hispanic	17-18	.856 (.761-.964)	.857 (.738-.943)	1.46 (1.24-1.57)	2.60 (2.27-2.90)	3.89 (2.94-4.47)	663
Non-Hispanic Asian	13-14	.831 (.723-.956)	.794 (.651-.933)	1.47 (1.10-1.78)	2.25 (1.93-2.90)	3.06 (2.26-3.73)	233
Non-Hispanic Asian	15-16	1.03 (.869-1.22)	1.03 (.855-1.12)	1.63 (1.31-2.10)	2.83 (2.20-4.68)	4.81 (3.47-5.30)	301
Non-Hispanic Asian	17-18	1.03 (.922-1.16)	.933 (.800-1.05)	1.75 (1.49-2.10)	3.33 (2.57-4.19)	5.32 (3.70-7.78)	366

† Participants are age 6+ years in Survey 13-14; beginning with Survey 15-16, participants include those age 3+ years.

Urinary Mono-n-butyl phthalate (MnBP) (1999 - 2010)

CAS Number 131-70-4

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.*

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	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
Total population	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
Total population	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
Total population	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
Total population	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
Total population	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 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
Age 6-11 years	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
Age 6-11 years	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
Age 6-11 years	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
Age 6-11 years	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
Age 6-11 years	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
Age 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
Age 12-19 years	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
Age 12-19 years	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
Age 12-19 years	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
Age 12-19 years	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
Age 12-19 years	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
Age 20+ years	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
Age 20+ years	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
Age 20+ years	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
Age 20+ years	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
Age 20+ years	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
Age 20+ years	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
Male	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
Male	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
Male	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
Male	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
Male	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
Male	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
Female	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
Female	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
Female	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
Female	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
Female	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
Female	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
Mexican American	99-00	23.4 (21.8-25.1)	26.3 (23.9-28.1)	48.1 (41.2-56.7)	92.2 (78.9-101)	117 (104-131)	814
Mexican American	01-02	20.1 (16.6-24.5)	23.1 (18.0-26.5)	42.1 (34.0-51.5)	77.1 (62.9-92.5)	112 (84.6-143)	677
Mexican American	03-04	24.1 (19.8-29.5)	26.9 (20.2-32.0)	47.4 (38.0-58.5)	85.6 (61.7-117)	127 (99.8-165)	652
Mexican American	05-06	22.4 (18.6-27.0)	23.5 (19.0-29.0)	45.4 (37.1-55.4)	90.2 (71.1-119)	132 (106-174)	637
Mexican American	07-08	22.2 (18.5-26.7)	22.4 (17.8-27.1)	43.8 (36.2-50.4)	76.4 (59.8-106)	145 (85.6-223)	531
Mexican American	09-10	17.2 (15.3-19.4)	17.3 (14.3-20.9)	34.3 (31.4-38.8)	56.1 (47.7-67.9)	80.0 (65.1-107)	566
Non-Hispanic Black	99-00	37.0 (31.9-42.9)	38.7 (33.4-44.5)	78.2 (58.7-91.8)	118 (108-143)	167 (143-197)	603
Non-Hispanic Black	01-02	29.6 (26.6-33.1)	31.5 (28.7-34.1)	58.3 (51.2-63.4)	93.2 (79.5-121)	138 (110-184)	703
Non-Hispanic Black	03-04	30.1 (28.4-31.9)	31.5 (29.7-34.1)	64.1 (58.3-67.1)	106 (94.8-119)	144 (115-168)	699
Non-Hispanic Black	05-06	27.1 (23.1-31.8)	28.5 (25.0-31.2)	53.1 (39.9-65.8)	105 (77.3-135)	143 (118-183)	678
Non-Hispanic Black	07-08	25.0 (21.9-28.4)	25.8 (22.0-30.4)	52.4 (43.9-59.5)	91.2 (75.6-106)	114 (96.8-148)	597
Non-Hispanic Black	09-10	21.9 (19.2-25.0)	23.2 (20.0-26.3)	42.4 (37.1-47.5)	69.1 (59.4-84.2)	103 (74.8-134)	516
Non-Hispanic White	99-00	21.8 (19.3-24.6)	23.2 (19.5-27.5)	46.3 (37.5-53.3)	90.2 (74.7-106)	142 (111-161)	912

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Non-Hispanic White	01-02	17.6 (16.0-19.3)	19.2 (17.0-21.0)	36.6 (32.4-42.6)	69.2 (59.2-87.6)	107 (89.8-123)	1216
Non-Hispanic White	03-04	18.9 (17.6-20.3)	20.7 (18.9-22.8)	38.4 (35.5-42.7)	71.3 (60.1-80.0)	101 (90.7-124)	1088
Non-Hispanic White	05-06	17.8 (16.2-19.5)	18.6 (16.9-20.7)	37.8 (33.1-42.1)	65.4 (55.4-73.9)	95.9 (79.5-113)	1038
Non-Hispanic White	07-08	17.8 (16.2-19.5)	18.9 (17.2-20.9)	36.7 (32.3-41.4)	68.0 (58.9-77.2)	110 (86.5-120)	1077
Non-Hispanic White	09-10	13.0 (11.6-14.5)	14.1 (12.7-15.8)	26.6 (23.4-31.0)	48.8 (42.2-54.3)	67.5 (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)

Urinary Mono-n-butyl phthalate (MnBP) (creatinine corrected) (1999 - 2010)

CAS Number 131-70-4

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.*

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	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
Total population	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
Total population	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
Total population	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
Total population	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
Total population	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 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)	328
Age 6-11 years	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
Age 6-11 years	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
Age 6-11 years	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
Age 6-11 years	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
Age 6-11 years	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
Age 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)	752
Age 12-19 years	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
Age 12-19 years	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
Age 12-19 years	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
Age 12-19 years	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
Age 12-19 years	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
Age 20+ years	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)	1461
Age 20+ years	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
Age 20+ years	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
Age 20+ years	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
Age 20+ years	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
Age 20+ years	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
Male	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)	1215
Male	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
Male	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
Male	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
Male	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
Male	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
Female	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)	1326
Female	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
Female	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
Female	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
Female	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
Female	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
Mexican American	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
Mexican American	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
Mexican American	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
Mexican American	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
Mexican American	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
Mexican American	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
Non-Hispanic Black	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
Non-Hispanic Black	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
Non-Hispanic Black	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
Non-Hispanic Black	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 Black	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
Non-Hispanic Black	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
Non-Hispanic White	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

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Non-Hispanic White	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
Non-Hispanic White	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
Non-Hispanic White	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
Non-Hispanic White	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
Non-Hispanic White	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)

Urinary Mono-n-butyl phthalate (MnBP) (2011 - 2018)†

CAS Number 131-70-4

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.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	11-12	7.61 (6.64-8.72)	9.20 (8.10-10.1)	20.0 (17.8-22.1)	35.5 (31.3-41.8)	55.0 (44.3-68.5)	2489
Total population	13-14	9.08 (8.53-9.66)	10.2 (9.40-11.2)	19.9 (18.1-21.0)	35.1 (32.4-37.9)	49.2 (45.7-54.0)	2685
Total population	15-16	9.83 (8.90-10.9)	10.6 (9.70-11.9)	19.7 (18.3-21.1)	33.6 (31.7-37.0)	45.0 (42.3-51.3)	2975
Total population	17-18	8.61 (7.95-9.33)	9.60 (8.60-10.4)	18.0 (15.9-20.2)	32.2 (28.7-34.8)	44.0 (39.4-50.0)	2762
Age 3-5 years	15-16	10.9 (9.92-11.9)	11.1 (9.30-13.0)	20.6 (17.3-24.1)	35.9 (29.9-47.4)	56.1 (43.6-73.8)	465
Age 3-5 years	17-18	10.5 (8.95-12.4)	11.2 (9.20-13.4)	22.3 (17.7-26.0)	36.8 (32.0-43.1)	53.5 (42.3-74.0)	379
Age 6-11 years	11-12	11.1 (8.73-14.2)	14.9 (10.8-17.1)	25.7 (23.2-32.1)	58.6 (39.6-71.4)	97.0 (59.3-163)	396
Age 6-11 years	13-14	12.0 (10.1-14.2)	13.1 (10.5-15.3)	26.9 (22.1-32.2)	45.3 (36.5-51.7)	55.5 (46.7-63.0)	409
Age 6-11 years	15-16	14.4 (13.1-15.8)	15.4 (13.4-17.3)	26.2 (22.1-29.1)	40.6 (36.0-43.0)	47.2 (42.5-62.1)	415
Age 6-11 years	17-18	12.5 (10.6-14.7)	12.6 (10.6-14.4)	22.2 (19.5-26.7)	43.6 (27.1-49.3)	50.9 (44.0-87.2)	330
Age 12-19 years	11-12	9.69 (7.91-11.9)	12.2 (10.0-14.7)	24.7 (21.0-30.7)	44.2 (36.1-56.9)	60.7 (51.3-83.4)	388
Age 12-19 years	13-14	12.1 (11.2-13.1)	13.6 (12.4-14.8)	24.5 (20.6-27.7)	45.7 (30.5-57.1)	61.0 (46.0-64.9)	462
Age 12-19 years	15-16	11.6 (8.96-14.9)	12.2 (10.1-16.2)	22.0 (18.4-28.1)	37.9 (31.3-45.7)	51.6 (42.4-59.9)	405
Age 12-19 years	17-18	9.82 (8.35-11.5)	11.2 (9.40-13.5)	23.2 (18.3-24.7)	32.7 (27.9-48.3)	50.3 (31.5-73.3)	353
Age 20+ years	11-12	7.04 (6.04-8.21)	8.20 (7.20-9.60)	18.2 (15.7-20.7)	31.8 (27.3-38.3)	46.4 (37.7-64.3)	1705
Age 20+ years	13-14	8.44 (7.84-9.10)	9.40 (8.70-10.2)	18.0 (17.0-19.7)	32.4 (29.0-35.1)	46.6 (38.9-52.3)	1814
Age 20+ years	15-16	9.18 (8.32-10.1)	9.80 (9.20-11.1)	18.7 (17.0-20.4)	32.5 (29.7-35.3)	44.1 (41.0-47.8)	1690
Age 20+ years	17-18	8.06 (7.33-8.85)	8.70 (7.70-9.90)	16.5 (14.8-18.7)	30.7 (26.6-33.0)	42.3 (35.2-49.8)	1700
Male	11-12	8.14 (7.03-9.43)	9.20 (8.50-10.1)	20.1 (17.6-23.2)	34.0 (29.7-43.1)	56.9 (38.5-75.1)	1259
Male	13-14	9.43 (8.56-10.4)	10.3 (9.30-11.4)	19.7 (17.5-21.5)	32.4 (28.8-36.9)	46.8 (38.9-53.0)	1285
Male	15-16	9.88 (8.84-11.1)	10.6 (9.50-12.2)	19.6 (17.7-21.6)	32.0 (29.0-34.5)	44.9 (39.4-51.6)	1474
Male	17-18	8.90 (8.10-9.78)	9.40 (8.50-10.3)	17.7 (14.9-20.2)	30.5 (25.2-34.9)	43.2 (33.7-56.7)	1363
Female	11-12	7.14 (6.05-8.41)	9.00 (7.10-10.6)	19.7 (17.5-21.9)	36.1 (30.3-43.1)	51.8 (44.3-68.0)	1230
Female	13-14	8.76 (7.89-9.73)	10.1 (9.10-11.6)	20.1 (17.2-22.5)	36.9 (32.9-42.7)	51.0 (44.7-59.1)	1400
Female	15-16	9.78 (8.77-10.9)	10.6 (9.60-11.9)	19.7 (17.5-21.9)	36.6 (33.1-40.4)	45.8 (42.0-54.0)	1501
Female	17-18	8.34 (7.55-9.22)	9.80 (8.30-11.3)	18.1 (15.9-21.4)	32.4 (28.9-37.6)	46.4 (40.1-50.3)	1399
Mexican American	11-12	8.96 (7.58-10.6)	10.1 (7.70-13.1)	20.6 (15.2-26.4)	35.8 (29.1-45.4)	50.3 (38.9-83.4)	316
Mexican American	13-14	9.81 (8.41-11.4)	10.4 (8.40-13.6)	18.7 (15.2-23.9)	36.2 (23.6-53.5)	54.0 (43.6-64.9)	438
Mexican American	15-16	9.86 (8.75-11.1)	10.6 (8.70-12.3)	20.2 (16.8-22.9)	35.3 (28.7-44.4)	50.6 (42.4-66.3)	595
Mexican American	17-18	8.33 (6.99-9.91)	8.70 (6.70-11.0)	15.4 (13.3-19.0)	25.3 (21.7-30.6)	32.3 (28.8-42.9)	417
Non-Hispanic Black	11-12	13.2 (11.2-15.6)	15.3 (13.3-17.9)	29.7 (26.4-32.8)	53.1 (43.6-67.3)	76.4 (60.3-100)	665
Non-Hispanic Black	13-14	11.8 (10.4-13.4)	13.1 (11.4-15.1)	26.0 (23.7-27.9)	43.8 (38.3-49.2)	58.9 (48.8-68.8)	609
Non-Hispanic Black	15-16	13.7 (11.9-15.6)	14.4 (12.3-17.0)	26.1 (23.1-28.8)	45.0 (40.0-52.2)	67.3 (51.4-92.5)	698
Non-Hispanic Black	17-18	12.9 (11.0-15.0)	14.2 (12.0-17.2)	26.6 (21.5-32.0)	42.2 (36.1-54.6)	58.8 (45.8-88.9)	645
Non-Hispanic White	11-12	6.47 (5.66-7.39)	7.60 (6.70-8.50)	17.1 (15.2-18.4)	30.3 (25.9-33.4)	43.1 (32.3-59.3)	813
Non-Hispanic White	13-14	8.40 (7.76-9.09)	9.40 (8.20-11.2)	18.0 (16.5-21.0)	32.4 (28.1-36.7)	46.8 (37.9-53.1)	987
Non-Hispanic White	15-16	9.05 (7.99-10.3)	9.80 (9.10-11.3)	18.3 (16.9-19.8)	32.0 (29.0-35.6)	41.6 (37.9-45.8)	862
Non-Hispanic White	17-18	8.02 (6.99-9.21)	8.90 (7.30-10.4)	16.5 (14.1-20.3)	28.9 (24.7-35.0)	43.2 (32.9-49.8)	906
All Hispanic	11-12	9.78 (8.15-11.7)	11.0 (8.80-14.4)	23.3 (20.0-27.0)	38.9 (31.8-50.6)	60.5 (45.4-93.3)	571
All Hispanic	13-14	9.91 (8.98-10.9)	10.5 (9.40-11.8)	19.3 (16.1-23.6)	38.2 (30.3-49.7)	59.5 (48.8-75.0)	690
All Hispanic	15-16	9.98 (9.11-10.9)	11.0 (9.90-12.0)	19.5 (17.6-21.8)	34.6 (31.1-38.6)	48.7 (42.5-53.2)	971
All Hispanic	17-18	8.67 (7.47-10.1)	9.40 (7.90-11.2)	17.3 (14.3-20.7)	30.6 (24.1-34.2)	39.7 (32.4-50.8)	663
Non-Hispanic Asian	11-12	6.77 (5.05-9.06)	8.20 (5.80-10.8)	18.9 (13.5-29.1)	40.5 (29.1-58.6)	64.3 (45.9-104)	352
Non-Hispanic Asian	13-14	8.29 (6.86-10.0)	9.40 (6.60-12.3)	18.3 (14.0-22.2)	31.5 (25.2-35.7)	41.3 (34.2-51.6)	289
Non-Hispanic Asian	15-16	9.81 (8.06-11.9)	10.2 (7.70-13.7)	19.9 (17.5-22.4)	34.2 (28.1-47.2)	57.4 (43.1-71.9)	301
Non-Hispanic Asian	17-18	7.91 (6.83-9.15)	7.90 (6.50-9.50)	16.5 (12.9-20.3)	34.4 (26.7-39.6)	46.3 (34.5-66.1)	366

Limit of detection (LOD, see Data Analysis section) for Survey years 11-12, 13-14, 15-16, and 17-18 are 0.4, 0.4, 0.4, and 0.4, respectively.

† Participants are age 6+ years in Surveys 11-12 and 13-14; beginning with Survey 15-16, participants include those age 3+ years.

Urinary Mono-n-butyl phthalate (MnBP) (creatinine corrected) (2011 - 2018)†

CAS Number 131-70-4

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.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	11-12	8.66 (7.79-9.62)	9.04 (8.30-9.92)	15.8 (15.0-17.3)	27.9 (24.2-30.9)	41.2 (33.0-51.8)	2487
Total population	13-14	9.10 (8.56-9.69)	9.17 (8.62-9.63)	14.9 (14.1-15.5)	23.8 (21.8-26.3)	34.4 (30.5-39.5)	2684
Total population	15-16	10.2 (9.53-10.9)	9.91 (9.11-10.6)	16.7 (15.7-17.6)	26.4 (25.2-28.9)	36.1 (34.2-38.0)	2974
Total population	17-18	8.99 (8.39-9.63)	8.67 (8.03-9.36)	14.1 (13.2-15.5)	24.2 (21.9-27.1)	33.5 (30.0-37.7)	2762
Age 3-5 years	15-16	25.9 (23.8-28.1)	26.1 (23.8-29.2)	38.1 (34.1-43.0)	58.1 (52.5-72.4)	82.8 (67.6-103)	464
Age 3-5 years	17-18	22.9 (20.2-25.9)	23.5 (20.0-26.7)	34.3 (30.8-38.9)	52.6 (43.9-56.3)	70.6 (53.6-92.3)	379
Age 6-11 years	11-12	15.9 (13.0-19.5)	17.7 (15.0-20.6)	29.8 (24.8-34.4)	51.2 (38.4-66.4)	73.3 (47.3-114)	395
Age 6-11 years	13-14	15.1 (13.4-17.1)	14.8 (13.0-17.8)	26.3 (22.2-28.8)	42.2 (31.5-53.2)	56.2 (43.1-77.1)	409
Age 6-11 years	15-16	18.5 (17.4-19.7)	18.6 (17.2-19.8)	26.3 (24.6-28.9)	40.1 (35.5-44.3)	58.2 (44.3-78.9)	415
Age 6-11 years	17-18	14.5 (11.9-17.7)	14.3 (11.7-18.4)	23.4 (19.4-27.0)	34.7 (26.6-47.3)	47.3 (30.7-83.1)	330
Age 12-19 years	11-12	9.44 (8.71-10.2)	10.5 (8.61-12.7)	15.7 (14.9-17.8)	28.1 (22.0-30.0)	37.0 (29.2-46.7)	388
Age 12-19 years	13-14	9.82 (8.79-11.0)	9.93 (8.95-10.3)	15.0 (13.8-16.8)	22.2 (18.3-30.6)	34.1 (22.2-60.4)	462
Age 12-19 years	15-16	8.98 (7.71-10.5)	8.78 (7.59-9.94)	15.2 (12.1-18.4)	22.8 (19.2-26.1)	28.0 (22.1-38.2)	405
Age 12-19 years	17-18	8.48 (7.23-9.95)	8.72 (7.84-9.60)	12.2 (10.9-16.8)	21.0 (16.0-24.2)	25.7 (22.1-32.5)	353
Age 20+ years	11-12	8.00 (7.09-9.01)	8.32 (7.64-9.12)	14.6 (13.0-16.0)	23.4 (21.4-27.9)	36.2 (29.4-47.3)	1704
Age 20+ years	13-14	8.52 (8.01-9.05)	8.62 (8.06-9.13)	13.9 (13.3-14.9)	22.2 (20.3-23.8)	30.2 (26.4-34.5)	1813
Age 20+ years	15-16	9.36 (8.75-10.0)	9.09 (8.39-10.0)	14.8 (13.9-15.7)	24.0 (21.3-25.7)	32.9 (28.5-36.1)	1690
Age 20+ years	17-18	8.26 (7.72-8.83)	7.84 (7.26-8.72)	12.9 (12.2-13.5)	20.7 (18.5-22.8)	30.1 (26.5-34.1)	1700
Male	11-12	7.61 (6.65-8.69)	8.07 (7.54-8.85)	13.7 (11.9-15.5)	22.7 (19.3-26.3)	34.6 (24.1-53.0)	1258
Male	13-14	7.92 (7.26-8.65)	7.67 (6.97-8.47)	13.0 (11.6-14.2)	20.3 (18.3-22.4)	28.8 (22.9-35.8)	1284
Male	15-16	8.81 (8.18-9.50)	8.42 (7.89-8.93)	14.0 (12.8-15.4)	23.6 (21.3-25.2)	31.1 (26.6-35.0)	1474
Male	17-18	7.90 (7.32-8.53)	7.41 (6.69-8.11)	12.0 (11.1-13.5)	21.6 (17.9-25.7)	29.0 (26.5-34.2)	1363
Female	11-12	9.81 (8.86-10.9)	10.3 (9.18-11.5)	18.1 (16.8-19.7)	31.8 (28.1-34.6)	44.8 (38.4-54.6)	1229
Female	13-14	10.4 (9.80-11.0)	10.5 (9.67-11.3)	16.3 (15.2-17.7)	26.4 (24.1-30.1)	40.0 (33.4-45.3)	1400
Female	15-16	11.7 (10.8-12.6)	11.6 (10.3-12.9)	19.0 (17.3-20.1)	30.2 (26.6-34.1)	39.3 (36.1-44.9)	1500
Female	17-18	10.2 (9.26-11.2)	10.3 (8.97-11.7)	16.5 (14.9-17.6)	27.1 (23.7-30.2)	36.5 (32.0-39.4)	1399
Mexican American	11-12	10.1 (8.62-11.8)	10.7 (8.62-12.9)	17.6 (14.2-19.7)	32.6 (24.7-46.4)	55.9 (35.1-76.6)	316
Mexican American	13-14	10.0 (8.98-11.1)	10.0 (8.38-11.3)	16.8 (14.5-19.7)	27.6 (22.4-36.7)	40.3 (30.3-45.7)	438
Mexican American	15-16	10.7 (9.87-11.7)	10.4 (9.55-11.3)	18.3 (15.6-20.0)	30.0 (26.0-35.2)	46.4 (36.2-56.3)	595
Mexican American	17-18	9.02 (7.82-10.4)	8.81 (7.40-10.6)	13.7 (12.3-16.4)	21.8 (19.3-26.6)	30.0 (23.8-38.6)	417
Non-Hispanic Black	11-12	10.3 (8.80-12.0)	11.1 (9.27-12.6)	19.1 (17.0-21.5)	31.7 (25.7-37.0)	43.5 (34.0-56.0)	665
Non-Hispanic Black	13-14	8.71 (8.05-9.42)	8.96 (8.09-9.57)	14.7 (13.7-15.8)	24.2 (20.2-28.4)	32.0 (26.6-39.6)	609
Non-Hispanic Black	15-16	10.9 (9.92-11.9)	10.1 (9.01-11.4)	18.5 (15.8-21.7)	32.5 (28.0-37.7)	46.8 (39.8-62.0)	697
Non-Hispanic Black	17-18	9.69 (8.58-10.9)	9.09 (8.32-10.3)	15.3 (13.6-17.6)	27.1 (20.4-36.0)	41.0 (31.1-49.9)	645
Non-Hispanic White	11-12	7.85 (6.92-8.91)	8.13 (7.43-8.99)	14.5 (13.0-15.9)	22.9 (21.4-27.9)	34.6 (27.9-46.4)	811
Non-Hispanic White	13-14	8.84 (8.10-9.65)	8.87 (8.01-9.58)	14.3 (13.4-15.3)	22.4 (18.7-26.4)	31.4 (25.4-44.5)	987
Non-Hispanic White	15-16	9.73 (8.91-10.6)	9.58 (8.59-10.5)	16.2 (14.8-17.5)	25.2 (23.2-27.2)	32.9 (29.7-36.0)	862
Non-Hispanic White	17-18	8.55 (7.88-9.28)	8.33 (7.45-9.08)	13.3 (12.4-14.1)	23.1 (20.3-26.3)	30.7 (27.1-34.4)	906
All Hispanic	11-12	11.0 (9.71-12.3)	11.2 (10.3-12.5)	19.3 (15.8-24.9)	36.1 (28.8-47.4)	55.6 (42.1-65.6)	571
All Hispanic	13-14	9.84 (8.97-10.8)	10.0 (8.65-11.3)	17.1 (14.9-18.8)	26.6 (23.1-33.4)	40.0 (30.8-42.7)	690
All Hispanic	15-16	10.5 (9.83-11.3)	10.4 (9.82-11.0)	17.0 (15.6-19.0)	28.0 (25.2-30.9)	40.0 (33.2-48.6)	971
All Hispanic	17-18	9.31 (8.33-10.4)	9.48 (8.00-10.7)	15.0 (13.6-16.4)	23.1 (20.4-27.8)	34.4 (28.8-45.0)	663
Non-Hispanic Asian	11-12	9.07 (7.35-11.2)	9.84 (7.57-11.9)	19.0 (14.0-24.5)	35.6 (25.9-45.0)	46.2 (41.5-73.3)	352
Non-Hispanic Asian	13-14	10.6 (9.16-12.2)	10.0 (8.68-12.9)	17.3 (15.0-20.8)	31.3 (24.4-38.8)	45.3 (34.5-56.5)	288
Non-Hispanic Asian	15-16	12.1 (11.0-13.4)	11.2 (9.48-13.3)	19.7 (16.2-21.5)	36.8 (28.1-46.0)	51.8 (42.9-57.7)	301
Non-Hispanic Asian	17-18	11.7 (10.3-13.2)	10.4 (9.20-11.8)	20.2 (17.1-22.7)	36.2 (30.4-46.5)	58.9 (39.6-79.7)	366

† Participants are age 6+ years in Surveys 11-12 and 13-14; beginning with Survey 15-16, participants include those age 3+ years.

Urinary Mono-isobutyl phthalate (MiBP) (2001 - 2010)

CAS Number 30833-53-5

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.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	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
Total population	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
Total population	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
Total population	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
Total population	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 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
Age 6-11 years	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
Age 6-11 years	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
Age 6-11 years	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
Age 6-11 years	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
Age 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
Age 12-19 years	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
Age 12-19 years	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
Age 12-19 years	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
Age 12-19 years	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
Age 20+ years	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
Age 20+ years	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
Age 20+ years	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
Age 20+ years	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
Age 20+ years	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
Male	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
Male	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
Male	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
Male	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
Male	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
Female	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
Female	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
Female	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
Female	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
Female	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
Mexican American	01-02	3.26 (2.72-3.91)	3.40 (2.70-4.30)	7.20 (6.20-9.30)	12.2 (11.2-14.7)	18.4 (14.1-25.6)	677
Mexican American	03-04	4.81 (3.85-6.02)	5.10 (4.00-6.70)	10.2 (8.20-12.6)	18.3 (13.5-24.5)	26.0 (19.0-38.5)	652
Mexican American	05-06	6.88 (5.58-8.48)	7.30 (6.00-8.90)	14.5 (11.5-17.5)	26.3 (20.7-34.1)	40.4 (33.8-46.8)	637
Mexican American	07-08	9.30 (8.12-10.6)	10.2 (9.40-11.1)	17.4 (15.9-18.8)	31.9 (24.0-39.2)	47.6 (34.2-58.2)	531
Mexican American	09-10	9.34 (8.22-10.6)	9.97 (8.31-11.6)	18.8 (16.0-21.8)	31.7 (25.6-37.2)	46.4 (37.3-54.0)	566
Non-Hispanic Black	01-02	4.90 (4.46-5.37)	5.30 (4.60-6.00)	10.7 (9.20-12.0)	18.3 (16.1-20.1)	25.5 (20.7-31.3)	703
Non-Hispanic Black	03-04	6.67 (5.97-7.46)	6.90 (6.30-7.50)	12.6 (10.9-14.7)	25.7 (17.7-31.0)	33.5 (27.3-43.9)	699
Non-Hispanic Black	05-06	8.37 (7.06-9.91)	8.70 (7.50-10.2)	16.1 (13.8-19.7)	30.1 (22.1-37.2)	41.4 (30.1-67.7)	678
Non-Hispanic Black	07-08	10.7 (9.08-12.5)	12.5 (10.5-14.8)	23.1 (21.7-25.0)	38.9 (32.4-43.5)	47.6 (44.5-57.0)	597
Non-Hispanic Black	09-10	14.0 (11.9-16.4)	15.4 (12.9-17.8)	27.5 (22.4-34.1)	47.6 (34.4-65.6)	66.0 (46.3-85.2)	516
Non-Hispanic White	01-02	2.33 (2.10-2.59)	2.30 (1.90-2.60)	4.90 (4.40-5.30)	9.60 (8.30-11.6)	15.6 (13.0-18.6)	1216
Non-Hispanic White	03-04	3.17 (2.82-3.56)	3.50 (3.00-4.00)	6.80 (5.90-7.90)	12.5 (10.6-14.5)	17.6 (14.7-20.8)	1088
Non-Hispanic White	05-06	4.41 (3.86-5.04)	5.00 (4.20-5.70)	10.3 (9.10-11.5)	18.7 (16.3-21.1)	28.8 (22.1-32.2)	1038
Non-Hispanic White	07-08	6.32 (5.78-6.93)	7.20 (6.40-7.90)	13.6 (12.4-14.9)	24.3 (20.1-27.3)	33.8 (27.0-39.5)	1077
Non-Hispanic White	09-10	6.34 (5.65-7.10)	6.92 (6.08-7.90)	12.9 (11.7-14.5)	21.6 (19.1-24.2)	29.6 (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.

Urinary Mono-isobutyl phthalate (MiBP) (creatinine corrected) (2001 - 2010)

CAS Number 30833-53-5

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.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	01-02	2.54 (2.36-2.73)	2.46 (2.26-2.68)	4.54 (4.20-4.86)	8.02 (7.78-8.66)	12.0 (10.8-13.5)	2782
Total population	03-04	3.57 (3.18-4.00)	3.57 (3.15-4.08)	6.21 (5.36-7.17)	10.9 (9.47-12.7)	15.4 (12.8-18.6)	2605
Total population	05-06	5.07 (4.68-5.50)	5.07 (4.74-5.45)	8.81 (8.08-9.55)	15.2 (13.4-16.5)	21.3 (18.3-24.3)	2548
Total population	07-08	7.21 (6.76-7.70)	7.25 (6.77-7.81)	12.1 (11.2-13.3)	19.5 (17.2-21.5)	27.8 (24.9-31.3)	2604
Total population	09-10	7.98 (7.34-8.68)	7.86 (7.12-8.52)	12.4 (11.2-14.1)	20.1 (17.3-23.0)	26.8 (23.7-32.8)	2749
Age 6-11 years	01-02	4.81 (3.89-5.94)	5.18 (4.13-6.32)	9.20 (7.03-11.7)	15.2 (11.1-24.3)	24.3 (13.9-40.3)	393
Age 6-11 years	03-04	6.94 (5.79-8.31)	7.03 (5.29-8.95)	11.8 (9.56-15.1)	18.6 (15.1-25.1)	28.7 (21.8-36.9)	342
Age 6-11 years	05-06	9.39 (8.56-10.3)	9.46 (8.50-10.3)	15.3 (13.0-18.1)	25.2 (21.6-30.1)	37.9 (28.0-65.5)	356
Age 6-11 years	07-08	13.2 (11.1-15.5)	12.9 (10.5-15.7)	21.9 (17.8-26.0)	35.5 (28.3-43.5)	52.6 (41.4-58.3)	389
Age 6-11 years	09-10	13.2 (11.8-14.9)	12.6 (11.0-14.7)	20.9 (18.7-24.9)	35.3 (28.6-46.1)	53.0 (39.1-95.1)	415
Age 12-19 years	01-02	2.68 (2.29-3.15)	2.83 (2.39-3.33)	4.79 (4.04-5.51)	7.62 (6.18-10.2)	12.8 (8.76-15.6)	742
Age 12-19 years	03-04	3.41 (2.86-4.05)	3.69 (2.99-4.31)	5.75 (4.69-7.04)	9.32 (7.17-12.0)	13.5 (9.52-20.1)	729
Age 12-19 years	05-06	5.56 (5.05-6.11)	5.82 (5.20-6.53)	9.05 (8.06-10.4)	14.3 (13.4-16.5)	20.3 (17.7-26.8)	702
Age 12-19 years	07-08	7.95 (6.96-9.09)	8.30 (6.89-9.76)	13.7 (11.3-15.7)	21.3 (16.3-28.4)	28.7 (20.5-62.6)	401
Age 12-19 years	09-10	8.63 (7.97-9.34)	8.94 (7.87-9.78)	12.7 (11.7-14.9)	19.5 (16.5-25.3)	28.8 (20.6-53.4)	420
Age 20+ years	01-02	2.33 (2.20-2.46)	2.26 (2.08-2.43)	3.89 (3.65-4.25)	7.31 (7.00-7.78)	10.6 (9.46-11.3)	1647
Age 20+ years	03-04	3.32 (3.00-3.68)	3.33 (3.00-3.81)	5.59 (4.93-6.51)	9.84 (8.65-11.2)	13.5 (11.4-16.0)	1534
Age 20+ years	05-06	4.66 (4.23-5.13)	4.62 (4.36-5.03)	8.00 (7.23-8.78)	13.5 (11.6-15.7)	18.2 (16.1-23.0)	1490
Age 20+ years	07-08	6.65 (6.21-7.12)	6.73 (6.29-7.20)	11.1 (10.2-12.1)	17.1 (15.6-18.6)	23.8 (21.0-26.7)	1814
Age 20+ years	09-10	7.45 (6.81-8.15)	7.24 (6.69-7.89)	11.6 (10.4-12.6)	17.7 (15.1-21.9)	23.8 (20.7-28.8)	1914
Male	01-02	2.22 (2.09-2.35)	2.18 (1.97-2.37)	3.76 (3.58-4.11)	7.38 (6.64-7.95)	11.1 (10.1-12.5)	1371
Male	03-04	3.20 (2.80-3.66)	3.19 (2.74-3.56)	5.84 (4.79-6.56)	10.0 (8.27-12.2)	13.9 (11.5-19.1)	1250
Male	05-06	4.54 (4.19-4.92)	4.45 (4.21-4.81)	7.95 (6.95-8.73)	13.4 (11.6-15.8)	18.5 (16.7-19.8)	1270
Male	07-08	6.33 (5.91-6.79)	6.36 (5.93-6.77)	10.4 (9.43-11.3)	16.4 (15.0-19.7)	24.1 (21.1-27.7)	1294
Male	09-10	6.99 (6.44-7.59)	6.70 (6.26-7.21)	10.6 (9.80-11.5)	17.5 (15.4-19.8)	23.4 (20.9-27.3)	1399
Female	01-02	2.88 (2.61-3.18)	2.85 (2.52-3.18)	5.14 (4.67-5.89)	8.66 (8.02-10.1)	13.7 (11.1-15.0)	1411
Female	03-04	3.96 (3.56-4.42)	4.00 (3.57-4.45)	6.73 (5.64-7.80)	11.6 (10.2-13.0)	15.7 (13.0-18.7)	1355
Female	05-06	5.64 (5.04-6.32)	5.86 (5.39-6.39)	9.61 (8.85-10.6)	15.8 (14.3-18.1)	24.3 (18.7-32.5)	1278
Female	07-08	8.18 (7.46-8.96)	8.70 (7.78-9.47)	13.9 (12.2-15.2)	21.3 (18.3-25.3)	31.6 (26.4-34.7)	1310
Female	09-10	9.05 (8.22-9.97)	9.13 (8.19-9.90)	14.4 (12.2-16.2)	22.0 (18.1-26.3)	29.8 (25.8-36.4)	1350
Mexican American	01-02	3.07 (2.58-3.66)	2.98 (2.53-3.82)	5.82 (4.91-6.99)	10.6 (8.28-13.3)	16.0 (12.6-19.4)	677
Mexican American	03-04	4.34 (3.47-5.43)	4.47 (3.53-5.24)	7.75 (6.33-9.69)	13.1 (11.9-16.8)	23.3 (17.9-26.1)	652
Mexican American	05-06	6.19 (5.24-7.31)	6.17 (5.59-7.02)	10.9 (9.61-12.3)	18.6 (17.1-21.5)	28.3 (23.7-36.2)	637
Mexican American	07-08	9.07 (7.87-10.5)	8.94 (8.07-10.3)	14.6 (12.4-18.0)	25.9 (21.1-32.4)	36.1 (28.0-42.3)	531
Mexican American	09-10	9.27 (8.37-10.3)	8.95 (8.00-10.0)	14.6 (12.8-17.3)	25.6 (23.1-28.2)	40.6 (28.7-47.4)	566
Non-Hispanic Black	01-02	3.44 (3.20-3.69)	3.52 (2.95-3.81)	6.11 (5.03-7.04)	10.6 (8.94-12.4)	15.6 (12.6-19.7)	703
Non-Hispanic Black	03-04	4.74 (4.07-5.51)	4.65 (4.10-5.30)	7.81 (6.38-10.0)	15.2 (10.8-18.4)	19.9 (15.7-28.7)	699
Non-Hispanic Black	05-06	5.88 (5.12-6.76)	5.86 (5.03-7.03)	9.74 (8.21-11.3)	14.9 (12.0-19.9)	21.4 (14.9-29.7)	678
Non-Hispanic Black	07-08	8.28 (7.20-9.52)	8.96 (8.33-9.71)	14.4 (12.9-15.7)	21.6 (20.3-24.3)	29.6 (24.3-37.7)	597
Non-Hispanic Black	09-10	10.1 (8.76-11.7)	10.5 (9.41-11.6)	15.2 (12.9-19.2)	24.1 (19.3-32.2)	33.2 (26.3-42.0)	516
Non-Hispanic White	01-02	2.31 (2.11-2.52)	2.20 (2.01-2.43)	3.80 (3.53-4.39)	7.30 (6.72-7.78)	10.7 (9.62-12.6)	1216
Non-Hispanic White	03-04	3.13 (2.76-3.54)	3.17 (2.76-3.72)	5.28 (4.55-6.21)	8.92 (7.64-10.3)	11.8 (10.2-15.1)	1088
Non-Hispanic White	05-06	4.64 (4.25-5.07)	4.58 (4.35-4.91)	8.28 (7.45-9.01)	13.7 (12.2-15.6)	18.8 (16.9-22.2)	1038
Non-Hispanic White	07-08	6.60 (6.14-7.10)	6.70 (6.26-7.08)	10.9 (10.0-12.1)	17.0 (15.2-20.5)	24.9 (20.5-29.1)	1077
Non-Hispanic White	09-10	7.12 (6.62-7.66)	6.95 (6.51-7.40)	10.7 (10.1-11.8)	17.0 (14.6-20.3)	22.0 (19.1-26.2)	1206

Urinary Mono-isobutyl phthalate (MiBP) (2011 - 2018)†

CAS Number 30833-53-5

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.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	11-12	6.00 (5.41-6.65)	6.30 (5.80-6.90)	13.0 (11.9-14.5)	25.4 (22.3-29.7)	36.5 (33.4-41.0)	2489
Total population	13-14	7.06 (6.42-7.76)	7.50 (6.60-8.60)	14.9 (13.6-16.4)	26.1 (23.1-28.7)	39.3 (33.8-45.7)	2685
Total population	15-16	8.42 (7.57-9.37)	9.10 (8.30-9.90)	16.7 (15.1-18.2)	29.8 (26.1-33.9)	44.2 (39.3-49.3)	2975
Total population	17-18	7.02 (6.41-7.68)	7.30 (6.80-7.90)	14.0 (12.5-15.3)	24.4 (22.6-28.2)	35.7 (30.7-42.4)	2762
Age 3-5 years	15-16	9.44 (8.65-10.3)	9.60 (8.10-10.9)	17.6 (15.8-20.1)	30.8 (26.3-35.9)	53.4 (35.8-67.3)	465
Age 3-5 years	17-18	9.81 (8.14-11.8)	9.30 (8.10-11.4)	21.6 (17.2-25.1)	39.9 (31.5-45.9)	50.8 (39.9-96.8)	379
Age 6-11 years	11-12	8.28 (6.93-9.91)	9.40 (6.90-11.6)	18.6 (14.1-23.6)	31.8 (26.0-38.2)	43.1 (33.6-66.5)	396
Age 6-11 years	13-14	9.31 (8.03-10.8)	10.2 (8.90-11.9)	18.6 (16.3-19.8)	32.3 (25.8-38.3)	44.7 (37.2-62.3)	409
Age 6-11 years	15-16	11.2 (9.30-13.5)	11.6 (10.2-13.7)	19.6 (15.8-26.2)	39.2 (31.1-52.1)	59.7 (41.0-80.3)	415
Age 6-11 years	17-18	10.7 (8.93-12.8)	10.4 (9.20-11.9)	19.4 (15.6-22.2)	32.8 (23.8-47.1)	58.5 (34.8-75.2)	330
Age 12-19 years	11-12	7.73 (6.74-8.86)	8.10 (6.90-9.60)	19.0 (14.5-23.0)	34.2 (25.3-38.5)	43.3 (36.5-45.4)	388
Age 12-19 years	13-14	9.73 (8.29-11.4)	10.1 (8.00-12.1)	19.7 (15.6-24.9)	39.4 (31.5-52.3)	59.3 (44.1-78.5)	462
Age 12-19 years	15-16	10.4 (8.22-13.2)	11.7 (8.90-14.6)	21.3 (15.6-27.9)	32.3 (27.9-42.5)	43.1 (36.8-46.7)	405
Age 12-19 years	17-18	8.47 (7.43-9.66)	9.40 (7.70-11.5)	17.7 (14.7-21.0)	28.2 (21.2-33.7)	37.9 (29.7-51.7)	353
Age 20+ years	11-12	5.57 (4.92-6.31)	6.00 (5.40-6.60)	12.2 (10.6-13.6)	23.6 (19.4-27.8)	34.4 (31.1-39.2)	1705
Age 20+ years	13-14	6.53 (5.89-7.24)	6.90 (6.30-7.90)	14.0 (12.7-15.4)	23.6 (20.8-27.0)	35.4 (28.7-42.4)	1814
Age 20+ years	15-16	7.88 (7.09-8.75)	8.70 (7.70-9.40)	15.6 (14.0-17.5)	27.5 (25.2-31.6)	42.5 (35.8-49.0)	1690
Age 20+ years	17-18	6.44 (5.85-7.08)	6.80 (6.10-7.30)	12.3 (11.4-13.8)	23.7 (19.8-25.7)	33.5 (28.1-38.1)	1700
Male	11-12	6.54 (5.70-7.51)	6.60 (5.70-7.50)	13.6 (11.7-15.8)	27.6 (21.8-35.1)	39.3 (33.6-46.9)	1259
Male	13-14	7.42 (6.64-8.30)	7.70 (6.60-8.90)	14.7 (13.1-16.5)	25.4 (21.7-28.7)	35.5 (29.5-43.0)	1285
Male	15-16	8.69 (7.66-9.87)	9.50 (8.20-11.0)	16.6 (14.4-19.7)	29.4 (25.3-34.8)	43.1 (37.4-49.0)	1474
Male	17-18	7.56 (6.81-8.39)	7.30 (6.60-8.30)	14.9 (13.4-15.9)	24.5 (22.5-28.8)	36.5 (30.2-51.7)	1363
Female	11-12	5.52 (4.95-6.15)	6.10 (5.60-6.80)	12.7 (11.3-14.5)	24.1 (21.2-26.3)	32.7 (30.2-36.5)	1230
Female	13-14	6.73 (6.00-7.54)	7.20 (6.40-8.10)	15.0 (13.5-16.6)	26.4 (23.1-32.3)	43.1 (35.6-51.7)	1400
Female	15-16	8.16 (7.31-9.12)	8.70 (8.00-9.30)	16.8 (15.3-18.0)	29.8 (26.3-35.6)	44.5 (39.3-53.8)	1501
Female	17-18	6.54 (5.85-7.30)	7.30 (6.40-8.00)	12.8 (11.4-15.4)	24.4 (20.7-29.3)	35.5 (28.6-42.4)	1399
Mexican American	11-12	6.71 (5.77-7.82)	6.60 (5.30-8.40)	12.4 (10.5-15.2)	23.7 (15.5-31.2)	33.4 (23.7-54.7)	316
Mexican American	13-14	8.79 (6.87-11.3)	8.70 (6.50-12.2)	17.4 (12.8-23.6)	32.8 (26.5-43.0)	49.3 (40.7-55.9)	438
Mexican American	15-16	9.33 (8.29-10.5)	9.90 (8.90-11.5)	17.6 (16.0-19.2)	33.0 (26.3-44.2)	52.2 (40.8-70.1)	595
Mexican American	17-18	7.77 (6.32-9.54)	8.00 (6.20-10.4)	16.4 (12.0-19.4)	24.7 (20.4-27.9)	29.3 (25.1-37.6)	417
Non-Hispanic Black	11-12	9.88 (8.55-11.4)	10.4 (8.90-12.5)	19.7 (16.5-23.6)	36.5 (30.8-41.2)	49.9 (41.2-67.8)	665
Non-Hispanic Black	13-14	10.5 (9.44-11.6)	11.2 (9.60-12.4)	20.7 (18.2-22.9)	42.2 (34.8-47.2)	58.0 (46.1-74.6)	609
Non-Hispanic Black	15-16	11.7 (10.5-13.0)	11.8 (10.2-13.4)	23.0 (20.3-25.2)	38.2 (31.1-44.9)	51.6 (44.5-63.1)	698
Non-Hispanic Black	17-18	9.90 (8.67-11.3)	10.7 (9.00-12.2)	18.9 (16.4-22.6)	33.4 (24.9-45.3)	49.9 (36.6-66.5)	645
Non-Hispanic White	11-12	5.23 (4.71-5.82)	5.50 (4.90-6.00)	11.7 (9.40-13.3)	23.7 (17.6-28.8)	34.2 (28.6-37.7)	813
Non-Hispanic White	13-14	6.12 (5.48-6.82)	6.60 (5.60-7.70)	13.6 (11.8-15.0)	22.7 (19.7-25.0)	30.2 (26.8-35.4)	987
Non-Hispanic White	15-16	7.60 (6.69-8.64)	8.60 (7.20-9.50)	14.7 (13.2-17.4)	26.7 (22.1-31.5)	40.5 (30.5-47.2)	862
Non-Hispanic White	17-18	6.39 (5.55-7.35)	6.60 (5.90-7.40)	11.9 (11.0-13.7)	23.4 (18.3-26.5)	32.3 (25.6-42.4)	906
All Hispanic	11-12	7.22 (5.89-8.87)	7.70 (5.70-10.0)	13.7 (11.4-18.2)	24.8 (18.8-32.4)	33.4 (23.9-64.8)	571
All Hispanic	13-14	8.90 (7.59-10.4)	8.80 (7.10-10.6)	17.5 (13.2-21.8)	32.4 (27.6-43.0)	50.5 (40.7-55.9)	690
All Hispanic	15-16	9.35 (8.30-10.5)	9.80 (8.90-10.8)	17.6 (15.9-20.1)	33.9 (30.1-40.8)	53.8 (41.8-73.5)	971
All Hispanic	17-18	8.06 (6.88-9.45)	8.60 (7.20-10.1)	16.2 (13.9-19.4)	27.0 (22.8-31.2)	37.9 (30.2-50.9)	663
Non-Hispanic Asian	11-12	5.70 (4.35-7.46)	6.20 (4.30-8.70)	13.8 (9.80-21.2)	27.8 (19.9-39.3)	40.1 (27.8-65.3)	352
Non-Hispanic Asian	13-14	6.47 (5.47-7.66)	6.50 (5.20-8.20)	13.7 (10.8-16.4)	21.5 (17.9-24.7)	26.8 (22.7-33.6)	289
Non-Hispanic Asian	15-16	8.00 (6.88-9.31)	7.90 (6.20-10.3)	16.8 (13.4-19.4)	36.2 (24.4-42.3)	55.1 (39.8-65.6)	301
Non-Hispanic Asian	17-18	5.67 (4.78-6.71)	6.10 (4.90-7.10)	12.4 (10.9-13.9)	22.8 (16.6-28.4)	30.9 (22.8-47.7)	366

Limit of detection (LOD, see Data Analysis section) for Survey years 11-12, 13-14, 15-16, and 17-18 are 0.2, 0.8, 0.8, and 0.8, respectively.

† Participants are age 6+ years in Surveys 11-12 and 13-14; beginning with Survey 15-16, participants include those age 3+ years.

Urinary Mono-isobutyl phthalate (MiBP) (creatinine corrected) (2011 - 2018)†

CAS Number 30833-53-5

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.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	11-12	6.83 (6.30-7.40)	6.77 (6.19-7.27)	11.6 (10.9-12.6)	19.4 (17.5-22.6)	27.5 (24.5-31.6)	2487
Total population	13-14	7.07 (6.67-7.50)	7.00 (6.67-7.37)	11.2 (10.7-11.9)	18.9 (17.1-20.8)	26.2 (23.3-30.0)	2684
Total population	15-16	8.71 (8.06-9.42)	8.33 (7.57-8.94)	14.3 (12.9-15.8)	23.1 (21.5-25.0)	32.4 (28.3-38.3)	2974
Total population	17-18	7.32 (6.67-8.05)	6.94 (6.30-7.56)	11.5 (10.2-13.0)	20.4 (17.4-24.0)	31.8 (26.4-36.7)	2762
Age 3-5 years	15-16	22.5 (20.3-25.0)	22.4 (20.0-24.2)	34.6 (30.0-38.2)	59.9 (45.0-79.6)	86.1 (60.4-104)	464
Age 3-5 years	17-18	21.3 (18.6-24.4)	20.8 (18.3-23.8)	35.5 (30.9-41.5)	55.9 (51.2-67.8)	78.0 (58.5-106)	379
Age 6-11 years	11-12	11.8 (10.2-13.6)	12.2 (10.4-14.2)	18.5 (16.2-22.4)	31.1 (24.5-46.3)	46.4 (30.8-70.0)	395
Age 6-11 years	13-14	11.8 (10.6-13.1)	11.5 (10.8-12.9)	18.9 (16.5-22.7)	33.8 (25.3-44.0)	46.4 (41.1-56.3)	409
Age 6-11 years	15-16	14.5 (12.6-16.6)	13.5 (11.9-15.0)	22.2 (18.0-26.8)	42.5 (28.4-49.6)	54.3 (46.3-62.8)	415
Age 6-11 years	17-18	12.5 (10.3-15.1)	11.9 (9.13-16.1)	20.1 (16.9-23.1)	29.4 (23.1-40.6)	41.4 (29.4-82.1)	330
Age 12-19 years	11-12	7.53 (6.81-8.32)	7.61 (6.84-8.26)	11.7 (10.9-13.8)	19.9 (14.9-24.8)	25.6 (20.6-33.5)	388
Age 12-19 years	13-14	7.90 (7.38-8.45)	7.72 (7.18-8.31)	12.3 (10.4-14.9)	21.0 (18.0-26.2)	32.4 (23.1-39.1)	462
Age 12-19 years	15-16	8.11 (7.03-9.35)	7.85 (6.77-9.32)	13.0 (10.2-15.9)	19.6 (15.8-23.3)	24.0 (20.6-27.3)	405
Age 12-19 years	17-18	7.32 (6.30-8.50)	7.09 (5.83-8.14)	10.7 (9.11-13.3)	17.2 (13.4-26.2)	27.1 (15.3-41.7)	353
Age 20+ years	11-12	6.34 (5.83-6.89)	6.19 (5.56-6.85)	10.8 (9.54-11.6)	18.1 (15.5-20.1)	25.2 (23.3-29.9)	1704
Age 20+ years	13-14	6.58 (6.15-7.04)	6.54 (6.13-7.00)	10.5 (9.91-11.2)	16.7 (15.4-19.0)	23.9 (19.8-28.2)	1813
Age 20+ years	15-16	8.03 (7.41-8.70)	7.60 (6.84-8.62)	13.0 (11.2-14.6)	21.1 (19.2-22.8)	27.5 (23.8-31.0)	1690
Age 20+ years	17-18	6.60 (6.02-7.23)	6.32 (5.77-7.00)	9.89 (9.00-11.4)	16.3 (14.3-19.0)	25.0 (21.1-30.4)	1700
Male	11-12	6.13 (5.47-6.86)	5.91 (5.12-6.88)	10.7 (8.81-12.2)	17.6 (14.6-22.4)	25.8 (22.2-33.3)	1258
Male	13-14	6.23 (5.78-6.72)	6.09 (5.72-6.59)	10.2 (9.38-10.8)	16.6 (14.6-18.4)	23.2 (18.5-28.9)	1284
Male	15-16	7.76 (7.03-8.55)	7.27 (6.40-8.43)	12.8 (10.7-14.8)	20.9 (19.4-23.3)	28.4 (25.0-31.0)	1474
Male	17-18	6.72 (6.02-7.50)	6.22 (5.66-6.91)	10.2 (8.96-12.0)	18.5 (15.9-23.8)	32.3 (23.5-46.8)	1363
Female	11-12	7.58 (7.03-8.17)	7.57 (6.94-7.90)	12.8 (11.6-13.8)	21.2 (18.5-24.5)	28.5 (25.2-31.6)	1229
Female	13-14	7.98 (7.58-8.41)	8.00 (7.44-8.56)	12.4 (11.5-13.6)	21.1 (19.1-23.9)	29.5 (25.3-33.9)	1400
Female	15-16	9.75 (9.06-10.5)	9.25 (8.68-9.95)	15.7 (14.0-17.0)	24.8 (22.4-27.5)	37.7 (28.6-47.9)	1500
Female	17-18	7.96 (7.23-8.77)	7.61 (6.80-8.42)	12.6 (11.1-13.8)	21.3 (18.4-24.3)	30.8 (25.8-36.7)	1399
Mexican American	11-12	7.57 (6.49-8.81)	7.00 (5.61-8.77)	12.3 (9.74-15.2)	18.4 (15.2-30.8)	33.1 (18.0-61.6)	316
Mexican American	13-14	8.96 (7.59-10.6)	8.75 (6.71-10.5)	14.4 (11.8-18.2)	26.7 (20.9-31.5)	34.9 (29.2-45.4)	438
Mexican American	15-16	10.2 (9.35-11.0)	9.17 (8.63-10.3)	17.3 (15.6-19.1)	28.3 (25.2-33.2)	42.5 (35.4-48.9)	595
Mexican American	17-18	8.42 (7.12-9.95)	8.25 (7.04-9.37)	13.4 (11.5-16.8)	25.0 (18.7-28.9)	33.0 (25.9-51.3)	417
Non-Hispanic Black	11-12	7.69 (6.69-8.83)	7.83 (6.73-8.89)	13.2 (10.6-15.4)	20.6 (17.1-26.9)	30.9 (24.5-35.8)	665
Non-Hispanic Black	13-14	7.74 (7.14-8.39)	7.30 (6.79-7.98)	12.7 (11.7-13.8)	21.4 (19.0-24.0)	33.2 (24.2-41.9)	609
Non-Hispanic Black	15-16	9.29 (8.45-10.2)	8.99 (7.84-10.0)	15.6 (13.6-17.2)	25.5 (23.3-28.2)	39.6 (30.3-48.3)	697
Non-Hispanic Black	17-18	7.46 (6.65-8.36)	7.18 (6.72-7.69)	12.5 (10.8-14.0)	21.6 (18.3-24.5)	29.5 (24.4-38.6)	645
Non-Hispanic White	11-12	6.36 (5.68-7.12)	6.12 (5.43-6.93)	11.0 (9.52-11.8)	18.5 (14.8-22.9)	25.8 (21.2-33.8)	811
Non-Hispanic White	13-14	6.44 (5.96-6.96)	6.51 (6.04-6.98)	10.3 (9.23-11.2)	16.7 (15.4-18.0)	22.1 (18.9-25.8)	987
Non-Hispanic White	15-16	8.17 (7.40-9.02)	7.75 (6.92-8.71)	13.6 (11.2-15.3)	21.6 (19.0-23.9)	27.6 (23.8-34.6)	862
Non-Hispanic White	17-18	6.81 (6.13-7.56)	6.33 (5.77-7.06)	10.2 (8.72-12.2)	17.8 (15.1-22.4)	27.1 (22.2-34.0)	906
All Hispanic	11-12	8.09 (6.94-9.43)	8.02 (6.80-9.43)	13.0 (10.6-15.9)	21.0 (15.6-30.5)	30.5 (20.5-45.0)	571
All Hispanic	13-14	8.83 (7.82-9.98)	8.53 (7.02-10.0)	14.3 (12.0-16.8)	26.0 (21.2-29.7)	34.8 (29.6-44.5)	690
All Hispanic	15-16	9.85 (9.05-10.7)	9.20 (8.61-10.0)	16.5 (14.7-18.1)	27.5 (25.2-32.4)	42.5 (36.3-46.5)	971
All Hispanic	17-18	8.66 (7.46-10.0)	8.25 (7.74-9.11)	13.2 (11.3-16.4)	25.2 (19.1-33.0)	38.5 (28.9-55.3)	663
Non-Hispanic Asian	11-12	7.64 (6.21-9.39)	7.84 (6.10-9.68)	14.3 (10.5-17.7)	25.0 (18.2-30.6)	33.2 (22.5-55.5)	352
Non-Hispanic Asian	13-14	8.19 (7.41-9.05)	8.04 (6.60-9.52)	13.0 (11.8-15.0)	22.7 (18.5-25.9)	32.8 (24.5-40.0)	288
Non-Hispanic Asian	15-16	9.90 (9.19-10.7)	9.28 (8.20-10.5)	16.6 (13.9-19.0)	26.1 (21.5-35.9)	45.4 (26.2-59.6)	301
Non-Hispanic Asian	17-18	8.37 (7.40-9.47)	8.41 (7.27-9.50)	14.6 (12.1-15.9)	24.7 (18.0-27.2)	33.3 (25.9-47.0)	366

† Participants are age 6+ years in Surveys 11-12 and 13-14; beginning with Survey 15-16, participants include those age 3+ years.

Urinary Mono-cyclohexyl phthalate (MCHP) (1999 - 2010)‡

CAS Number 7517-36-4

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.**

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	99-00	*	<LOD	<LOD	<LOD	2.21 (<LOD-3.42)	2541
Total population	01-02	*	<LOD	<LOD	.804 (.603-1.01)	1.01 (.804-1.21)	2782
Total population	03-04	*	<LOD	<LOD	<LOD	.603 (.402-.804)	2605
Total population	05-06	*	<LOD	<LOD	<LOD	<LOD	2548
Total population	07-08	*	<LOD	<LOD	<LOD	<LOD	2604
Total population	09-10	*	<LOD	<LOD	<LOD	<LOD	2749
Age 6-11 years	99-00	*	<LOD	<LOD	2.01 (<LOD-2.21)	3.42 (2.01-7.64)	328
Age 6-11 years	01-02	*	<LOD	<LOD	.804 (.603-1.01)	1.21 (1.01-1.41)	393
Age 6-11 years	03-04	*	<LOD	<LOD	.603 (<LOD-.804)	1.01 (.603-1.01)	342
Age 6-11 years	05-06	*	<LOD	<LOD	<LOD	<LOD	356
Age 6-11 years	07-08	*	<LOD	<LOD	<LOD	<LOD	389
Age 6-11 years	09-10	*	<LOD	<LOD	<LOD	.960 (.640-1.57)	415
Age 12-19 years	99-00	*	<LOD	<LOD	2.01 (<LOD-3.02)	3.42 (2.01-5.03)	752
Age 12-19 years	01-02	*	<LOD	<LOD	.804 (.603-1.01)	1.01 (.804-1.21)	742
Age 12-19 years	03-04	*	<LOD	<LOD	.402 (<LOD-.603)	.804 (.603-1.21)	729
Age 12-19 years	05-06	*	<LOD	<LOD	<LOD	<LOD	702
Age 12-19 years	07-08	*	<LOD	<LOD	<LOD	<LOD	401
Age 12-19 years	09-10	*	<LOD	<LOD	<LOD	<LOD	420
Age 20+ years	99-00	*	<LOD	<LOD	<LOD	<LOD	1461
Age 20+ years	01-02	*	<LOD	<LOD	.804 (<LOD-1.01)	1.01 (.804-1.21)	1647
Age 20+ years	03-04	*	<LOD	<LOD	<LOD	.603 (.402-.603)	1534
Age 20+ years	05-06	*	<LOD	<LOD	<LOD	<LOD	1490
Age 20+ years	07-08	*	<LOD	<LOD	<LOD	<LOD	1814
Age 20+ years	09-10	*	<LOD	<LOD	<LOD	<LOD	1914
Male	99-00	*	<LOD	<LOD	<LOD	2.21 (<LOD-4.02)	1215
Male	01-02	*	<LOD	<LOD	.804 (.603-1.01)	1.01 (.804-1.21)	1371
Male	03-04	*	<LOD	<LOD	<LOD	.603 (.603-.804)	1250
Male	05-06	*	<LOD	<LOD	<LOD	<LOD	1270
Male	07-08	*	<LOD	<LOD	<LOD	<LOD	1294
Male	09-10	*	<LOD	<LOD	<LOD	<LOD	1399
Female	99-00	*	<LOD	<LOD	<LOD	2.21 (<LOD-3.82)	1326
Female	01-02	*	<LOD	<LOD	.804 (<LOD-.804)	1.01 (.804-1.01)	1411
Female	03-04	*	<LOD	<LOD	<LOD	.603 (.402-1.01)	1355
Female	05-06	*	<LOD	<LOD	<LOD	<LOD	1278
Female	07-08	*	<LOD	<LOD	<LOD	<LOD	1310
Female	09-10	*	<LOD	<LOD	<LOD	<LOD	1350
Mexican American	99-00	*	<LOD	<LOD	<LOD	<LOD	814
Mexican American	01-02	*	<LOD	<LOD	.804 (<LOD-1.01)	1.01 (.603-1.41)	677
Mexican American	03-04	*	<LOD	<LOD	<LOD	.603 (.402-1.01)	652
Mexican American	05-06	*	<LOD	<LOD	<LOD	<LOD	637
Mexican American	07-08	*	<LOD	<LOD	<LOD	<LOD	531
Mexican American	09-10	*	<LOD	<LOD	<LOD	.440 (<LOD-.640)	566
Non-Hispanic Black	99-00	*	<LOD	<LOD	<LOD	2.21 (1.81-2.41)	603
Non-Hispanic Black	01-02	*	<LOD	<LOD	.804 (.603-1.01)	1.01 (.804-1.41)	703
Non-Hispanic Black	03-04	*	<LOD	<LOD	.603 (.402-.603)	.804 (.603-1.01)	699
Non-Hispanic Black	05-06	*	<LOD	<LOD	<LOD	<LOD	678
Non-Hispanic Black	07-08	*	<LOD	<LOD	<LOD	<LOD	597
Non-Hispanic Black	09-10	*	<LOD	<LOD	<LOD	.480 (<LOD-.620)	516
Non-Hispanic White	99-00	*	<LOD	<LOD	<LOD	2.01 (<LOD-3.42)	912

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Non-Hispanic White	01-02	*	<LOD	<LOD	.804 (<LOD-.804)	1.01 (.804-1.21)	1216
Non-Hispanic White	03-04	*	<LOD	<LOD	<LOD	.603 (.402-.804)	1088
Non-Hispanic White	05-06	*	<LOD	<LOD	<LOD	<LOD	1038
Non-Hispanic White	07-08	*	<LOD	<LOD	<LOD	<LOD	1077
Non-Hispanic White	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.

Urinary Mono-cyclohexyl phthalate (MCHP) (creatinine corrected) (1999 - 2010)‡

CAS Number 7517-36-4

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.**

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	99-00	*	<LOD	<LOD	<LOD	6.03 (<LOD-6.69)	2541
Total population	01-02	*	<LOD	<LOD	1.23 (1.07-1.39)	1.83 (1.55-2.01)	2782
Total population	03-04	*	<LOD	<LOD	<LOD	.905 (.804-1.01)	2605
Total population	05-06	*	<LOD	<LOD	<LOD	<LOD	2548
Total population	07-08	*	<LOD	<LOD	<LOD	<LOD	2604
Total population	09-10	*	<LOD	<LOD	<LOD	<LOD	2749
Age 6-11 years	99-00	*	<LOD	<LOD	3.10 (<LOD-4.70)	5.67 (3.10-12.9)	328
Age 6-11 years	01-02	*	<LOD	<LOD	1.39 (1.03-1.49)	1.89 (1.39-2.35)	393
Age 6-11 years	03-04	*	<LOD	<LOD	.744 (<LOD-1.07)	1.07 (.704-1.67)	342
Age 6-11 years	05-06	*	<LOD	<LOD	<LOD	<LOD	356
Age 6-11 years	07-08	*	<LOD	<LOD	<LOD	<LOD	389
Age 6-11 years	09-10	*	<LOD	<LOD	<LOD	1.80 (1.34-2.55)	415
Age 12-19 years	99-00	*	<LOD	<LOD	2.45 (<LOD-3.10)	3.36 (2.73-3.66)	752
Age 12-19 years	01-02	*	<LOD	<LOD	.945 (.764-1.33)	1.55 (1.07-2.37)	742
Age 12-19 years	03-04	*	<LOD	<LOD	.442 (<LOD-.543)	.764 (.482-1.25)	729
Age 12-19 years	05-06	*	<LOD	<LOD	<LOD	<LOD	702
Age 12-19 years	07-08	*	<LOD	<LOD	<LOD	<LOD	401
Age 12-19 years	09-10	*	<LOD	<LOD	<LOD	<LOD	420
Age 20+ years	99-00	*	<LOD	<LOD	<LOD	<LOD	1461
Age 20+ years	01-02	*	<LOD	<LOD	1.27 (<LOD-1.39)	1.83 (1.55-2.11)	1647
Age 20+ years	03-04	*	<LOD	<LOD	<LOD	.905 (.804-1.01)	1534
Age 20+ years	05-06	*	<LOD	<LOD	<LOD	<LOD	1490
Age 20+ years	07-08	*	<LOD	<LOD	<LOD	<LOD	1814
Age 20+ years	09-10	*	<LOD	<LOD	<LOD	<LOD	1914
Male	99-00	*	<LOD	<LOD	<LOD	4.30 (<LOD-6.35)	1215
Male	01-02	*	<LOD	<LOD	1.03 (.844-1.33)	1.77 (1.35-2.13)	1371
Male	03-04	*	<LOD	<LOD	<LOD	.663 (.583-1.01)	1250
Male	05-06	*	<LOD	<LOD	<LOD	<LOD	1270
Male	07-08	*	<LOD	<LOD	<LOD	<LOD	1294
Male	09-10	*	<LOD	<LOD	<LOD	<LOD	1399
Female	99-00	*	<LOD	<LOD	<LOD	6.69 (<LOD-7.10)	1326
Female	01-02	*	<LOD	<LOD	1.35 (<LOD-1.55)	1.83 (1.61-2.21)	1411
Female	03-04	*	<LOD	<LOD	<LOD	1.01 (.844-1.19)	1355
Female	05-06	*	<LOD	<LOD	<LOD	<LOD	1278
Female	07-08	*	<LOD	<LOD	<LOD	<LOD	1310
Female	09-10	*	<LOD	<LOD	<LOD	<LOD	1350
Mexican American	99-00	*	<LOD	<LOD	<LOD	<LOD	814
Mexican American	01-02	*	<LOD	<LOD	1.19 (<LOD-1.39)	1.91 (1.59-2.23)	677
Mexican American	03-04	*	<LOD	<LOD	<LOD	.784 (.623-1.13)	652
Mexican American	05-06	*	<LOD	<LOD	<LOD	<LOD	637
Mexican American	07-08	*	<LOD	<LOD	<LOD	<LOD	531
Mexican American	09-10	*	<LOD	<LOD	<LOD	1.20 (<LOD-1.56)	566
Non-Hispanic Black	99-00	*	<LOD	<LOD	<LOD	2.87 (2.25-3.50)	603
Non-Hispanic Black	01-02	*	<LOD	<LOD	.824 (.724-.985)	1.19 (1.01-1.43)	703
Non-Hispanic Black	03-04	*	<LOD	<LOD	.503 (.342-.623)	.663 (.523-.945)	699
Non-Hispanic Black	05-06	*	<LOD	<LOD	<LOD	<LOD	678
Non-Hispanic Black	07-08	*	<LOD	<LOD	<LOD	<LOD	597
Non-Hispanic Black	09-10	*	<LOD	<LOD	<LOD	.880 (<LOD-1.08)	516
Non-Hispanic White	99-00	*	<LOD	<LOD	<LOD	6.35 (<LOD-7.10)	912

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Non-Hispanic White	01-02	*	<LOD	<LOD	1.27 (<LOD-1.49)	1.83 (1.55-2.13)	1216
Non-Hispanic White	03-04	*	<LOD	<LOD	<LOD	.965 (.844-1.07)	1088
Non-Hispanic White	05-06	*	<LOD	<LOD	<LOD	<LOD	1038
Non-Hispanic White	07-08	*	<LOD	<LOD	<LOD	<LOD	1077
Non-Hispanic White	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.

Urinary Mono-2-methyl-2-hydroxypropyl phthalate (MHBP) (2013 - 2018)†

CAS Number 64339-39-5

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.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	13-14	2.49 (2.28-2.71)	2.60 (2.40-2.90)	5.10 (4.80-5.50)	9.00 (8.50-9.90)	13.6 (11.9-15.5)	2327
Total population	15-16	2.67 (2.42-2.95)	2.70 (2.50-3.10)	5.50 (4.90-5.90)	10.4 (9.20-11.5)	15.1 (12.8-16.8)	2975
Total population	17-18	2.22 (2.06-2.39)	2.30 (2.10-2.40)	4.30 (3.90-4.80)	7.70 (7.00-8.80)	11.2 (9.60-14.1)	2762
Age 3-5 years	15-16	3.76 (3.45-4.09)	3.80 (3.20-4.10)	7.20 (6.30-7.80)	13.6 (10.7-16.5)	20.6 (15.0-23.5)	465
Age 3-5 years	17-18	3.84 (3.23-4.57)	3.70 (3.20-4.60)	8.70 (7.00-10.1)	13.8 (11.9-15.6)	18.3 (14.0-41.8)	379
Age 6-11 years	13-14	3.79 (3.18-4.53)	4.00 (3.40-4.70)	6.80 (6.40-8.00)	11.4 (9.70-13.6)	15.3 (12.0-20.6)	316
Age 6-11 years	15-16	4.04 (3.32-4.92)	4.20 (3.60-4.70)	8.00 (5.70-10.0)	14.5 (10.8-18.3)	21.4 (15.9-25.7)	415
Age 6-11 years	17-18	3.89 (3.29-4.60)	3.70 (3.20-4.50)	6.60 (6.00-7.80)	12.4 (8.10-17.7)	18.7 (13.2-27.2)	330
Age 12-19 years	13-14	3.52 (2.96-4.18)	3.60 (2.90-4.10)	6.90 (5.50-8.40)	15.6 (10.7-22.1)	25.2 (15.8-30.7)	376
Age 12-19 years	15-16	3.47 (2.79-4.33)	3.60 (2.80-4.50)	6.50 (5.00-9.00)	11.4 (9.20-15.0)	15.0 (11.3-20.7)	405
Age 12-19 years	17-18	2.70 (2.40-3.04)	2.90 (2.40-3.70)	5.40 (4.60-6.90)	8.70 (7.20-9.90)	10.8 (9.60-14.5)	353
Age 20+ years	13-14	2.26 (2.06-2.48)	2.40 (2.20-2.60)	4.80 (4.40-5.10)	8.10 (7.50-9.50)	11.9 (10.4-13.3)	1635
Age 20+ years	15-16	2.43 (2.19-2.68)	2.50 (2.20-2.80)	5.00 (4.50-5.70)	9.70 (8.60-10.7)	14.3 (11.7-15.9)	1690
Age 20+ years	17-18	1.98 (1.83-2.14)	2.10 (1.90-2.30)	3.70 (3.40-4.20)	6.80 (6.00-7.70)	10.0 (8.20-11.5)	1700
Male	13-14	2.54 (2.26-2.85)	2.70 (2.40-3.20)	4.90 (4.40-5.50)	8.60 (7.40-10.4)	12.3 (10.8-14.9)	1119
Male	15-16	2.61 (2.34-2.91)	2.70 (2.40-3.10)	5.40 (4.70-5.90)	9.80 (8.50-11.1)	14.4 (11.6-16.1)	1474
Male	17-18	2.33 (2.16-2.52)	2.30 (2.20-2.40)	4.50 (4.00-4.90)	7.80 (6.60-10.0)	12.2 (9.80-17.0)	1363
Female	13-14	2.44 (2.21-2.70)	2.50 (2.20-2.80)	5.30 (4.90-5.90)	9.50 (8.40-10.6)	14.9 (12.7-17.6)	1208
Female	15-16	2.73 (2.43-3.08)	2.70 (2.50-3.10)	5.70 (5.00-6.50)	11.1 (9.40-12.7)	15.7 (13.8-18.7)	1501
Female	17-18	2.11 (1.91-2.34)	2.30 (2.00-2.40)	4.20 (3.50-5.10)	7.70 (6.60-8.70)	10.0 (8.60-14.1)	1399
Mexican American	13-14	2.80 (2.14-3.68)	2.80 (2.00-4.30)	5.90 (4.90-7.60)	10.6 (9.30-12.1)	14.5 (11.8-18.8)	381
Mexican American	15-16	2.93 (2.62-3.29)	3.20 (2.70-3.60)	5.40 (4.90-6.00)	10.7 (8.70-13.8)	16.1 (12.9-19.1)	595
Mexican American	17-18	2.40 (1.98-2.91)	2.50 (2.10-3.10)	4.70 (3.70-6.00)	7.40 (6.40-8.80)	10.0 (7.90-14.8)	417
Non-Hispanic Black	13-14	3.69 (3.33-4.09)	3.70 (3.10-4.30)	7.20 (6.40-7.70)	14.9 (11.9-18.7)	22.1 (18.3-26.7)	476
Non-Hispanic Black	15-16	3.46 (3.03-3.95)	3.70 (3.30-4.20)	7.00 (6.10-8.00)	11.6 (9.80-14.2)	16.1 (14.2-18.8)	698
Non-Hispanic Black	17-18	2.81 (2.51-3.15)	3.00 (2.50-3.40)	5.30 (4.60-6.30)	9.50 (7.90-11.5)	14.5 (11.5-18.0)	645
Non-Hispanic White	13-14	2.24 (2.02-2.49)	2.40 (2.20-2.70)	4.60 (4.30-5.00)	8.00 (6.90-9.50)	11.3 (9.20-13.6)	907
Non-Hispanic White	15-16	2.48 (2.22-2.77)	2.50 (2.20-2.90)	5.10 (4.50-5.90)	9.90 (8.40-11.3)	15.0 (11.6-15.7)	862
Non-Hispanic White	17-18	2.08 (1.84-2.35)	2.20 (1.90-2.30)	3.90 (3.50-4.50)	7.40 (6.00-8.90)	10.7 (8.10-14.1)	906
All Hispanic	13-14	2.87 (2.40-3.43)	3.00 (2.30-3.80)	5.80 (4.80-7.50)	11.0 (9.40-13.6)	15.7 (13.3-19.3)	611
All Hispanic	15-16	2.96 (2.67-3.28)	3.10 (2.70-3.50)	5.50 (5.20-6.20)	11.4 (9.50-13.2)	18.0 (14.0-22.4)	971
All Hispanic	17-18	2.51 (2.16-2.91)	2.60 (2.30-3.00)	4.90 (4.20-5.70)	8.60 (7.00-9.90)	12.2 (9.70-15.0)	663
Non-Hispanic Asian	13-14	2.00 (1.69-2.37)	2.00 (1.60-2.50)	4.10 (2.90-5.60)	6.90 (5.10-9.30)	9.50 (6.90-14.2)	234
Non-Hispanic Asian	15-16	2.48 (2.07-2.98)	2.40 (1.90-3.10)	5.20 (4.00-6.50)	10.5 (7.80-15.4)	18.7 (10.6-21.2)	301
Non-Hispanic Asian	17-18	1.69 (1.44-1.99)	1.80 (1.40-2.10)	3.30 (2.90-4.40)	6.80 (5.40-8.60)	9.20 (8.20-12.1)	366

Limit of detection (LOD, see Data Analysis section) for Survey years 13-14, 15-16, and 17-18 are 0.4, 0.4, and 0.4, respectively.

† Participants are age 6+ years in Survey 13-14; beginning with Survey 15-16, participants include those age 3+ years.

Urinary Mono-2-methyl-2-hydroxypropyl phthalate (MHBP) (creatinine corrected) (2013 - 2018)†

CAS Number 64339-39-5

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.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	13-14	2.52 (2.35-2.70)	2.56 (2.33-2.75)	4.02 (3.81-4.39)	7.16 (6.36-7.59)	9.40 (8.89-10.7)	2326
Total population	15-16	2.76 (2.57-2.97)	2.73 (2.50-2.98)	4.62 (4.37-4.92)	7.82 (7.21-8.66)	11.1 (9.80-13.1)	2974
Total population	17-18	2.31 (2.13-2.51)	2.16 (1.96-2.44)	3.54 (3.30-3.92)	6.63 (5.61-7.92)	10.1 (8.75-12.2)	2762
Age 3-5 years	15-16	8.97 (8.00-10.1)	8.64 (7.64-9.52)	14.4 (12.4-15.6)	25.2 (19.2-29.0)	32.1 (25.6-48.4)	464
Age 3-5 years	17-18	8.35 (7.43-9.37)	8.14 (7.14-9.44)	13.2 (11.5-16.1)	20.2 (18.0-24.2)	32.4 (23.0-38.2)	379
Age 6-11 years	13-14	4.87 (4.25-5.59)	4.78 (3.98-5.76)	8.78 (7.47-10.0)	14.0 (10.8-15.9)	17.5 (15.0-25.1)	316
Age 6-11 years	15-16	5.21 (4.47-6.06)	4.84 (4.32-5.82)	8.07 (6.92-9.67)	13.9 (10.2-18.5)	20.3 (13.1-30.3)	415
Age 6-11 years	17-18	4.53 (3.78-5.43)	4.50 (3.60-5.52)	7.16 (5.77-8.36)	10.6 (8.36-13.9)	14.2 (11.2-26.7)	330
Age 12-19 years	13-14	2.97 (2.67-3.31)	2.84 (2.50-3.14)	4.39 (3.65-5.77)	8.50 (7.54-10.0)	12.2 (9.36-15.4)	376
Age 12-19 years	15-16	2.70 (2.35-3.10)	2.79 (2.41-3.08)	4.48 (3.57-5.46)	6.60 (5.46-8.32)	8.32 (6.57-9.93)	405
Age 12-19 years	17-18	2.33 (2.04-2.68)	2.26 (1.97-2.50)	3.61 (2.82-4.40)	5.44 (4.40-7.62)	7.70 (5.94-9.42)	353
Age 20+ years	13-14	2.29 (2.11-2.48)	2.37 (2.14-2.61)	3.70 (3.38-3.91)	5.74 (5.33-6.36)	7.61 (7.33-8.55)	1634
Age 20+ years	15-16	2.47 (2.29-2.67)	2.46 (2.21-2.73)	4.08 (3.82-4.44)	6.47 (5.79-7.69)	9.19 (8.28-10.2)	1690
Age 20+ years	17-18	2.03 (1.87-2.20)	1.93 (1.77-2.13)	3.06 (2.78-3.40)	5.00 (4.19-5.92)	7.50 (6.18-9.65)	1700
Male	13-14	2.15 (1.97-2.35)	2.15 (1.90-2.45)	3.45 (3.21-3.77)	5.77 (5.18-6.73)	8.56 (7.41-10.0)	1118
Male	15-16	2.33 (2.15-2.51)	2.15 (1.94-2.50)	3.97 (3.53-4.42)	6.96 (6.07-7.78)	9.51 (8.89-10.2)	1474
Male	17-18	2.07 (1.89-2.26)	1.88 (1.67-2.06)	3.27 (2.90-3.51)	6.21 (4.96-7.44)	10.5 (7.24-14.7)	1363
Female	13-14	2.93 (2.70-3.18)	2.86 (2.61-3.14)	4.68 (4.24-5.08)	7.73 (7.12-8.75)	10.2 (9.02-12.7)	1208
Female	15-16	3.27 (3.01-3.54)	3.20 (3.02-3.39)	5.00 (4.63-5.83)	8.76 (7.48-9.80)	13.1 (9.93-17.6)	1500
Female	17-18	2.57 (2.32-2.86)	2.53 (2.16-2.77)	3.98 (3.48-4.49)	7.14 (5.77-8.24)	9.80 (8.28-11.8)	1399
Mexican American	13-14	2.91 (2.40-3.53)	3.02 (2.29-3.53)	5.41 (4.23-5.88)	8.33 (7.41-11.2)	14.0 (10.0-18.4)	381
Mexican American	15-16	3.19 (2.97-3.43)	2.98 (2.79-3.24)	5.35 (4.83-5.75)	9.26 (8.28-10.4)	14.0 (11.4-16.3)	595
Mexican American	17-18	2.60 (2.21-3.07)	2.49 (2.07-2.98)	4.37 (3.65-5.16)	7.71 (6.45-9.20)	12.2 (8.36-18.1)	417
Non-Hispanic Black	13-14	2.73 (2.45-3.04)	2.72 (2.37-2.95)	4.43 (3.77-4.91)	7.33 (6.24-9.20)	12.1 (8.31-15.7)	476
Non-Hispanic Black	15-16	2.76 (2.50-3.04)	2.74 (2.34-3.05)	4.78 (4.35-5.12)	8.28 (6.72-9.64)	11.8 (9.64-14.0)	697
Non-Hispanic Black	17-18	2.12 (1.92-2.34)	1.98 (1.81-2.22)	3.53 (3.19-3.92)	6.32 (5.16-7.50)	9.23 (7.45-11.6)	645
Non-Hispanic White	13-14	2.39 (2.14-2.67)	2.47 (2.14-2.80)	3.82 (3.33-4.31)	6.29 (5.24-7.57)	8.71 (7.59-9.71)	907
Non-Hispanic White	15-16	2.66 (2.45-2.90)	2.65 (2.34-2.89)	4.46 (4.05-4.81)	7.48 (6.25-8.89)	9.93 (8.47-13.9)	862
Non-Hispanic White	17-18	2.22 (2.01-2.44)	2.04 (1.78-2.39)	3.33 (2.86-3.79)	6.18 (4.67-7.92)	9.33 (7.50-12.2)	906
All Hispanic	13-14	2.88 (2.51-3.31)	2.93 (2.55-3.29)	5.15 (4.25-5.65)	8.33 (7.19-10.0)	14.0 (10.9-18.0)	611
All Hispanic	15-16	3.12 (2.91-3.34)	2.97 (2.78-3.17)	5.23 (4.82-5.67)	9.26 (8.35-10.2)	14.2 (11.4-16.2)	971
All Hispanic	17-18	2.69 (2.33-3.11)	2.62 (2.20-3.06)	4.17 (3.69-5.00)	7.83 (6.36-10.5)	13.2 (9.23-18.1)	663
Non-Hispanic Asian	13-14	2.56 (2.25-2.90)	2.55 (2.08-2.87)	4.25 (3.64-5.12)	7.53 (5.56-9.09)	9.39 (7.73-10.7)	233
Non-Hispanic Asian	15-16	3.07 (2.76-3.42)	2.88 (2.31-3.46)	5.20 (4.16-6.00)	7.96 (7.14-9.95)	14.9 (8.83-18.9)	301
Non-Hispanic Asian	17-18	2.50 (2.22-2.82)	2.40 (2.09-2.86)	4.29 (3.70-4.90)	7.17 (5.96-8.82)	10.4 (7.41-17.4)	366

† Participants are age 6+ years in Survey 13-14; beginning with Survey 15-16, participants include those age 3+ years.

Urinary Mono-ethyl phthalate (MEP) (1999 - 2010)

CAS Number 863029-89-4

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.**

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	99-00	118 (103-135)	108 (90.0-132)	300 (244-355)	830 (664-977)	1870 (1420-2490)	2536
Total population	01-02	117 (105-131)	112 (93.0-128)	307 (274-348)	813 (688-947)	1650 (1230-2130)	2782
Total population	03-04	127 (112-145)	115 (99.9-137)	332 (302-366)	909 (769-1150)	1780 (1420-2180)	2605
Total population	05-06	108 (95.5-123)	102 (83.4-121)	284 (257-323)	750 (707-825)	1410 (1140-1830)	2548
Total population	07-08	90.4 (80.3-102)	81.1 (70.8-93.5)	239 (205-272)	605 (493-713)	1180 (821-1760)	2604
Total population	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 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)	328
Age 6-11 years	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
Age 6-11 years	03-04	62.9 (54.3-72.9)	53.9 (46.4-67.9)	130 (112-159)	344 (195-377)	546 (358-949)	342
Age 6-11 years	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
Age 6-11 years	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
Age 6-11 years	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
Age 12-19 years	99-00	139 (105-183)	127 (92.8-169)	372 (276-540)	994 (694-1420)	2150 (1020-2920)	752
Age 12-19 years	01-02	130 (105-161)	121 (97.9-150)	316 (256-429)	835 (649-974)	1360 (969-2020)	742
Age 12-19 years	03-04	148 (123-178)	146 (109-194)	367 (285-459)	828 (642-1030)	1520 (900-2180)	729
Age 12-19 years	05-06	126 (108-146)	114 (96.4-134)	315 (256-390)	765 (636-1060)	1360 (1030-1680)	702
Age 12-19 years	07-08	98.6 (79.1-123)	97.4 (68.3-130)	214 (173-330)	477 (356-705)	821 (511-1270)	401
Age 12-19 years	09-10	64.0 (50.1-81.8)	53.9 (39.0-75.4)	151 (101-228)	354 (260-497)	662 (371-1190)	420
Age 20+ years	99-00	125 (108-145)	119 (92.6-146)	318 (257-389)	882 (666-1100)	2300 (1470-3060)	1456
Age 20+ years	01-02	126 (113-141)	120 (101-140)	329 (291-374)	888 (702-1100)	1800 (1420-2420)	1647
Age 20+ years	03-04	135 (116-157)	124 (104-145)	351 (311-415)	1050 (807-1370)	1970 (1480-2510)	1534
Age 20+ years	05-06	114 (99.0-132)	111 (87.1-131)	299 (268-346)	782 (724-901)	1480 (1140-2080)	1490
Age 20+ years	07-08	95.3 (85.4-106)	84.7 (75.6-97.8)	264 (235-299)	673 (539-823)	1470 (913-1920)	1814
Age 20+ years	09-10	69.0 (61.8-76.9)	60.5 (54.0-68.7)	183 (159-207)	557 (445-712)	1110 (875-1350)	1914
Male	99-00	118 (98.5-142)	102 (78.3-130)	345 (246-429)	948 (672-1500)	2310 (1400-3010)	1214
Male	01-02	120 (103-139)	113 (91.8-131)	331 (276-398)	957 (703-1390)	2040 (1390-2900)	1371
Male	03-04	130 (114-148)	113 (97.8-133)	354 (296-432)	1000 (801-1370)	1920 (1460-2300)	1250
Male	05-06	107 (92.1-124)	95.9 (75.8-120)	279 (227-340)	757 (651-855)	1470 (923-1930)	1270
Male	07-08	92.8 (80.1-107)	81.0 (70.4-93.3)	245 (194-298)	659 (481-867)	1450 (851-1900)	1294
Male	09-10	61.0 (54.2-68.6)	52.8 (45.4-58.3)	157 (126-202)	436 (342-586)	965 (768-1170)	1399
Female	99-00	118 (102-136)	115 (91.3-139)	280 (231-335)	652 (581-813)	1470 (903-2560)	1322
Female	01-02	115 (101-131)	110 (91.5-128)	282 (255-329)	692 (580-867)	1230 (982-1650)	1411
Female	03-04	125 (106-148)	120 (90.9-145)	316 (258-372)	830 (639-1080)	1710 (1190-2260)	1355
Female	05-06	110 (92.8-130)	109 (86.8-130)	291 (252-346)	734 (671-871)	1310 (1140-1900)	1278
Female	07-08	88.2 (77.8-99.9)	82.4 (67.6-101)	233 (202-264)	553 (462-703)	1050 (713-1680)	1310
Female	09-10	67.8 (60.3-76.4)	59.6 (52.4-73.7)	164 (148-192)	548 (392-675)	988 (777-1340)	1350
Mexican American	99-00	119 (103-138)	115 (96.5-138)	291 (257-357)	842 (561-996)	1130 (966-1410)	813
Mexican American	01-02	149 (129-173)	145 (125-174)	349 (293-435)	984 (690-1390)	1730 (1010-2940)	677
Mexican American	03-04	176 (158-196)	164 (140-202)	394 (345-454)	1080 (873-1440)	2010 (1470-2840)	652
Mexican American	05-06	163 (130-203)	161 (124-186)	384 (310-466)	1030 (682-1830)	1930 (1170-3330)	637
Mexican American	07-08	122 (105-141)	111 (82.0-144)	314 (270-372)	850 (604-971)	1180 (971-1520)	531
Mexican American	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 Black	99-00	213 (182-249)	202 (169-231)	521 (419-626)	1250 (932-1500)	2380 (1410-3060)	603
Non-Hispanic Black	01-02	233 (214-253)	235 (191-269)	563 (468-718)	1430 (1070-1630)	2340 (1860-3350)	703
Non-Hispanic Black	03-04	236 (205-272)	202 (167-273)	626 (507-760)	1650 (1220-1970)	2880 (1840-3900)	699
Non-Hispanic Black	05-06	219 (189-254)	199 (163-253)	522 (440-700)	1450 (1070-1900)	2610 (1900-3600)	678
Non-Hispanic Black	07-08	168 (145-195)	165 (132-202)	415 (343-493)	994 (711-1260)	1920 (1090-3370)	597
Non-Hispanic Black	09-10	156 (130-188)	137 (113-159)	405 (276-543)	1190 (841-1570)	1930 (1430-3380)	516
Non-Hispanic White	99-00	101 (87.6-116)	88.4 (71.0-104)	242 (189-318)	651 (527-882)	1630 (1050-2560)	908

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Non-Hispanic White	01-02	104 (92.8-117)	96.8 (78.8-117)	273 (241-297)	672 (598-813)	1530 (1030-1800)	1216
Non-Hispanic White	03-04	110 (95.4-128)	97.8 (82.4-115)	276 (242-315)	801 (630-975)	1480 (1050-2170)	1088
Non-Hispanic White	05-06	91.3 (80.3-104)	84.2 (69.4-111)	232 (196-278)	600 (500-715)	1140 (757-1550)	1038
Non-Hispanic White	07-08	78.9 (70.4-88.5)	68.9 (59.8-80.1)	199 (175-233)	506 (429-650)	880 (670-1500)	1077
Non-Hispanic White	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.

Urinary Mono-ethyl phthalate (MEP) (creatinine corrected) (1999 - 2010)

CAS Number 863029-89-4

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.**

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	99-00	107 (98.0-118)	93.0 (85.4-104)	237 (203-278)	598 (497-781)	1290 (1100-1530)	2536
Total population	01-02	110 (99.3-122)	97.4 (87.9-107)	256 (218-287)	640 (532-778)	1220 (959-1450)	2782
Total population	03-04	120 (107-133)	101 (90.1-117)	298 (254-332)	733 (587-853)	1350 (1080-1680)	2605
Total population	05-06	106 (95.3-117)	92.3 (80.9-104)	242 (211-286)	625 (528-711)	1140 (942-1310)	2548
Total population	07-08	91.1 (82.6-101)	75.3 (68.6-83.5)	204 (185-231)	547 (433-680)	987 (821-1190)	2604
Total population	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 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)	328
Age 6-11 years	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
Age 6-11 years	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
Age 6-11 years	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
Age 6-11 years	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
Age 6-11 years	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
Age 12-19 years	99-00	93.7 (78.6-112)	80.7 (61.4-103)	240 (181-326)	580 (446-834)	1160 (661-1320)	752
Age 12-19 years	01-02	100 (83.0-121)	92.4 (73.1-119)	218 (164-270)	533 (389-729)	878 (573-1220)	742
Age 12-19 years	03-04	111 (93.1-132)	99.1 (81.2-121)	240 (193-320)	522 (389-714)	969 (651-1470)	729
Age 12-19 years	05-06	93.6 (80.5-109)	85.3 (69.0-104)	201 (174-238)	500 (389-635)	813 (590-1110)	702
Age 12-19 years	07-08	76.7 (61.8-95.1)	72.8 (53.3-91.3)	161 (108-218)	334 (213-491)	547 (334-866)	401
Age 12-19 years	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
Age 20+ years	99-00	118 (107-131)	102 (89.5-117)	257 (222-298)	669 (530-965)	1430 (1180-2210)	1456
Age 20+ years	01-02	119 (108-132)	105 (96.3-120)	277 (240-321)	702 (583-871)	1400 (1010-1840)	1647
Age 20+ years	03-04	130 (115-147)	117 (96.8-133)	338 (279-417)	815 (652-1060)	1510 (1170-2110)	1534
Age 20+ years	05-06	115 (103-128)	100 (87.6-117)	278 (233-309)	700 (574-803)	1220 (972-1530)	1490
Age 20+ years	07-08	97.9 (89.6-107)	78.7 (73.2-87.7)	236 (208-266)	624 (518-759)	1100 (875-1380)	1814
Age 20+ years	09-10	73.0 (65.1-81.9)	62.5 (52.4-72.8)	173 (149-195)	523 (407-662)	989 (810-1120)	1914
Male	99-00	92.8 (82.0-105)	79.0 (70.8-88.2)	214 (165-274)	661 (457-978)	1290 (965-1920)	1214
Male	01-02	97.6 (85.8-111)	83.2 (72.6-96.8)	232 (186-280)	729 (554-974)	1400 (980-2000)	1371
Male	03-04	102 (91.9-113)	83.7 (71.0-99.0)	258 (225-307)	704 (562-896)	1320 (1060-1590)	1250
Male	05-06	85.7 (75.4-97.4)	73.0 (61.0-90.2)	204 (172-231)	504 (368-673)	898 (607-1240)	1270
Male	07-08	78.1 (68.5-89.1)	65.5 (57.0-73.8)	181 (162-216)	490 (390-625)	936 (662-1190)	1294
Male	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
Female	99-00	123 (109-139)	104 (93.7-118)	249 (203-326)	543 (460-770)	1270 (770-2250)	1322
Female	01-02	123 (110-139)	113 (97.4-124)	269 (235-312)	568 (470-725)	944 (784-1330)	1411
Female	03-04	139 (119-163)	120 (97.8-143)	335 (250-418)	741 (587-923)	1490 (951-2200)	1355
Female	05-06	129 (116-144)	106 (97.4-121)	293 (247-333)	759 (629-920)	1370 (1150-1730)	1278
Female	07-08	106 (95.5-117)	88.5 (77.6-98.6)	227 (188-278)	610 (491-727)	1040 (759-1520)	1310
Female	09-10	81.9 (72.7-92.2)	69.9 (57.2-80.9)	178 (151-214)	523 (407-661)	987 (716-1220)	1350
Mexican American	99-00	108 (93.9-125)	102 (89.8-115)	252 (207-312)	538 (444-643)	875 (643-1270)	813
Mexican American	01-02	141 (120-165)	131 (108-160)	304 (261-378)	714 (568-1090)	1280 (928-1740)	677
Mexican American	03-04	159 (141-179)	154 (133-178)	352 (275-439)	815 (631-1060)	1500 (1190-2070)	652
Mexican American	05-06	146 (123-173)	125 (107-157)	324 (235-425)	767 (600-1020)	1410 (926-2510)	637
Mexican American	07-08	119 (100-140)	105 (81.9-142)	260 (224-306)	616 (502-750)	1230 (628-2160)	531
Mexican American	09-10	81.6 (70.9-93.8)	64.9 (56.3-72.7)	170 (131-254)	523 (324-792)	945 (685-1510)	566
Non-Hispanic Black	99-00	137 (121-156)	130 (109-151)	292 (257-333)	682 (503-1120)	1270 (810-1710)	603
Non-Hispanic Black	01-02	163 (149-179)	150 (122-178)	367 (316-408)	818 (634-979)	1380 (1020-1850)	703
Non-Hispanic Black	03-04	167 (148-189)	140 (124-162)	409 (314-522)	1010 (793-1300)	1710 (1420-2310)	699
Non-Hispanic Black	05-06	154 (131-181)	134 (113-160)	360 (311-412)	919 (590-1290)	1700 (1070-2030)	678
Non-Hispanic Black	07-08	131 (115-148)	121 (105-132)	280 (224-334)	614 (489-843)	1100 (836-1780)	597
Non-Hispanic Black	09-10	113 (89.0-143)	92.7 (77.5-121)	236 (180-338)	722 (443-1210)	1300 (890-2240)	516
Non-Hispanic White	99-00	98.3 (88.9-109)	84.5 (72.9-93.7)	206 (158-255)	565 (432-916)	1290 (975-1810)	908

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Non-Hispanic White	01-02	103 (93.5-114)	89.6 (82.1-98.9)	223 (190-265)	607 (470-765)	1050 (874-1440)	1216
Non-Hispanic White	03-04	109 (95.3-125)	88.9 (79.2-105)	254 (223-320)	652 (548-876)	1270 (922-1830)	1088
Non-Hispanic White	05-06	96.1 (86.5-107)	84.5 (71.2-97.6)	211 (189-242)	532 (450-686)	993 (828-1240)	1038
Non-Hispanic White	07-08	82.4 (74.7-90.9)	66.4 (58.5-73.8)	185 (158-219)	523 (397-640)	871 (708-1040)	1077
Non-Hispanic White	09-10	58.6 (53.2-64.4)	49.1 (41.4-56.8)	125 (110-146)	366 (278-437)	706 (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.

Urinary Mono-ethyl phthalate (MEP) (2011 - 2018)†

CAS Number 2306-33-4

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.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	11-12	37.9 (33.0-43.5)	31.1 (27.3-37.9)	96.4 (83.7-114)	277 (227-367)	570 (419-738)	2489
Total population	13-14	35.7 (32.1-39.8)	29.9 (27.4-33.1)	82.4 (68.5-98.1)	253 (211-329)	560 (420-684)	2685
Total population	15-16	33.6 (29.3-38.4)	28.6 (24.7-33.7)	80.4 (66.9-102)	217 (181-259)	433 (340-531)	2975
Total population	17-18	27.1 (24.6-29.9)	24.7 (22.4-28.2)	58.4 (51.4-68.3)	165 (141-204)	333 (289-434)	2762
Age 3-5 years	15-16	19.4 (17.1-22.1)	17.6 (14.8-20.5)	36.4 (30.7-44.9)	86.4 (71.0-106)	140 (109-273)	465
Age 3-5 years	17-18	17.7 (14.7-21.3)	15.6 (13.1-19.2)	39.0 (33.6-48.0)	103 (63.8-116)	162 (111-287)	379
Age 6-11 years	11-12	23.4 (18.7-29.2)	24.5 (18.9-28.7)	49.8 (38.4-70.6)	112 (85.0-165)	199 (139-277)	396
Age 6-11 years	13-14	24.5 (20.6-29.2)	22.0 (18.4-27.9)	50.0 (36.5-66.2)	133 (88.8-241)	249 (131-390)	409
Age 6-11 years	15-16	24.5 (18.6-32.3)	22.1 (16.3-31.1)	49.8 (31.9-75.7)	115 (70.4-203)	211 (143-352)	415
Age 6-11 years	17-18	21.2 (17.5-25.7)	18.4 (15.9-22.1)	41.5 (33.3-52.3)	93.6 (60.6-172)	192 (91.1-586)	330
Age 12-19 years	11-12	36.2 (27.9-47.0)	30.6 (24.0-40.4)	86.7 (59.0-129)	216 (155-256)	378 (254-642)	388
Age 12-19 years	13-14	33.2 (29.3-37.8)	29.8 (24.9-35.6)	77.7 (56.3-96.4)	171 (132-218)	340 (226-459)	462
Age 12-19 years	15-16	35.1 (27.8-44.2)	34.1 (25.4-43.7)	79.1 (58.7-106)	191 (113-414)	427 (191-612)	405
Age 12-19 years	17-18	28.0 (22.4-35.0)	27.3 (21.7-33.0)	78.9 (48.2-106)	241 (111-322)	322 (299-368)	353
Age 20+ years	11-12	40.2 (34.9-46.5)	32.0 (27.6-40.9)	105 (93.7-119)	315 (253-406)	688 (460-801)	1705
Age 20+ years	13-14	37.6 (33.3-42.6)	31.5 (28.4-35.0)	87.7 (71.1-110)	296 (228-368)	632 (455-821)	1814
Age 20+ years	15-16	35.2 (30.9-40.2)	29.0 (25.1-35.9)	90.8 (70.8-113)	235 (192-312)	448 (353-563)	1690
Age 20+ years	17-18	28.2 (25.6-31.2)	26.2 (24.0-29.1)	61.4 (52.8-72.4)	170 (145-211)	389 (286-472)	1700
Male	11-12	38.1 (33.3-43.7)	29.6 (26.1-35.9)	93.8 (75.3-118)	262 (227-369)	566 (371-875)	1259
Male	13-14	36.1 (32.0-40.8)	28.8 (25.1-33.7)	82.4 (61.3-104)	299 (203-387)	588 (405-897)	1285
Male	15-16	30.8 (27.2-34.8)	26.6 (21.8-29.9)	68.9 (54.5-87.6)	183 (148-247)	374 (258-480)	1474
Male	17-18	25.7 (23.4-28.2)	23.3 (20.5-25.0)	54.8 (47.6-63.8)	157 (133-179)	313 (179-498)	1363
Female	11-12	37.7 (30.6-46.4)	32.5 (25.2-45.3)	101 (82.8-118)	295 (207-406)	596 (447-727)	1230
Female	13-14	35.4 (29.9-41.8)	31.2 (26.2-38.2)	82.2 (68.0-103)	231 (193-308)	485 (374-632)	1400
Female	15-16	36.5 (30.2-44.0)	31.6 (25.6-41.1)	96.6 (68.7-125)	243 (192-343)	457 (352-551)	1501
Female	17-18	28.6 (24.1-33.8)	27.0 (23.6-32.9)	65.1 (51.4-83.7)	180 (121-278)	342 (286-448)	1399
Mexican American	11-12	49.5 (39.3-62.3)	39.3 (34.0-47.0)	120 (69.8-163)	375 (259-561)	874 (394-1420)	316
Mexican American	13-14	44.7 (38.5-51.9)	37.0 (28.8-47.6)	106 (85.8-134)	316 (196-435)	568 (353-897)	438
Mexican American	15-16	35.8 (30.1-42.5)	29.1 (25.8-32.6)	73.7 (54.9-105)	282 (170-437)	652 (364-1080)	595
Mexican American	17-18	25.9 (20.0-33.4)	25.3 (18.0-33.5)	58.2 (42.1-78.7)	123 (97.2-170)	214 (137-356)	417
Non-Hispanic Black	11-12	89.2 (77.9-102)	82.1 (71.0-93.2)	196 (166-229)	524 (381-669)	942 (653-1790)	665
Non-Hispanic Black	13-14	74.3 (67.9-81.3)	63.3 (52.4-75.3)	175 (156-218)	513 (381-616)	1160 (875-1710)	609
Non-Hispanic Black	15-16	68.9 (55.8-85.1)	65.6 (47.8-80.4)	172 (127-237)	436 (312-566)	717 (519-2030)	698
Non-Hispanic Black	17-18	60.1 (50.6-71.3)	51.8 (43.7-62.1)	124 (93.6-170)	372 (233-545)	613 (511-750)	645
Non-Hispanic White	11-12	30.4 (26.0-35.6)	25.4 (20.1-29.2)	77.6 (64.2-92.9)	221 (166-290)	460 (290-697)	813
Non-Hispanic White	13-14	28.5 (26.1-31.3)	24.5 (21.4-27.4)	58.1 (49.5-67.3)	191 (130-241)	377 (277-632)	987
Non-Hispanic White	15-16	28.7 (25.1-32.9)	24.3 (20.3-28.5)	66.1 (51.6-84.6)	175 (126-217)	339 (200-457)	862
Non-Hispanic White	17-18	23.1 (20.5-26.1)	21.3 (18.0-24.6)	47.3 (40.7-52.8)	133 (96.5-162)	286 (179-368)	906
All Hispanic	11-12	55.5 (44.2-69.6)	47.6 (38.0-59.6)	132 (99.9-180)	406 (334-537)	809 (461-1240)	571
All Hispanic	13-14	49.4 (42.6-57.4)	42.2 (37.0-50.9)	113 (96.4-140)	376 (237-501)	681 (454-1020)	690
All Hispanic	15-16	38.6 (33.4-44.6)	31.7 (29.0-35.6)	86.4 (68.9-106)	257 (211-374)	612 (429-786)	971
All Hispanic	17-18	33.3 (27.2-40.7)	30.3 (25.5-37.1)	74.1 (59.3-86.9)	176 (137-282)	436 (308-586)	663
Non-Hispanic Asian	11-12	23.3 (17.9-30.3)	18.8 (13.9-28.3)	60.7 (38.6-89.5)	166 (109-289)	405 (175-1080)	352
Non-Hispanic Asian	13-14	23.7 (20.7-27.1)	19.3 (15.4-24.0)	54.6 (42.8-72.0)	166 (103-293)	316 (187-433)	289
Non-Hispanic Asian	15-16	24.4 (15.9-37.5)	22.9 (15.7-31.3)	62.0 (42.2-95.4)	163 (90.0-316)	335 (163-761)	301
Non-Hispanic Asian	17-18	16.2 (11.3-23.2)	14.2 (11.7-16.1)	39.6 (22.2-74.8)	133 (78.8-279)	303 (149-609)	366

Limit of detection (LOD, see Data Analysis section) for Survey years 11-12, 13-14, 15-16, and 17-18 are 0.6, 1.2, 1.2, and 1.2, respectively.

† Participants are age 6+ years in Surveys 11-12 and 13-14; beginning with Survey 15-16, participants include those age 3+ years.

Urinary Mono-ethyl phthalate (MEP) (creatinine corrected) (2011 - 2018)†

CAS Number 2306-33-4

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.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	11-12	43.2 (38.5-48.5)	34.4 (30.5-39.2)	94.2 (79.5-111)	263 (198-368)	541 (398-777)	2487
Total population	13-14	35.8 (32.6-39.4)	27.9 (24.6-31.7)	73.7 (65.2-84.6)	216 (173-260)	460 (351-606)	2684
Total population	15-16	34.7 (31.0-39.0)	27.7 (24.8-31.1)	72.6 (61.8-84.7)	209 (149-250)	374 (301-518)	2974
Total population	17-18	28.3 (25.6-31.2)	23.8 (20.9-26.9)	51.5 (45.4-58.8)	141 (111-165)	275 (213-370)	2762
Age 3-5 years	15-16	46.3 (41.3-51.9)	40.0 (35.1-46.3)	73.1 (63.9-86.4)	157 (135-209)	343 (209-455)	464
Age 3-5 years	17-18	38.4 (33.6-43.9)	34.9 (27.9-43.7)	63.4 (51.1-76.6)	173 (118-203)	244 (191-425)	379
Age 6-11 years	11-12	33.4 (26.7-41.6)	29.2 (23.0-36.7)	59.7 (39.8-99.6)	123 (90.0-172)	177 (144-353)	395
Age 6-11 years	13-14	31.0 (26.4-36.3)	26.8 (22.7-30.9)	49.7 (37.1-70.7)	117 (72.5-182)	255 (149-475)	409
Age 6-11 years	15-16	31.6 (25.6-39.0)	26.5 (21.8-33.6)	52.0 (38.6-72.1)	120 (77.8-205)	219 (127-358)	415
Age 6-11 years	17-18	24.7 (21.1-28.8)	20.3 (16.8-26.1)	39.5 (30.5-47.0)	87.4 (50.5-162)	169 (92.8-644)	330
Age 12-19 years	11-12	35.3 (30.5-40.9)	29.4 (22.8-37.3)	61.1 (46.7-94.5)	157 (122-223)	262 (163-549)	388
Age 12-19 years	13-14	27.0 (24.7-29.5)	22.1 (20.2-25.0)	49.0 (42.4-55.9)	113 (75.9-162)	192 (139-260)	462
Age 12-19 years	15-16	27.3 (23.3-31.9)	21.5 (18.3-27.6)	51.5 (40.4-66.0)	122 (74.4-185)	194 (140-311)	405
Age 12-19 years	17-18	24.2 (19.3-30.3)	20.3 (17.1-24.0)	45.6 (30.3-78.0)	134 (87.1-161)	185 (146-216)	353
Age 20+ years	11-12	45.8 (40.4-52.0)	35.4 (32.2-42.3)	101 (86.9-124)	328 (235-405)	634 (432-1010)	1704
Age 20+ years	13-14	38.0 (34.2-42.2)	29.6 (25.3-35.2)	84.2 (72.4-97.5)	255 (194-318)	528 (385-699)	1813
Age 20+ years	15-16	35.9 (32.0-40.4)	28.5 (25.3-31.9)	78.2 (64.6-96.8)	230 (177-280)	393 (310-560)	1690
Age 20+ years	17-18	28.9 (26.4-31.7)	24.6 (21.8-28.1)	53.8 (47.2-60.3)	152 (118-191)	332 (216-554)	1700
Male	11-12	35.8 (31.7-40.4)	29.3 (25.0-33.6)	77.3 (60.9-92.4)	203 (156-293)	455 (271-703)	1258
Male	13-14	30.4 (26.8-34.4)	22.4 (20.4-25.7)	62.9 (48.7-73.3)	192 (140-290)	442 (295-664)	1284
Male	15-16	27.4 (24.7-30.5)	22.4 (19.9-24.8)	53.9 (41.8-67.5)	141 (103-198)	258 (224-308)	1474
Male	17-18	22.8 (20.4-25.6)	18.4 (16.7-20.3)	41.6 (35.0-45.5)	123 (85.1-160)	249 (160-407)	1363
Female	11-12	51.8 (44.5-60.4)	40.7 (34.0-49.9)	111 (89.2-132)	339 (249-415)	646 (436-1020)	1229
Female	13-14	42.0 (37.5-47.0)	33.8 (29.4-41.2)	86.5 (77.2-98.0)	230 (182-279)	468 (352-619)	1400
Female	15-16	43.6 (36.8-51.7)	35.2 (30.3-41.2)	93.3 (69.7-117)	262 (208-328)	466 (352-660)	1500
Female	17-18	34.8 (30.1-40.2)	30.3 (26.0-37.0)	61.7 (52.8-76.6)	159 (130-191)	320 (195-695)	1399
Mexican American	11-12	55.7 (47.0-66.1)	41.6 (34.5-52.5)	122 (85.3-164)	335 (223-549)	736 (398-1080)	316
Mexican American	13-14	45.5 (39.9-51.9)	35.9 (32.6-43.8)	94.1 (76.1-129)	320 (192-523)	697 (441-880)	438
Mexican American	15-16	39.0 (33.7-45.0)	28.0 (24.3-33.2)	83.9 (53.7-115)	246 (148-420)	557 (267-971)	595
Mexican American	17-18	28.0 (22.2-35.4)	24.6 (18.6-31.4)	52.9 (43.7-67.2)	131 (91.6-185)	208 (173-275)	417
Non-Hispanic Black	11-12	69.4 (59.9-80.4)	57.7 (49.7-67.4)	141 (124-168)	404 (274-571)	973 (609-1220)	665
Non-Hispanic Black	13-14	54.8 (48.7-61.7)	44.9 (38.6-52.7)	111 (91.7-132)	393 (275-519)	806 (512-1520)	609
Non-Hispanic Black	15-16	54.9 (46.8-64.3)	47.6 (38.6-55.0)	119 (95.8-141)	313 (228-409)	741 (355-1390)	697
Non-Hispanic Black	17-18	45.3 (37.9-54.1)	38.0 (31.7-43.2)	86.7 (72.7-109)	223 (166-327)	502 (280-914)	645
Non-Hispanic White	11-12	37.0 (31.9-43.0)	29.1 (25.0-33.0)	80.4 (62.3-98.6)	230 (152-346)	481 (314-704)	811
Non-Hispanic White	13-14	30.0 (27.2-33.2)	23.5 (21.2-26.7)	56.5 (49.7-68.5)	153 (129-200)	344 (228-455)	987
Non-Hispanic White	15-16	30.8 (27.1-35.1)	25.1 (20.9-29.1)	64.2 (48.0-76.7)	176 (102-256)	310 (233-445)	862
Non-Hispanic White	17-18	24.7 (22.0-27.7)	20.9 (17.7-24.7)	44.4 (38.2-52.0)	120 (87.2-143)	191 (141-332)	906
All Hispanic	11-12	62.1 (52.3-73.8)	51.2 (42.6-57.4)	138 (101-187)	393 (257-484)	739 (398-1400)	571
All Hispanic	13-14	49.1 (44.2-54.5)	40.2 (35.6-46.3)	104 (81.7-121)	332 (242-487)	680 (468-914)	690
All Hispanic	15-16	40.6 (35.8-46.2)	30.5 (26.9-36.3)	84.4 (67.6-110)	240 (156-370)	504 (349-736)	971
All Hispanic	17-18	35.7 (30.6-41.7)	29.0 (24.0-35.0)	66.6 (55.1-82.4)	187 (131-250)	344 (250-555)	663
Non-Hispanic Asian	11-12	31.2 (24.6-39.7)	24.7 (18.6-32.4)	71.3 (49.0-101)	186 (94.0-527)	405 (200-886)	352
Non-Hispanic Asian	13-14	30.1 (24.4-37.1)	24.5 (17.6-33.7)	71.8 (48.4-93.5)	162 (132-241)	418 (209-569)	288
Non-Hispanic Asian	15-16	30.2 (21.4-42.7)	24.6 (16.7-39.5)	74.4 (47.2-111)	198 (102-377)	315 (187-554)	301
Non-Hispanic Asian	17-18	23.9 (16.7-34.2)	19.7 (13.0-26.4)	54.2 (30.5-92.1)	175 (77.7-554)	483 (174-705)	366

† Participants are age 6+ years in Surveys 11-12 and 13-14; beginning with Survey 15-16, participants include those age 3+ years.

Urinary Mono-2-ethylhexyl phthalate (MEHP) (1999 - 2010)

CAS Number 4376-20-9

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.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	99-00	3.43 (3.19-3.69)	3.20 (3.00-3.60)	7.60 (6.80-8.40)	14.9 (13.5-17.4)	23.8 (19.2-28.6)	2541
Total population	01-02	4.27 (3.80-4.79)	4.20 (3.70-4.90)	9.80 (8.40-11.6)	23.0 (19.1-27.9)	39.2 (31.8-50.0)	2782
Total population	03-04	2.34 (2.10-2.62)	1.90 (1.70-2.40)	5.30 (4.50-6.60)	15.1 (11.4-20.6)	31.0 (21.4-42.0)	2605
Total population	05-06	3.04 (2.78-3.32)	2.50 (2.10-2.80)	6.30 (5.70-7.10)	17.7 (14.0-22.5)	39.7 (28.6-52.1)	2548
Total population	07-08	2.64 (2.29-3.05)	2.20 (1.80-2.50)	5.40 (4.30-6.90)	14.1 (11.2-20.2)	27.6 (19.8-39.8)	2604
Total population	09-10	1.59 (1.41-1.79)	1.51 (1.33-1.71)	3.52 (2.99-4.00)	7.54 (5.96-9.54)	14.1 (9.91-21.1)	2749
Age 6-11 years	99-00	5.12 (4.42-5.92)	4.90 (3.70-6.40)	11.1 (8.30-13.6)	19.0 (13.8-36.1)	35.3 (15.6-130)	328
Age 6-11 years	01-02	4.41 (3.90-5.00)	4.40 (4.10-5.30)	9.30 (7.90-11.7)	19.7 (14.6-25.9)	31.4 (21.8-47.9)	393
Age 6-11 years	03-04	2.84 (2.10-3.84)	2.70 (1.80-4.10)	6.40 (4.40-9.60)	13.9 (7.80-27.6)	27.6 (11.3-64.7)	342
Age 6-11 years	05-06	3.10 (2.78-3.47)	3.00 (2.60-3.30)	6.20 (5.10-7.10)	14.1 (9.40-19.3)	19.7 (14.7-36.6)	356
Age 6-11 years	07-08	2.39 (2.05-2.80)	2.20 (1.70-2.90)	4.50 (3.70-6.20)	8.70 (6.40-13.9)	15.1 (10.6-24.1)	389
Age 6-11 years	09-10	1.64 (1.45-1.85)	1.71 (1.26-2.02)	3.50 (3.09-3.94)	5.95 (4.56-7.56)	8.92 (6.94-12.9)	415
Age 12-19 years	99-00	3.75 (3.24-4.35)	3.70 (2.90-4.60)	8.10 (6.40-9.40)	15.3 (11.4-20.5)	22.8 (19.1-29.2)	752
Age 12-19 years	01-02	4.57 (3.96-5.27)	4.50 (3.70-5.10)	11.0 (9.50-14.4)	23.0 (17.7-32.7)	42.5 (25.9-57.5)	742
Age 12-19 years	03-04	2.77 (2.25-3.41)	2.50 (2.00-3.00)	6.40 (4.50-8.60)	18.6 (10.2-35.6)	40.6 (20.7-58.4)	729
Age 12-19 years	05-06	3.72 (3.04-4.56)	3.20 (2.40-4.10)	8.80 (6.20-13.3)	22.6 (13.8-43.4)	48.7 (23.1-62.9)	702
Age 12-19 years	07-08	2.99 (2.39-3.75)	2.30 (1.80-2.70)	6.00 (4.40-9.90)	21.1 (11.8-32.8)	37.6 (24.8-74.1)	401
Age 12-19 years	09-10	1.82 (1.52-2.16)	1.66 (1.42-1.94)	3.98 (3.35-4.73)	9.53 (6.27-14.0)	17.6 (9.54-27.4)	420
Age 20+ years	99-00	3.21 (2.94-3.51)	3.00 (2.70-3.40)	7.30 (6.40-8.00)	14.5 (12.1-17.0)	22.7 (17.5-27.0)	1461
Age 20+ years	01-02	4.20 (3.63-4.86)	4.10 (3.50-5.00)	9.50 (8.10-11.9)	23.5 (18.0-29.8)	39.5 (30.3-57.1)	1647
Age 20+ years	03-04	2.23 (2.03-2.44)	1.70 (1.50-2.00)	5.10 (4.50-6.00)	15.1 (10.9-19.7)	29.5 (20.4-40.0)	1534
Age 20+ years	05-06	2.94 (2.68-3.21)	2.30 (1.90-2.70)	6.20 (5.60-6.70)	17.7 (13.6-24.5)	41.5 (28.6-54.1)	1490
Age 20+ years	07-08	2.62 (2.27-3.02)	2.10 (1.80-2.50)	5.40 (4.20-7.10)	14.4 (11.2-20.2)	27.3 (19.2-40.6)	1814
Age 20+ years	09-10	1.55 (1.36-1.78)	1.44 (1.25-1.68)	3.40 (2.88-4.03)	7.39 (5.94-9.58)	14.6 (9.91-21.1)	1914
Male	99-00	3.68 (3.31-4.10)	3.40 (2.90-3.90)	8.00 (7.40-8.80)	16.0 (14.0-19.0)	25.3 (19.5-36.7)	1215
Male	01-02	4.31 (3.84-4.83)	4.30 (3.70-5.10)	9.70 (8.30-11.2)	23.0 (16.9-29.8)	37.9 (29.9-48.4)	1371
Male	03-04	2.56 (2.26-2.90)	2.20 (1.70-2.60)	6.00 (4.60-7.70)	17.2 (11.3-26.3)	33.3 (24.9-55.5)	1250
Male	05-06	3.40 (3.01-3.85)	2.80 (2.40-3.30)	7.00 (5.70-9.00)	22.6 (15.0-35.8)	49.8 (35.2-67.4)	1270
Male	07-08	2.77 (2.35-3.27)	2.30 (1.90-2.80)	5.50 (4.20-7.60)	14.4 (11.2-20.5)	28.9 (19.2-40.0)	1294
Male	09-10	1.83 (1.63-2.05)	1.77 (1.63-1.91)	3.97 (3.49-4.51)	8.63 (6.94-11.9)	18.0 (12.6-29.0)	1399
Female	99-00	3.21 (2.91-3.54)	3.10 (2.80-3.50)	7.10 (5.90-8.50)	13.6 (12.1-17.2)	21.9 (15.6-28.5)	1326
Female	01-02	4.23 (3.67-4.86)	4.10 (3.50-5.00)	9.80 (8.40-12.2)	23.0 (19.5-28.4)	43.5 (31.4-53.7)	1411
Female	03-04	2.15 (1.92-2.42)	1.80 (1.50-2.10)	4.90 (4.10-5.70)	13.2 (10.0-18.1)	27.8 (17.5-40.7)	1355
Female	05-06	2.72 (2.49-2.98)	2.10 (1.90-2.40)	6.00 (5.20-6.80)	13.9 (11.7-17.5)	30.8 (21.9-36.2)	1278
Female	07-08	2.52 (2.18-2.92)	2.00 (1.70-2.40)	5.10 (4.20-6.30)	14.1 (9.50-21.4)	26.4 (19.2-42.1)	1310
Female	09-10	1.39 (1.21-1.60)	1.30 (1.12-1.53)	3.00 (2.51-3.62)	6.48 (5.45-8.09)	10.3 (8.33-14.9)	1350
Mexican American	99-00	3.49 (3.16-3.85)	3.50 (3.10-3.90)	7.00 (5.70-8.60)	13.3 (10.7-18.7)	23.9 (17.4-27.3)	814
Mexican American	01-02	4.32 (3.75-4.98)	4.70 (3.80-5.70)	10.1 (8.50-11.4)	19.6 (16.6-23.0)	28.5 (24.2-39.9)	677
Mexican American	03-04	2.35 (1.87-2.96)	2.20 (1.50-3.00)	5.10 (4.30-6.60)	11.2 (7.50-16.5)	18.5 (11.6-38.2)	652
Mexican American	05-06	2.99 (2.50-3.57)	2.30 (1.70-3.30)	5.70 (4.70-7.60)	18.4 (12.1-30.6)	36.4 (26.2-63.8)	637
Mexican American	07-08	2.89 (2.38-3.50)	2.60 (2.00-3.10)	5.30 (4.40-8.20)	16.9 (10.3-27.3)	30.2 (22.9-34.3)	531
Mexican American	09-10	2.08 (1.84-2.36)	2.10 (1.86-2.40)	4.44 (3.73-5.63)	9.67 (6.89-16.0)	17.9 (13.1-24.3)	566
Non-Hispanic Black	99-00	4.82 (3.92-5.93)	5.20 (4.10-5.80)	9.50 (7.60-11.4)	19.5 (12.9-26.5)	29.5 (18.6-60.3)	603
Non-Hispanic Black	01-02	6.60 (5.57-7.82)	6.70 (5.40-8.10)	15.4 (13.0-18.7)	32.9 (26.5-41.4)	52.6 (41.0-84.0)	703
Non-Hispanic Black	03-04	3.61 (3.07-4.23)	3.50 (3.00-4.00)	8.50 (7.10-11.4)	22.9 (16.5-28.6)	35.2 (29.3-49.1)	699
Non-Hispanic Black	05-06	4.09 (3.51-4.75)	3.70 (3.10-4.10)	9.10 (6.90-11.9)	22.5 (17.4-40.7)	59.3 (34.5-86.7)	678
Non-Hispanic Black	07-08	3.30 (2.98-3.64)	3.20 (2.70-3.60)	7.20 (6.30-8.90)	15.3 (13.3-20.2)	25.5 (19.2-38.1)	597
Non-Hispanic Black	09-10	2.08 (1.79-2.41)	2.05 (1.70-2.42)	4.79 (3.80-5.95)	10.1 (7.50-14.4)	16.4 (9.60-38.4)	516
Non-Hispanic White	99-00	3.16 (2.89-3.46)	2.80 (2.50-3.10)	7.40 (6.30-8.40)	14.5 (12.2-17.4)	22.4 (16.9-28.5)	912

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Non-Hispanic White	01-02	3.85 (3.37-4.40)	3.70 (3.10-4.40)	8.70 (7.80-9.90)	20.9 (17.3-25.9)	37.9 (29.9-49.5)	1216
Non-Hispanic White	03-04	2.14 (1.92-2.39)	1.70 (1.40-1.90)	4.80 (4.00-5.80)	13.6 (9.50-20.0)	31.0 (18.1-48.9)	1088
Non-Hispanic White	05-06	2.83 (2.59-3.10)	2.20 (1.80-2.60)	5.90 (5.30-6.90)	17.0 (13.3-21.6)	36.3 (26.6-51.0)	1038
Non-Hispanic White	07-08	2.44 (2.07-2.88)	2.00 (1.70-2.30)	4.90 (3.70-6.20)	13.1 (8.70-20.1)	25.0 (15.8-42.1)	1077
Non-Hispanic White	09-10	1.41 (1.22-1.62)	1.30 (1.12-1.57)	3.04 (2.53-3.60)	6.12 (5.23-7.65)	11.8 (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.

Urinary Mono-2-ethylhexyl phthalate (MEHP) (creatinine corrected) (1999 - 2010)

CAS Number 4376-20-9

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.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	99-00	3.12 (2.95-3.31)	3.08 (2.82-3.27)	5.88 (5.38-6.25)	10.8 (9.62-12.5)	18.9 (15.0-21.8)	2541
Total population	01-02	4.00 (3.58-4.48)	3.90 (3.44-4.47)	7.94 (7.22-9.02)	18.0 (15.3-21.5)	32.8 (25.2-42.9)	2782
Total population	03-04	2.20 (2.01-2.41)	1.89 (1.68-2.19)	4.31 (3.84-4.74)	10.8 (8.72-13.8)	25.4 (16.7-34.7)	2605
Total population	05-06	2.96 (2.72-3.23)	2.61 (2.37-2.86)	5.69 (5.00-6.47)	13.7 (11.4-17.8)	30.1 (21.2-35.2)	2548
Total population	07-08	2.66 (2.37-2.99)	2.36 (2.11-2.67)	5.15 (4.35-6.00)	11.8 (8.89-15.6)	21.9 (14.6-33.4)	2604
Total population	09-10	1.66 (1.45-1.90)	1.52 (1.36-1.77)	3.09 (2.69-3.60)	6.28 (4.98-8.48)	11.2 (8.33-19.1)	2749
Age 6-11 years	99-00	5.19 (4.55-5.93)	5.37 (4.52-5.95)	9.11 (8.06-11.4)	21.6 (11.5-41.9)	41.9 (13.5-86.2)	328
Age 6-11 years	01-02	5.03 (4.47-5.65)	5.38 (4.51-6.21)	9.90 (7.87-11.5)	21.1 (13.8-28.8)	31.4 (24.3-40.7)	393
Age 6-11 years	03-04	3.00 (2.30-3.93)	2.80 (1.93-4.09)	5.86 (4.69-7.70)	14.3 (8.54-24.4)	28.7 (14.1-45.3)	342
Age 6-11 years	05-06	3.42 (3.08-3.79)	3.26 (2.63-3.92)	6.18 (5.40-6.85)	11.3 (8.96-17.4)	20.7 (11.3-31.8)	356
Age 6-11 years	07-08	2.95 (2.49-3.49)	2.80 (2.17-3.33)	5.42 (3.95-6.51)	10.6 (7.47-14.0)	15.6 (10.6-23.7)	389
Age 6-11 years	09-10	2.13 (1.90-2.40)	2.08 (1.88-2.33)	3.69 (3.13-4.20)	5.83 (4.80-7.95)	8.89 (5.88-20.1)	415
Age 12-19 years	99-00	2.53 (2.14-2.99)	2.35 (2.05-2.76)	5.83 (4.38-6.29)	9.66 (7.41-11.5)	12.1 (10.5-17.3)	752
Age 12-19 years	01-02	3.53 (3.09-4.03)	3.67 (2.89-4.48)	7.47 (6.51-8.67)	15.2 (11.7-21.9)	25.2 (17.7-32.8)	742
Age 12-19 years	03-04	2.07 (1.74-2.48)	1.88 (1.60-2.23)	4.25 (3.19-5.62)	11.6 (6.83-23.2)	24.8 (11.6-37.9)	729
Age 12-19 years	05-06	2.77 (2.27-3.38)	2.43 (2.03-2.87)	5.24 (4.06-7.75)	15.2 (9.86-23.2)	27.1 (16.0-43.7)	702
Age 12-19 years	07-08	2.33 (1.90-2.86)	2.00 (1.67-2.57)	4.33 (3.55-6.23)	12.6 (8.31-16.3)	21.9 (12.0-45.7)	401
Age 12-19 years	09-10	1.46 (1.20-1.77)	1.33 (1.09-1.61)	2.85 (2.24-3.63)	7.47 (4.31-11.6)	13.2 (8.11-20.9)	420
Age 20+ years	99-00	3.03 (2.83-3.25)	2.98 (2.73-3.23)	5.55 (4.90-6.06)	10.0 (8.60-12.9)	17.5 (13.8-22.1)	1461
Age 20+ years	01-02	3.97 (3.49-4.52)	3.82 (3.26-4.38)	7.79 (7.00-9.00)	18.3 (15.3-21.8)	34.5 (23.1-47.9)	1647
Age 20+ years	03-04	2.14 (1.98-2.31)	1.84 (1.63-2.08)	4.14 (3.78-4.40)	10.5 (8.38-12.9)	25.6 (15.9-36.3)	1534
Age 20+ years	05-06	2.94 (2.69-3.23)	2.60 (2.36-2.83)	5.67 (4.77-6.52)	13.8 (11.3-18.1)	33.1 (21.9-47.4)	1490
Age 20+ years	07-08	2.69 (2.39-3.02)	2.36 (2.14-2.66)	5.20 (4.38-6.04)	11.8 (8.94-16.6)	22.1 (13.5-37.1)	1814
Age 20+ years	09-10	1.65 (1.43-1.90)	1.51 (1.34-1.75)	3.04 (2.63-3.60)	6.24 (4.98-8.61)	11.1 (8.03-19.4)	1914
Male	99-00	2.89 (2.60-3.22)	2.76 (2.52-2.96)	5.58 (4.71-6.08)	10.3 (9.35-12.4)	21.6 (14.1-27.7)	1215
Male	01-02	3.50 (3.08-3.99)	3.33 (2.83-3.90)	7.00 (6.49-7.77)	16.2 (12.8-20.9)	31.6 (20.5-49.4)	1371
Male	03-04	2.01 (1.82-2.21)	1.71 (1.46-1.89)	4.14 (3.49-4.81)	10.4 (7.68-16.2)	23.3 (15.1-41.1)	1250
Male	05-06	2.73 (2.43-3.07)	2.30 (2.12-2.61)	5.08 (4.29-6.14)	14.3 (11.2-20.5)	31.0 (21.5-50.9)	1270
Male	07-08	2.33 (2.03-2.68)	2.00 (1.71-2.34)	4.36 (3.71-5.41)	11.6 (8.33-14.2)	20.2 (14.6-26.3)	1294
Male	09-10	1.64 (1.45-1.85)	1.52 (1.39-1.74)	3.06 (2.70-3.60)	6.53 (5.18-9.49)	13.0 (8.65-22.2)	1399
Female	99-00	3.36 (3.11-3.63)	3.33 (2.91-3.80)	6.15 (5.55-6.77)	11.1 (9.11-14.0)	17.3 (12.4-24.6)	1326
Female	01-02	4.54 (4.02-5.13)	4.47 (3.85-5.14)	9.28 (7.94-10.3)	20.3 (16.6-24.4)	34.7 (27.1-42.0)	1411
Female	03-04	2.40 (2.15-2.69)	2.16 (1.84-2.40)	4.40 (3.97-4.89)	10.9 (8.27-16.0)	27.0 (17.5-34.6)	1355
Female	05-06	3.20 (2.89-3.55)	2.89 (2.58-3.17)	6.07 (5.00-7.00)	13.3 (10.4-16.3)	28.2 (18.2-37.4)	1278
Female	07-08	3.02 (2.70-3.38)	2.76 (2.36-3.02)	5.57 (4.90-6.50)	12.1 (8.64-18.2)	24.7 (14.8-44.4)	1310
Female	09-10	1.68 (1.44-1.96)	1.53 (1.35-1.89)	3.10 (2.68-3.69)	5.75 (4.58-8.03)	10.5 (7.36-17.5)	1350
Mexican American	99-00	3.16 (2.72-3.68)	3.15 (2.52-3.81)	5.88 (4.86-7.24)	11.6 (9.63-13.1)	15.7 (12.6-23.1)	814
Mexican American	01-02	4.07 (3.60-4.61)	4.18 (3.82-4.90)	7.80 (6.64-9.49)	16.4 (13.6-18.9)	24.9 (19.8-28.7)	677
Mexican American	03-04	2.12 (1.74-2.59)	1.94 (1.50-2.42)	4.06 (3.29-4.93)	9.38 (5.72-15.4)	16.8 (9.86-38.6)	652
Mexican American	05-06	2.69 (2.36-3.07)	2.41 (2.04-2.73)	4.82 (4.09-6.05)	14.3 (10.0-16.9)	27.2 (16.3-40.1)	637
Mexican American	07-08	2.82 (2.38-3.34)	2.45 (2.08-2.89)	5.00 (4.14-6.86)	12.3 (9.58-20.7)	29.0 (17.0-50.3)	531
Mexican American	09-10	2.07 (1.83-2.34)	1.89 (1.69-2.31)	4.06 (3.50-4.98)	8.38 (6.08-11.3)	13.9 (9.70-20.0)	566
Non-Hispanic Black	99-00	3.11 (2.59-3.73)	3.13 (2.50-3.61)	5.84 (4.43-7.32)	10.2 (8.05-15.6)	18.4 (11.6-35.2)	603
Non-Hispanic Black	01-02	4.63 (3.96-5.42)	4.59 (3.97-5.02)	9.93 (7.95-12.4)	21.2 (16.0-33.2)	39.9 (27.7-48.1)	703
Non-Hispanic Black	03-04	2.56 (2.24-2.92)	2.28 (2.02-2.78)	5.17 (4.48-6.83)	13.2 (10.5-16.2)	27.5 (18.4-36.0)	699
Non-Hispanic Black	05-06	2.87 (2.45-3.38)	2.41 (2.09-2.78)	5.72 (4.40-7.29)	15.0 (12.0-20.6)	54.4 (18.4-84.0)	678
Non-Hispanic Black	07-08	2.56 (2.26-2.90)	2.40 (2.17-2.73)	4.77 (4.07-5.76)	11.4 (8.75-15.4)	18.0 (16.1-26.3)	597
Non-Hispanic Black	09-10	1.51 (1.22-1.86)	1.48 (1.14-1.93)	2.87 (2.26-3.69)	5.73 (3.69-10.7)	10.7 (5.61-19.1)	516
Non-Hispanic White	99-00	3.09 (2.84-3.36)	3.08 (2.73-3.47)	5.87 (5.11-6.67)	10.6 (8.95-13.5)	20.0 (14.0-24.6)	912

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Non-Hispanic White	01-02	3.81 (3.34-4.35)	3.67 (3.11-4.33)	7.78 (6.74-9.35)	17.0 (14.1-21.8)	32.8 (21.5-46.9)	1216
Non-Hispanic White	03-04	2.12 (1.91-2.35)	1.82 (1.60-2.13)	4.11 (3.49-4.42)	10.7 (7.42-15.1)	27.0 (15.1-37.4)	1088
Non-Hispanic White	05-06	2.98 (2.77-3.21)	2.66 (2.43-2.93)	5.73 (5.00-6.47)	13.4 (11.3-17.8)	27.7 (19.5-37.4)	1038
Non-Hispanic White	07-08	2.55 (2.20-2.94)	2.26 (1.97-2.67)	4.90 (3.99-5.92)	11.0 (7.80-14.8)	20.5 (11.9-30.2)	1077
Non-Hispanic White	09-10	1.58 (1.36-1.84)	1.49 (1.27-1.76)	2.94 (2.50-3.49)	5.64 (4.53-7.96)	10.3 (6.85-18.3)	1206

Urinary Mono-2-ethylhexyl phthalate (MEHP) (2011 - 2018)†

CAS Number 4376-20-9

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.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	11-12	1.36 (1.25-1.49)	1.40 (1.20-1.50)	3.00 (2.70-3.30)	6.00 (5.30-6.40)	8.70 (7.60-9.70)	2489
Total population	13-14	*	1.10 (.900-1.20)	2.30 (2.10-2.60)	4.40 (4.00-5.00)	6.30 (5.60-7.10)	2685
Total population	15-16	*	1.10 (1.00-1.10)	2.20 (2.00-2.40)	4.00 (3.80-4.20)	6.00 (5.60-7.10)	2975
Total population	17-18	*	.800 (<LOD-.900)	1.70 (1.50-1.90)	3.40 (3.00-4.00)	5.00 (4.30-6.20)	2762
Age 3-5 years	15-16	1.28 (1.16-1.40)	1.10 (1.00-1.40)	2.20 (1.90-2.50)	3.80 (3.20-5.00)	6.00 (5.00-8.00)	465
Age 3-5 years	17-18	*	.900 (<LOD-1.00)	2.00 (1.70-2.20)	3.10 (2.80-4.10)	4.50 (3.70-6.50)	379
Age 6-11 years	11-12	1.41 (1.23-1.61)	1.50 (1.20-1.80)	2.90 (2.50-3.40)	5.30 (4.10-7.10)	7.60 (6.30-8.80)	396
Age 6-11 years	13-14	1.44 (1.24-1.66)	1.20 (1.00-1.50)	2.70 (2.20-3.20)	5.20 (3.70-8.50)	8.70 (5.20-11.8)	409
Age 6-11 years	15-16	1.42 (1.28-1.57)	1.30 (1.00-1.60)	2.60 (2.20-3.00)	4.20 (3.60-4.80)	5.90 (4.70-8.10)	415
Age 6-11 years	17-18	1.48 (1.31-1.67)	1.40 (1.10-1.70)	2.70 (2.30-2.90)	4.20 (3.40-5.80)	6.80 (5.00-8.50)	330
Age 12-19 years	11-12	1.58 (1.33-1.87)	1.50 (1.00-2.30)	3.90 (3.10-4.40)	6.80 (5.20-10.3)	12.5 (8.90-14.3)	388
Age 12-19 years	13-14	1.43 (1.26-1.62)	1.20 (1.00-1.40)	2.60 (2.00-3.50)	4.90 (4.20-5.80)	8.30 (5.50-10.7)	462
Age 12-19 years	15-16	1.17 (1.07-1.27)	1.00 (.900-1.10)	1.80 (1.50-2.30)	3.50 (3.10-4.40)	5.00 (3.90-7.20)	405
Age 12-19 years	17-18	*	1.00 (.800-1.20)	1.90 (1.50-2.40)	3.30 (2.70-3.70)	4.10 (3.60-5.40)	353
Age 20+ years	11-12	1.33 (1.19-1.48)	1.30 (1.10-1.50)	2.90 (2.50-3.20)	5.90 (5.10-6.40)	8.30 (7.10-9.60)	1705
Age 20+ years	13-14	*	1.00 (.900-1.20)	2.30 (2.00-2.50)	4.30 (3.80-4.90)	6.10 (5.40-6.80)	1814
Age 20+ years	15-16	*	1.00 (.900-1.10)	2.20 (2.00-2.40)	4.00 (3.80-4.40)	6.40 (5.70-8.20)	1690
Age 20+ years	17-18	*	<LOD	1.50 (1.40-1.70)	3.40 (2.70-4.00)	4.90 (4.30-6.10)	1700
Male	11-12	1.51 (1.33-1.70)	1.50 (1.20-1.80)	3.10 (2.60-3.90)	6.10 (5.50-7.00)	9.20 (7.70-11.3)	1259
Male	13-14	1.29 (1.17-1.41)	1.10 (1.00-1.30)	2.30 (2.00-2.70)	4.20 (3.50-5.00)	5.70 (5.10-6.60)	1285
Male	15-16	1.33 (1.23-1.43)	1.10 (1.00-1.30)	2.40 (2.20-2.80)	4.10 (3.80-4.80)	6.40 (5.20-8.40)	1474
Male	17-18	*	.900 (<LOD-1.10)	1.80 (1.60-2.10)	4.10 (3.30-4.50)	5.70 (4.50-8.30)	1363
Female	11-12	1.24 (1.14-1.34)	1.20 (1.00-1.40)	2.90 (2.50-3.10)	5.60 (4.90-6.30)	8.10 (6.80-9.20)	1230
Female	13-14	*	1.00 (.900-1.10)	2.40 (2.10-2.60)	4.80 (4.20-5.30)	7.00 (5.70-8.70)	1400
Female	15-16	*	1.00 (.900-1.10)	1.90 (1.70-2.10)	3.90 (3.40-4.40)	5.80 (5.00-7.60)	1501
Female	17-18	*	<LOD	1.60 (1.40-1.90)	3.10 (2.30-3.60)	4.20 (3.50-5.80)	1399
Mexican American	11-12	1.49 (1.16-1.91)	1.50 (1.00-1.90)	3.40 (2.50-4.30)	6.60 (5.10-8.90)	9.60 (6.60-12.9)	316
Mexican American	13-14	1.55 (1.35-1.78)	1.50 (1.20-1.70)	2.90 (2.20-3.80)	5.60 (4.20-7.00)	7.40 (6.30-9.30)	438
Mexican American	15-16	1.38 (1.23-1.55)	1.20 (.900-1.50)	2.60 (2.00-3.10)	4.90 (3.70-5.80)	7.60 (5.10-9.70)	595
Mexican American	17-18	*	1.10 (.900-1.20)	2.20 (1.90-2.40)	4.30 (3.20-5.90)	6.60 (4.70-9.90)	417
Non-Hispanic Black	11-12	1.89 (1.67-2.13)	2.00 (1.60-2.40)	4.00 (3.40-4.90)	8.00 (6.20-9.70)	11.3 (9.60-14.9)	665
Non-Hispanic Black	13-14	1.63 (1.39-1.92)	1.50 (1.10-2.00)	3.30 (2.50-4.00)	5.80 (5.10-6.70)	8.10 (6.50-10.5)	609
Non-Hispanic Black	15-16	1.59 (1.44-1.77)	1.50 (1.20-1.80)	2.90 (2.60-3.30)	5.80 (4.80-7.60)	9.30 (6.60-13.9)	698
Non-Hispanic Black	17-18	1.37 (1.28-1.48)	1.30 (1.10-1.40)	2.50 (2.30-2.80)	4.40 (3.70-5.10)	6.60 (5.10-7.30)	645
Non-Hispanic White	11-12	1.21 (1.07-1.37)	1.10 (.900-1.50)	2.70 (2.20-3.10)	4.90 (4.20-6.10)	6.70 (6.00-8.30)	813
Non-Hispanic White	13-14	*	.900 (.800-1.00)	2.00 (1.80-2.30)	3.90 (3.20-4.30)	5.50 (4.80-6.30)	987
Non-Hispanic White	15-16	*	.900 (<LOD-1.10)	1.90 (1.70-2.10)	3.50 (3.00-3.90)	5.00 (4.10-7.10)	862
Non-Hispanic White	17-18	*	<LOD	1.40 (1.20-1.50)	2.80 (2.30-3.70)	4.20 (3.60-4.70)	906
All Hispanic	11-12	1.61 (1.40-1.83)	1.70 (1.30-2.00)	3.90 (3.10-4.70)	7.30 (6.30-8.70)	11.6 (9.20-12.9)	571
All Hispanic	13-14	1.55 (1.40-1.73)	1.50 (1.20-1.70)	2.90 (2.50-3.40)	5.20 (4.40-6.30)	7.20 (6.20-9.20)	690
All Hispanic	15-16	1.37 (1.25-1.49)	1.20 (1.10-1.40)	2.40 (2.20-2.80)	4.30 (3.80-5.10)	6.20 (5.10-8.10)	971
All Hispanic	17-18	*	1.00 (.900-1.20)	2.10 (1.80-2.30)	4.10 (3.10-5.20)	6.50 (4.70-9.40)	663
Non-Hispanic Asian	11-12	1.69 (1.44-1.98)	1.70 (1.30-1.90)	3.60 (2.80-4.40)	7.80 (6.60-11.4)	13.8 (10.0-17.8)	352
Non-Hispanic Asian	13-14	*	1.00 (<LOD-1.20)	2.10 (1.80-2.80)	4.30 (3.50-6.10)	7.90 (4.90-10.5)	289
Non-Hispanic Asian	15-16	1.57 (1.35-1.83)	1.50 (1.10-1.70)	3.20 (2.60-4.00)	6.90 (4.30-8.40)	8.80 (7.60-11.5)	301
Non-Hispanic Asian	17-18	*	1.00 (<LOD-1.20)	2.10 (1.80-2.90)	4.80 (3.70-5.40)	5.90 (5.00-9.20)	366

Limit of detection (LOD, see Data Analysis section) for Survey years 11-12, 13-14, 15-16, and 17-18 are 0.5, 0.8, 0.8, and 0.8, 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.

† Participants are age 6+ years in Surveys 11-12 and 13-14; beginning with Survey 15-16, participants include those age 3+ years.

Urinary Mono-2-ethylhexyl phthalate (MEHP) (creatinine corrected) (2011 - 2018)†

CAS Number 4376-20-9

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.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	11-12	1.55 (1.43-1.68)	1.46 (1.33-1.67)	2.73 (2.50-2.92)	4.91 (4.55-5.52)	8.47 (6.72-9.86)	2487
Total population	13-14	*	1.21 (1.11-1.33)	2.19 (2.05-2.38)	3.82 (3.46-4.15)	5.18 (4.66-5.74)	2684
Total population	15-16	*	1.24 (1.13-1.33)	2.19 (2.03-2.39)	4.07 (3.56-4.48)	5.93 (5.43-6.51)	2974
Total population	17-18	*	1.06 (<LOD-1.16)	1.92 (1.78-2.07)	3.44 (3.18-3.68)	5.16 (4.44-5.58)	2762
Age 3-5 years	15-16	3.05 (2.77-3.36)	2.86 (2.58-3.24)	4.90 (4.23-5.54)	8.49 (7.13-9.64)	11.0 (9.64-13.2)	464
Age 3-5 years	17-18	*	2.38 (<LOD-2.75)	3.93 (3.56-4.39)	6.33 (5.18-7.50)	8.19 (6.83-10.0)	379
Age 6-11 years	11-12	2.02 (1.81-2.25)	2.07 (1.75-2.44)	3.45 (2.82-4.06)	5.26 (4.60-5.89)	7.15 (5.89-8.17)	395
Age 6-11 years	13-14	1.81 (1.57-2.09)	1.76 (1.53-2.01)	3.13 (2.59-3.86)	6.33 (4.02-8.32)	8.32 (5.53-14.1)	409
Age 6-11 years	15-16	1.83 (1.63-2.04)	1.82 (1.60-2.08)	2.96 (2.56-3.39)	4.67 (4.07-5.23)	6.25 (5.08-8.45)	415
Age 6-11 years	17-18	1.72 (1.48-1.99)	1.55 (1.44-2.04)	3.03 (2.40-3.70)	5.00 (3.71-6.79)	7.06 (4.63-10.4)	330
Age 12-19 years	11-12	1.53 (1.33-1.78)	1.40 (1.12-1.88)	2.79 (2.20-3.88)	5.00 (4.11-6.94)	9.86 (5.00-11.1)	388
Age 12-19 years	13-14	1.16 (1.03-1.31)	1.15 (1.00-1.27)	1.88 (1.67-2.10)	3.35 (2.38-4.07)	4.79 (3.61-6.76)	462
Age 12-19 years	15-16	.908 (.814-1.01)	.864 (.731-.991)	1.53 (1.29-1.75)	2.53 (2.28-2.72)	3.41 (2.72-4.56)	405
Age 12-19 years	17-18	*	1.01 (.851-1.11)	1.76 (1.38-2.17)	2.77 (2.19-3.43)	3.78 (2.74-11.7)	353
Age 20+ years	11-12	1.51 (1.39-1.64)	1.46 (1.28-1.58)	2.59 (2.38-2.84)	4.81 (4.35-5.51)	8.49 (6.18-11.2)	1704
Age 20+ years	13-14	*	1.19 (1.08-1.31)	2.19 (1.98-2.41)	3.70 (3.25-4.09)	5.00 (4.34-5.40)	1813
Age 20+ years	15-16	*	1.18 (1.10-1.29)	2.10 (1.90-2.31)	3.88 (3.27-4.50)	5.90 (4.96-6.67)	1690
Age 20+ years	17-18	*	<LOD	1.73 (1.64-1.89)	3.17 (2.85-3.40)	4.64 (3.88-5.19)	1700
Male	11-12	1.41 (1.28-1.56)	1.36 (1.19-1.58)	2.52 (2.21-2.83)	4.58 (3.77-5.46)	7.19 (6.16-8.79)	1258
Male	13-14	1.08 (.984-1.19)	1.03 (.950-1.12)	1.78 (1.58-2.00)	3.17 (2.73-3.60)	4.30 (3.94-5.06)	1284
Male	15-16	1.18 (1.08-1.30)	1.14 (1.02-1.29)	2.04 (1.84-2.27)	3.41 (2.85-4.27)	4.83 (4.23-6.25)	1474
Male	17-18	*	.950 (<LOD-1.05)	1.71 (1.63-2.00)	3.25 (2.84-3.75)	4.64 (3.88-5.18)	1363
Female	11-12	1.70 (1.56-1.85)	1.58 (1.43-1.75)	2.86 (2.63-3.18)	5.36 (4.64-5.89)	8.89 (6.67-13.2)	1229
Female	13-14	*	1.48 (1.33-1.64)	2.59 (2.36-2.96)	4.29 (3.70-5.00)	5.74 (5.12-7.70)	1400
Female	15-16	*	1.32 (1.17-1.46)	2.42 (2.18-2.71)	4.50 (4.05-5.06)	6.84 (5.61-8.00)	1500
Female	17-18	*	<LOD	2.19 (1.90-2.38)	3.56 (3.17-4.07)	5.48 (4.32-7.18)	1399
Mexican American	11-12	1.68 (1.36-2.06)	1.67 (1.21-2.06)	2.91 (2.46-3.50)	6.23 (4.32-9.05)	11.3 (5.67-18.3)	316
Mexican American	13-14	1.58 (1.35-1.85)	1.48 (1.24-1.83)	2.85 (2.46-3.39)	4.62 (4.07-5.56)	7.13 (5.53-8.04)	438
Mexican American	15-16	1.50 (1.39-1.62)	1.47 (1.34-1.57)	2.64 (2.19-3.00)	4.30 (3.91-4.83)	5.88 (5.14-7.81)	595
Mexican American	17-18	*	1.36 (1.08-1.57)	2.48 (2.17-2.92)	5.00 (3.91-5.53)	6.54 (5.53-8.19)	417
Non-Hispanic Black	11-12	1.47 (1.29-1.67)	1.44 (1.26-1.75)	2.75 (2.37-3.14)	5.16 (4.17-7.05)	8.69 (6.07-12.1)	665
Non-Hispanic Black	13-14	1.20 (1.07-1.36)	1.13 (.957-1.39)	2.11 (1.85-2.44)	3.46 (2.96-4.07)	5.05 (3.74-6.31)	609
Non-Hispanic Black	15-16	1.27 (1.13-1.43)	1.19 (1.07-1.37)	2.40 (2.08-2.69)	4.39 (3.75-5.23)	7.08 (5.23-8.22)	697
Non-Hispanic Black	17-18	1.03 (.969-1.10)	1.03 (.930-1.11)	1.78 (1.68-2.07)	3.27 (2.94-3.59)	4.90 (3.47-6.00)	645
Non-Hispanic White	11-12	1.47 (1.29-1.68)	1.45 (1.25-1.65)	2.51 (2.17-2.84)	4.43 (3.77-5.00)	6.77 (5.00-9.54)	811
Non-Hispanic White	13-14	*	1.16 (1.02-1.31)	2.11 (1.84-2.33)	3.56 (3.00-4.10)	4.68 (4.19-5.62)	987
Non-Hispanic White	15-16	*	1.14 (<LOD-1.27)	1.97 (1.78-2.19)	3.56 (2.98-4.30)	5.58 (4.39-6.54)	862
Non-Hispanic White	17-18	*	<LOD	1.67 (1.55-1.90)	3.14 (2.71-3.43)	3.88 (3.49-4.73)	906
All Hispanic	11-12	1.80 (1.63-1.98)	1.79 (1.59-2.00)	3.32 (2.86-3.76)	6.37 (5.67-8.07)	11.3 (7.79-14.4)	571
All Hispanic	13-14	1.54 (1.38-1.73)	1.43 (1.22-1.67)	2.80 (2.48-3.10)	4.39 (3.98-5.09)	6.61 (5.53-7.64)	690
All Hispanic	15-16	1.44 (1.35-1.53)	1.40 (1.27-1.50)	2.48 (2.20-2.71)	4.27 (3.76-4.75)	5.88 (5.18-7.12)	971
All Hispanic	17-18	*	1.30 (1.08-1.46)	2.34 (1.90-2.71)	4.55 (3.60-5.18)	6.54 (5.53-7.66)	663
Non-Hispanic Asian	11-12	2.26 (1.98-2.58)	1.98 (1.71-2.33)	4.18 (3.26-5.00)	8.89 (6.40-12.6)	14.0 (10.0-20.1)	352
Non-Hispanic Asian	13-14	*	1.43 (<LOD-1.70)	2.76 (2.31-3.13)	5.00 (3.96-5.87)	6.85 (5.17-9.73)	288
Non-Hispanic Asian	15-16	1.94 (1.66-2.27)	1.95 (1.63-2.18)	3.56 (2.74-4.05)	6.57 (5.09-8.18)	11.5 (7.13-14.8)	301
Non-Hispanic Asian	17-18	*	1.67 (<LOD-2.18)	3.35 (2.71-4.07)	6.25 (4.42-8.15)	9.23 (5.63-18.0)	366

<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.

† Participants are age 6+ years in Surveys 11-12 and 13-14; beginning with Survey 15-16, participants include those age 3+ years.

Urinary Mono-(2-ethyl-5-hydroxyhexyl) phthalate (MEHHP) (2001 - 2010)

CAS Number 40321-99-1

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.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	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
Total population	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
Total population	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
Total population	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
Total population	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 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
Age 6-11 years	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
Age 6-11 years	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
Age 6-11 years	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
Age 6-11 years	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
Age 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
Age 12-19 years	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
Age 12-19 years	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
Age 12-19 years	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
Age 12-19 years	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
Age 20+ years	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
Age 20+ years	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
Age 20+ years	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
Age 20+ years	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
Age 20+ years	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
Male	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
Male	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
Male	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
Male	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
Male	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
Female	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
Female	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
Female	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
Female	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
Female	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
Mexican American	01-02	18.5 (16.2-21.1)	19.1 (16.3-21.6)	36.3 (31.6-44.0)	79.9 (66.4-93.9)	123 (100-161)	677
Mexican American	03-04	18.9 (15.4-23.4)	19.8 (17.6-22.3)	37.5 (30.0-45.6)	72.2 (52.4-115)	116 (71.6-327)	652
Mexican American	05-06	23.0 (18.0-29.3)	19.9 (15.7-23.9)	47.8 (34.8-65.3)	136 (84.6-223)	244 (157-520)	637
Mexican American	07-08	22.7 (18.5-27.7)	19.8 (17.5-23.8)	43.6 (33.5-66.6)	104 (82.8-157)	238 (158-282)	531
Mexican American	09-10	15.3 (12.9-18.2)	15.8 (13.3-18.3)	31.5 (26.6-39.2)	64.5 (46.4-94.9)	108 (70.7-153)	566
Non-Hispanic Black	01-02	29.8 (26.1-34.1)	30.9 (27.2-34.3)	61.9 (52.6-69.4)	126 (108-157)	276 (157-339)	703
Non-Hispanic Black	03-04	30.8 (26.8-35.5)	29.1 (25.3-32.3)	65.6 (53.7-76.3)	154 (113-178)	275 (174-401)	699
Non-Hispanic Black	05-06	34.8 (30.3-39.9)	30.2 (27.6-33.2)	73.8 (61.0-96.7)	206 (156-275)	395 (274-547)	678
Non-Hispanic Black	07-08	25.7 (23.1-28.6)	25.8 (22.4-28.9)	55.9 (47.1-64.7)	121 (99.1-150)	184 (137-255)	597
Non-Hispanic Black	09-10	15.5 (12.8-18.8)	15.7 (13.4-17.7)	30.4 (24.4-35.7)	54.5 (37.7-84.1)	94.6 (51.5-229)	516
Non-Hispanic White	01-02	19.1 (16.7-21.9)	19.2 (16.9-21.4)	41.7 (35.3-50.7)	91.1 (75.6-110)	212 (130-275)	1216
Non-Hispanic White	03-04	20.8 (18.6-23.3)	19.7 (17.2-22.5)	47.5 (39.4-56.1)	120 (91.3-165)	270 (155-403)	1088
Non-Hispanic White	05-06	24.3 (21.9-26.9)	23.0 (21.1-26.0)	54.6 (48.4-61.0)	148 (121-172)	302 (221-421)	1038
Non-Hispanic White	07-08	21.3 (17.6-25.8)	20.2 (16.5-24.1)	46.7 (36.1-65.2)	123 (75.1-203)	277 (161-373)	1077
Non-Hispanic White	09-10	12.2 (10.5-14.1)	12.3 (10.5-14.2)	24.4 (20.7-29.1)	51.7 (37.7-77.1)	104 (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.

Urinary Mono-(2-ethyl-5-hydroxyhexyl) phthalate (MEHHP) (creatinine corrected) (2001 - 2010)

CAS Number 40321-99-1

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.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	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
Total population	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
Total population	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
Total population	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
Total population	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 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
Age 6-11 years	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
Age 6-11 years	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
Age 6-11 years	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
Age 6-11 years	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
Age 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
Age 12-19 years	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
Age 12-19 years	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
Age 12-19 years	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
Age 12-19 years	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
Age 20+ years	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
Age 20+ years	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
Age 20+ years	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
Age 20+ years	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
Age 20+ years	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
Male	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
Male	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
Male	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
Male	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
Male	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
Female	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
Female	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
Female	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
Female	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
Female	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
Mexican American	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
Mexican American	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
Mexican American	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
Mexican American	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
Mexican American	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 Black	01-02	20.9 (18.8-23.3)	19.7 (17.5-21.8)	38.3 (32.1-46.0)	93.5 (69.2-123)	164 (130-183)	703
Non-Hispanic Black	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
Non-Hispanic Black	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
Non-Hispanic Black	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
Non-Hispanic Black	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 White	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
Non-Hispanic White	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
Non-Hispanic White	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
Non-Hispanic White	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
Non-Hispanic White	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

Urinary Mono-(2-ethyl-5-hydroxyhexyl) phthalate (MEHHP) (2011 - 2018)†

CAS Number 40321-99-1

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.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	11-12	7.91 (7.47-8.36)	8.30 (7.50-9.00)	16.0 (14.4-17.4)	29.0 (25.8-32.5)	43.1 (40.6-47.2)	2489
Total population	13-14	6.47 (5.98-7.00)	6.90 (6.30-7.70)	13.2 (11.9-14.7)	23.7 (20.7-26.6)	33.7 (28.2-37.6)	2685
Total population	15-16	5.67 (5.34-6.01)	5.70 (5.40-6.10)	10.8 (10.1-11.8)	18.9 (17.1-21.8)	28.3 (26.0-32.2)	2975
Total population	17-18	4.59 (4.24-4.96)	4.70 (4.30-5.30)	9.00 (8.40-9.90)	16.4 (14.3-18.1)	24.0 (22.2-26.3)	2762
Age 3-5 years	15-16	8.65 (7.86-9.52)	8.40 (7.40-9.60)	16.4 (13.9-19.0)	32.7 (26.2-42.5)	49.3 (42.5-54.3)	465
Age 3-5 years	17-18	7.03 (6.18-8.00)	6.90 (6.20-7.90)	14.1 (11.8-17.6)	25.3 (21.9-29.5)	35.1 (27.9-42.8)	379
Age 6-11 years	11-12	10.5 (8.82-12.4)	11.8 (10.4-14.2)	23.3 (19.9-26.1)	39.5 (30.6-50.3)	55.4 (41.8-68.5)	396
Age 6-11 years	13-14	9.54 (7.94-11.5)	9.40 (7.50-12.8)	18.7 (16.2-23.0)	36.4 (26.5-44.8)	50.8 (37.3-76.5)	409
Age 6-11 years	15-16	8.81 (7.83-9.90)	9.00 (7.90-10.0)	14.5 (13.3-17.1)	27.5 (20.0-35.9)	39.0 (31.7-47.9)	415
Age 6-11 years	17-18	8.06 (7.19-9.04)	7.90 (6.70-9.70)	16.2 (11.9-17.9)	27.5 (22.0-30.9)	38.3 (29.8-54.5)	330
Age 12-19 years	11-12	8.55 (6.93-10.6)	8.80 (6.80-10.6)	18.3 (14.3-23.2)	36.0 (27.4-46.6)	56.7 (38.1-99.8)	388
Age 12-19 years	13-14	7.62 (6.43-9.04)	7.70 (6.20-10.3)	15.8 (12.3-19.3)	26.8 (21.9-32.5)	35.3 (27.6-59.5)	462
Age 12-19 years	15-16	5.81 (4.93-6.84)	5.70 (5.00-7.20)	11.0 (9.00-12.7)	17.3 (13.8-22.5)	25.3 (17.6-29.3)	405
Age 12-19 years	17-18	4.80 (4.28-5.37)	5.50 (4.80-6.30)	9.40 (8.00-11.5)	15.6 (13.4-19.6)	24.6 (17.2-26.6)	353
Age 20+ years	11-12	7.58 (7.03-8.16)	8.00 (7.20-8.90)	15.0 (13.5-16.9)	26.7 (23.8-30.6)	41.5 (34.7-46.2)	1705
Age 20+ years	13-14	6.06 (5.63-6.51)	6.70 (5.70-7.30)	12.3 (11.3-13.4)	22.3 (19.6-24.0)	30.3 (26.5-35.9)	1814
Age 20+ years	15-16	5.29 (5.00-5.61)	5.40 (5.00-5.70)	10.2 (9.30-11.0)	18.5 (16.2-20.5)	26.5 (24.1-32.2)	1690
Age 20+ years	17-18	4.22 (3.84-4.63)	4.40 (3.80-4.80)	8.30 (7.50-9.10)	14.0 (12.1-16.5)	22.5 (16.7-26.6)	1700
Male	11-12	8.71 (7.98-9.51)	9.40 (7.80-10.6)	16.4 (14.2-19.5)	31.1 (26.7-35.8)	46.2 (41.5-55.4)	1259
Male	13-14	6.98 (6.32-7.71)	7.40 (6.70-8.40)	13.1 (11.7-14.8)	22.7 (20.1-24.9)	32.9 (27.3-36.0)	1285
Male	15-16	6.11 (5.71-6.54)	6.00 (5.50-6.90)	11.6 (10.2-12.5)	20.1 (18.3-23.2)	29.3 (24.1-43.8)	1474
Male	17-18	5.10 (4.61-5.64)	5.20 (4.50-6.00)	10.6 (9.00-11.4)	18.4 (16.0-22.2)	26.7 (22.5-29.9)	1363
Female	11-12	7.20 (6.77-7.66)	7.60 (6.90-8.20)	15.5 (14.4-17.1)	27.6 (25.0-30.5)	40.7 (35.1-46.4)	1230
Female	13-14	6.02 (5.40-6.72)	6.30 (5.30-7.20)	13.4 (11.5-15.3)	24.8 (20.7-27.8)	35.3 (27.4-40.8)	1400
Female	15-16	5.27 (4.89-5.66)	5.40 (4.90-5.70)	10.4 (9.70-11.0)	18.0 (15.5-22.1)	27.9 (22.6-34.2)	1501
Female	17-18	4.15 (3.84-4.48)	4.40 (3.80-4.80)	8.20 (7.50-9.00)	13.9 (11.5-17.1)	22.0 (16.9-24.7)	1399
Mexican American	11-12	9.13 (7.22-11.5)	9.60 (7.30-11.7)	17.7 (12.7-24.7)	32.1 (24.8-37.7)	50.2 (36.4-56.3)	316
Mexican American	13-14	7.71 (6.53-9.10)	8.00 (7.40-8.80)	14.4 (12.5-16.2)	28.1 (18.9-42.0)	43.7 (31.8-50.3)	438
Mexican American	15-16	6.39 (5.71-7.14)	6.30 (5.60-7.30)	12.4 (9.90-16.0)	22.3 (18.9-27.0)	34.7 (25.1-48.6)	595
Mexican American	17-18	5.07 (4.38-5.87)	4.90 (4.00-6.00)	10.4 (8.90-11.9)	21.0 (15.3-24.0)	29.0 (22.2-38.8)	417
Non-Hispanic Black	11-12	11.3 (10.1-12.7)	11.2 (10.2-12.7)	22.1 (17.4-26.8)	38.8 (34.9-47.9)	56.2 (46.8-65.1)	665
Non-Hispanic Black	13-14	8.06 (6.79-9.56)	8.80 (7.30-10.4)	16.5 (14.0-18.6)	27.4 (22.8-32.7)	38.7 (32.7-48.1)	609
Non-Hispanic Black	15-16	7.48 (6.44-8.69)	7.20 (6.40-8.10)	13.5 (11.6-16.4)	26.0 (21.5-34.0)	45.8 (29.9-59.5)	698
Non-Hispanic Black	17-18	6.03 (5.36-6.77)	6.50 (5.50-7.90)	12.2 (9.60-14.3)	22.2 (18.9-25.1)	29.5 (26.1-33.0)	645
Non-Hispanic White	11-12	7.20 (6.73-7.70)	7.40 (6.80-8.30)	14.6 (12.9-17.2)	25.0 (23.4-27.9)	36.6 (30.6-42.9)	813
Non-Hispanic White	13-14	6.05 (5.54-6.61)	6.70 (5.60-7.20)	12.6 (10.8-14.2)	22.4 (19.1-24.6)	30.1 (26.3-35.3)	987
Non-Hispanic White	15-16	5.15 (4.71-5.63)	5.30 (4.80-5.90)	10.1 (8.90-11.0)	16.5 (14.8-19.4)	24.8 (19.5-32.2)	862
Non-Hispanic White	17-18	4.32 (3.90-4.80)	4.50 (3.80-5.30)	8.40 (7.50-9.50)	14.0 (11.8-17.2)	23.9 (16.5-26.7)	906
All Hispanic	11-12	9.28 (8.07-10.7)	9.40 (7.70-10.8)	18.8 (15.3-22.9)	37.5 (32.1-43.9)	53.8 (46.3-70.6)	571
All Hispanic	13-14	7.56 (6.92-8.26)	8.00 (7.40-8.60)	14.4 (13.1-15.5)	27.2 (21.3-37.3)	39.3 (35.1-46.4)	690
All Hispanic	15-16	6.21 (5.58-6.91)	6.20 (5.50-7.20)	12.0 (10.2-13.9)	21.2 (18.6-22.8)	30.6 (26.0-39.1)	971
All Hispanic	17-18	4.87 (4.23-5.60)	5.10 (4.40-5.70)	9.80 (8.80-10.8)	18.2 (14.0-22.2)	24.4 (21.1-34.6)	663
Non-Hispanic Asian	11-12	6.85 (5.53-8.48)	6.70 (5.40-7.90)	15.1 (11.5-18.6)	31.8 (22.5-41.9)	64.2 (35.7-82.8)	352
Non-Hispanic Asian	13-14	4.78 (4.07-5.61)	4.50 (3.70-5.60)	10.2 (8.30-12.4)	17.1 (14.6-21.8)	26.7 (17.9-47.0)	289
Non-Hispanic Asian	15-16	6.04 (5.36-6.80)	6.10 (5.00-7.00)	12.7 (10.9-15.8)	27.2 (20.1-32.1)	41.6 (27.6-65.3)	301
Non-Hispanic Asian	17-18	4.12 (3.48-4.88)	4.10 (3.50-4.90)	9.70 (7.60-11.3)	17.3 (14.4-19.9)	26.0 (17.4-34.1)	366

Limit of detection (LOD, see Data Analysis section) for Survey years 11-12, 13-14, 15-16, and 17-18 are 0.2, 0.4, 0.4, and 0.4, respectively.

† Participants are age 6+ years in Surveys 11-12 and 13-14; beginning with Survey 15-16, participants include those age 3+ years.

Urinary Mono-(2-ethyl-5-hydroxyhexyl) phthalate (MEHHP) (creatinine corrected) (2011 - 2018)†

CAS Number 40321-99-1

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.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	11-12	8.99 (8.55-9.46)	8.46 (7.90-9.27)	14.1 (13.5-14.9)	25.3 (23.1-27.8)	37.7 (32.9-45.3)	2487
Total population	13-14	6.49 (5.97-7.05)	6.15 (5.67-6.86)	10.5 (9.47-11.7)	18.1 (15.4-20.4)	25.8 (22.9-29.3)	2684
Total population	15-16	5.86 (5.62-6.12)	5.53 (5.25-5.77)	9.19 (8.66-9.76)	16.4 (15.3-18.0)	27.2 (22.9-30.0)	2974
Total population	17-18	4.79 (4.51-5.09)	4.47 (4.25-4.74)	7.75 (7.22-8.43)	14.0 (12.2-16.2)	20.7 (18.6-23.9)	2762
Age 3-5 years	15-16	20.6 (19.2-22.2)	20.0 (18.0-22.3)	33.7 (30.0-39.2)	54.5 (50.1-62.8)	75.1 (62.9-91.4)	464
Age 3-5 years	17-18	15.3 (13.7-17.0)	16.1 (12.1-18.2)	23.9 (21.5-26.7)	38.4 (32.6-45.7)	53.3 (44.7-60.0)	379
Age 6-11 years	11-12	14.9 (12.9-17.2)	14.8 (13.0-18.2)	26.5 (22.9-28.2)	42.6 (30.9-46.5)	58.1 (43.2-75.1)	395
Age 6-11 years	13-14	12.0 (10.4-14.0)	11.6 (9.32-14.4)	19.3 (17.2-24.2)	36.9 (24.6-61.7)	61.7 (34.3-130)	409
Age 6-11 years	15-16	11.3 (10.5-12.3)	10.5 (9.57-11.6)	16.3 (14.7-19.1)	28.8 (21.7-35.2)	36.6 (31.7-44.4)	415
Age 6-11 years	17-18	9.38 (7.98-11.0)	9.78 (8.21-11.7)	15.5 (13.5-18.3)	25.1 (18.7-30.0)	32.8 (28.2-47.9)	330
Age 12-19 years	11-12	8.33 (7.38-9.41)	7.60 (6.41-8.29)	12.6 (10.4-15.5)	28.7 (20.1-37.2)	53.9 (31.7-68.8)	388
Age 12-19 years	13-14	6.19 (5.36-7.14)	5.94 (5.00-7.14)	9.82 (8.59-11.5)	16.9 (13.0-21.1)	24.8 (19.9-31.1)	462
Age 12-19 years	15-16	4.51 (4.18-4.87)	4.38 (4.01-4.95)	6.71 (6.02-7.78)	10.3 (8.60-12.6)	13.7 (10.2-19.1)	405
Age 12-19 years	17-18	4.14 (3.74-4.59)	3.97 (3.33-4.89)	6.46 (5.78-7.58)	10.4 (8.27-12.2)	12.5 (10.7-15.3)	353
Age 20+ years	11-12	8.61 (8.17-9.07)	8.20 (7.63-8.94)	13.5 (12.6-14.1)	22.5 (20.1-25.3)	32.0 (28.1-39.3)	1704
Age 20+ years	13-14	6.10 (5.62-6.63)	5.93 (5.40-6.41)	9.81 (8.89-10.8)	15.4 (14.1-18.3)	22.2 (19.2-26.0)	1813
Age 20+ years	15-16	5.40 (5.13-5.68)	5.15 (4.85-5.43)	8.10 (7.69-8.84)	13.5 (12.4-15.5)	20.9 (17.6-27.2)	1690
Age 20+ years	17-18	4.32 (4.04-4.62)	4.09 (3.84-4.32)	6.94 (6.40-7.33)	11.0 (9.79-12.5)	17.0 (14.0-19.3)	1700
Male	11-12	8.15 (7.67-8.66)	7.80 (7.18-8.21)	12.2 (11.5-13.2)	24.2 (20.9-25.9)	37.2 (29.5-50.2)	1258
Male	13-14	5.86 (5.38-6.39)	5.68 (5.26-6.12)	8.97 (8.48-9.79)	15.2 (13.9-16.7)	22.3 (19.8-26.3)	1284
Male	15-16	5.45 (5.04-5.89)	5.14 (4.66-5.62)	8.60 (7.78-9.31)	15.4 (12.9-18.2)	24.0 (18.3-33.3)	1474
Male	17-18	4.53 (4.20-4.88)	4.25 (3.87-4.62)	7.66 (6.81-8.52)	14.0 (11.5-16.8)	20.3 (18.4-23.5)	1363
Female	11-12	9.89 (9.16-10.7)	9.64 (8.33-11.1)	15.6 (14.7-17.3)	27.0 (23.9-28.8)	37.7 (33.2-44.4)	1229
Female	13-14	7.15 (6.38-8.01)	6.94 (6.25-7.58)	12.0 (10.3-13.7)	20.4 (16.4-23.6)	28.3 (22.9-36.4)	1400
Female	15-16	6.29 (5.99-6.61)	5.86 (5.50-6.25)	9.90 (9.00-10.5)	17.7 (15.5-19.9)	28.4 (23.3-30.5)	1500
Female	17-18	5.05 (4.72-5.41)	4.75 (4.52-4.89)	7.81 (7.22-8.82)	14.0 (12.0-16.6)	21.2 (18.2-25.5)	1399
Mexican American	11-12	10.3 (8.35-12.7)	9.10 (7.02-12.5)	18.6 (14.4-21.1)	30.4 (25.1-36.0)	49.6 (30.4-114)	316
Mexican American	13-14	7.86 (7.13-8.66)	7.54 (6.78-8.10)	12.6 (10.8-16.5)	23.5 (19.6-32.1)	37.2 (25.8-54.9)	438
Mexican American	15-16	6.96 (6.42-7.54)	6.87 (6.19-7.88)	11.4 (10.5-12.9)	20.3 (16.7-27.4)	33.6 (25.3-40.0)	595
Mexican American	17-18	5.50 (4.70-6.42)	4.91 (4.14-6.63)	11.0 (8.76-13.8)	19.3 (17.0-23.0)	31.5 (22.4-35.9)	417
Non-Hispanic Black	11-12	8.80 (7.84-9.87)	8.12 (7.37-8.96)	14.7 (12.4-17.8)	28.2 (20.7-37.4)	46.2 (29.7-57.5)	665
Non-Hispanic Black	13-14	5.94 (5.28-6.70)	5.68 (4.84-6.85)	9.94 (9.02-11.4)	17.1 (15.0-20.1)	23.9 (19.2-32.4)	609
Non-Hispanic Black	15-16	5.96 (5.46-6.51)	5.43 (4.77-6.07)	10.4 (9.06-12.3)	19.3 (16.6-22.1)	30.0 (23.8-38.8)	697
Non-Hispanic Black	17-18	4.54 (4.20-4.91)	4.40 (4.09-4.83)	7.80 (6.82-8.67)	13.9 (11.8-16.8)	22.0 (15.7-29.1)	645
Non-Hispanic White	11-12	8.74 (8.02-9.53)	8.36 (7.62-9.58)	13.5 (12.5-14.5)	23.1 (19.7-25.9)	32.7 (27.8-42.9)	811
Non-Hispanic White	13-14	6.37 (5.74-7.07)	6.06 (5.56-6.74)	10.0 (8.72-11.6)	16.2 (14.2-20.0)	23.1 (20.8-27.7)	987
Non-Hispanic White	15-16	5.54 (5.16-5.94)	5.34 (4.96-5.60)	8.33 (7.69-8.96)	13.9 (12.3-18.2)	21.8 (18.3-27.8)	862
Non-Hispanic White	17-18	4.61 (4.30-4.95)	4.31 (4.09-4.65)	7.22 (6.42-7.78)	12.0 (10.5-13.7)	18.2 (14.0-21.2)	906
All Hispanic	11-12	10.4 (9.42-11.5)	9.29 (8.14-10.5)	18.7 (16.7-21.1)	30.5 (27.1-35.6)	49.6 (33.4-67.9)	571
All Hispanic	13-14	7.50 (7.04-8.00)	7.19 (6.58-7.77)	12.3 (11.1-14.1)	22.3 (19.0-27.0)	34.9 (27.1-40.6)	690
All Hispanic	15-16	6.54 (6.09-7.03)	6.32 (5.77-6.97)	10.6 (10.0-11.5)	18.3 (16.7-21.1)	30.0 (24.5-34.6)	971
All Hispanic	17-18	5.23 (4.67-5.86)	4.80 (4.25-5.56)	9.43 (8.18-11.0)	18.2 (15.3-19.2)	24.2 (19.6-32.5)	663
Non-Hispanic Asian	11-12	9.18 (7.54-11.2)	8.45 (7.34-10.0)	16.2 (12.7-21.0)	33.0 (23.6-42.6)	57.4 (35.8-85.4)	352
Non-Hispanic Asian	13-14	6.06 (5.35-6.86)	5.63 (4.83-6.50)	11.0 (9.79-13.2)	19.6 (16.0-24.5)	26.3 (19.6-41.9)	288
Non-Hispanic Asian	15-16	7.47 (6.41-8.72)	6.03 (5.45-7.61)	12.6 (10.4-16.5)	30.9 (19.3-41.6)	43.2 (33.5-72.8)	301
Non-Hispanic Asian	17-18	6.09 (5.07-7.32)	5.51 (4.76-6.67)	11.1 (8.74-15.6)	21.2 (16.4-30.0)	31.0 (21.0-63.3)	366

† Participants are age 6+ years in Surveys 11-12 and 13-14; beginning with Survey 15-16, participants include those age 3+ years.

Urinary Mono-(2-ethyl-5-oxohexyl) phthalate (MEOHP) (2001 - 2010)

CAS Number 40321-98-0

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.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	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
Total population	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
Total population	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
Total population	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
Total population	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 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
Age 6-11 years	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
Age 6-11 years	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
Age 6-11 years	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
Age 6-11 years	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
Age 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
Age 12-19 years	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
Age 12-19 years	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
Age 12-19 years	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
Age 12-19 years	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
Age 20+ years	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
Age 20+ years	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
Age 20+ years	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
Age 20+ years	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
Age 20+ years	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
Male	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
Male	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
Male	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
Male	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
Male	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
Female	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
Female	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
Female	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
Female	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
Female	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
Mexican American	01-02	13.1 (11.6-14.9)	13.4 (11.6-15.0)	25.5 (21.6-30.8)	56.6 (40.6-70.3)	77.3 (70.5-101)	677
Mexican American	03-04	12.8 (10.5-15.5)	13.6 (11.4-15.6)	25.3 (20.4-29.9)	46.6 (32.3-70.8)	76.0 (51.6-153)	652
Mexican American	05-06	14.8 (11.7-18.8)	12.8 (10.5-16.1)	30.9 (22.6-42.9)	79.1 (51.7-131)	152 (92.9-276)	637
Mexican American	07-08	12.6 (10.5-15.1)	11.4 (10.4-12.9)	25.1 (18.7-37.2)	53.4 (43.2-91.7)	118 (88.4-147)	531
Mexican American	09-10	9.57 (8.10-11.3)	9.65 (8.17-11.3)	19.2 (16.3-23.3)	39.0 (30.9-54.7)	64.6 (43.0-95.3)	566
Non-Hispanic Black	01-02	19.6 (17.1-22.5)	20.1 (17.9-22.4)	39.0 (34.8-44.2)	80.5 (71.4-97.4)	153 (102-228)	703
Non-Hispanic Black	03-04	20.2 (17.7-23.0)	20.1 (17.0-22.5)	40.0 (33.9-46.9)	92.6 (68.8-130)	173 (104-247)	699
Non-Hispanic Black	05-06	21.8 (18.9-25.2)	18.8 (16.8-21.0)	46.0 (38.0-59.1)	130 (104-168)	243 (159-304)	678
Non-Hispanic Black	07-08	14.2 (12.7-15.9)	14.0 (12.7-16.3)	30.5 (25.8-35.9)	64.2 (52.1-76.1)	110 (71.9-136)	597
Non-Hispanic Black	09-10	9.57 (8.17-11.2)	9.64 (8.15-11.1)	19.8 (16.5-22.1)	31.4 (25.5-44.0)	50.9 (31.4-129)	516
Non-Hispanic White	01-02	12.8 (11.2-14.6)	13.2 (11.6-14.6)	28.5 (23.6-34.0)	58.6 (48.8-70.9)	126 (83.7-172)	1216
Non-Hispanic White	03-04	13.8 (12.4-15.4)	13.4 (11.3-16.3)	31.0 (27.0-36.3)	77.6 (59.4-102)	161 (98.7-241)	1088
Non-Hispanic White	05-06	15.5 (13.9-17.3)	15.0 (13.3-16.5)	35.3 (30.1-40.8)	92.6 (74.6-111)	182 (134-247)	1038
Non-Hispanic White	07-08	11.7 (9.66-14.2)	11.0 (9.20-13.6)	26.9 (20.2-35.1)	64.2 (43.4-108)	137 (90.0-197)	1077
Non-Hispanic White	09-10	7.59 (6.60-8.73)	7.55 (6.81-8.63)	15.7 (12.9-18.6)	29.1 (22.9-46.5)	55.7 (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.

Urinary Mono-(2-ethyl-5-oxohexyl) phthalate (MEOHP) (creatinine corrected) (2001 - 2010)

CAS Number 40321-98-0

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.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	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
Total population	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
Total population	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
Total population	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
Total population	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 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
Age 6-11 years	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
Age 6-11 years	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
Age 6-11 years	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
Age 6-11 years	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
Age 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
Age 12-19 years	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
Age 12-19 years	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
Age 12-19 years	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
Age 12-19 years	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
Age 20+ years	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
Age 20+ years	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
Age 20+ years	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
Age 20+ years	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
Age 20+ years	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
Male	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
Male	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
Male	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
Male	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
Male	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
Female	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
Female	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
Female	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
Female	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
Female	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
Mexican American	01-02	12.4 (11.4-13.5)	11.0 (10.5-12.3)	20.9 (18.5-24.4)	44.6 (33.4-56.2)	65.9 (53.1-83.1)	677
Mexican American	03-04	11.5 (9.81-13.6)	10.7 (9.04-12.3)	18.8 (15.6-24.6)	39.1 (31.8-53.9)	63.0 (47.2-121)	652
Mexican American	05-06	13.3 (11.1-16.1)	11.4 (9.58-13.6)	24.0 (19.4-30.4)	61.2 (45.6-85.9)	102 (69.9-200)	637
Mexican American	07-08	12.3 (10.0-15.0)	10.6 (8.57-14.1)	21.7 (16.1-28.7)	53.1 (32.7-85.2)	113 (79.7-149)	531
Mexican American	09-10	9.50 (8.16-11.1)	8.72 (8.13-9.61)	16.6 (12.9-20.5)	35.4 (24.4-46.6)	56.7 (40.9-82.3)	566
Non-Hispanic Black	01-02	13.8 (12.3-15.4)	13.1 (12.0-14.2)	23.9 (20.0-29.3)	58.3 (45.3-79.7)	101 (81.3-124)	703
Non-Hispanic Black	03-04	14.3 (13.1-15.6)	13.3 (11.3-15.5)	24.8 (21.7-27.7)	61.2 (46.8-76.6)	105 (79.7-152)	699
Non-Hispanic Black	05-06	15.3 (13.2-17.8)	11.6 (9.87-14.6)	29.1 (24.7-38.5)	77.1 (61.9-113)	172 (99.8-251)	678
Non-Hispanic Black	07-08	11.0 (9.94-12.2)	9.90 (9.16-11.1)	20.6 (16.6-23.5)	42.2 (33.8-58.6)	75.8 (57.2-124)	597
Non-Hispanic Black	09-10	6.92 (5.60-8.57)	6.49 (5.12-8.24)	11.4 (9.09-14.1)	19.2 (14.9-27.3)	28.1 (19.8-61.1)	516
Non-Hispanic White	01-02	12.7 (11.4-14.0)	11.1 (9.90-12.3)	20.8 (18.0-23.9)	45.7 (35.9-64.9)	96.0 (68.5-161)	1216
Non-Hispanic White	03-04	13.7 (12.2-15.3)	12.0 (10.5-12.9)	24.9 (20.7-28.6)	69.5 (51.4-95.3)	124 (90.3-182)	1088
Non-Hispanic White	05-06	16.3 (14.8-18.0)	14.0 (12.9-15.7)	30.8 (27.3-34.8)	79.3 (66.0-93.8)	139 (117-163)	1038
Non-Hispanic White	07-08	12.2 (10.3-14.5)	11.0 (9.38-13.1)	22.3 (17.4-30.4)	51.4 (35.7-77.7)	107 (74.6-139)	1077
Non-Hispanic White	09-10	8.53 (7.35-9.90)	7.62 (6.76-8.54)	13.7 (11.2-16.2)	24.9 (20.3-35.7)	47.8 (32.8-76.4)	1206

Urinary Mono-(2-ethyl-5-oxohexyl) phthalate (MEOHP) (2011 - 2018)†

CAS Number 40321-98-0

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.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	11-12	5.08 (4.78-5.41)	5.30 (4.90-5.80)	10.3 (9.40-11.5)	18.4 (17.0-19.5)	26.5 (23.7-30.2)	2489
Total population	13-14	4.24 (3.94-4.57)	4.70 (4.20-5.00)	8.50 (7.60-9.30)	15.2 (13.3-17.3)	20.2 (18.2-23.7)	2685
Total population	15-16	3.57 (3.31-3.86)	3.70 (3.40-4.10)	7.00 (6.40-7.80)	12.1 (10.9-13.7)	19.0 (16.1-21.4)	2975
Total population	17-18	3.00 (2.79-3.22)	3.10 (2.80-3.60)	6.00 (5.50-6.40)	11.2 (9.80-12.5)	16.4 (14.5-17.9)	2762
Age 3-5 years	15-16	5.80 (5.28-6.38)	5.70 (5.00-6.50)	11.0 (9.80-12.7)	22.1 (17.3-26.3)	30.2 (26.2-36.6)	465
Age 3-5 years	17-18	5.01 (4.42-5.67)	4.90 (4.40-6.00)	10.2 (8.10-12.8)	18.6 (15.2-20.3)	26.9 (20.3-31.6)	379
Age 6-11 years	11-12	6.96 (5.86-8.28)	8.10 (6.90-9.70)	14.6 (12.8-17.1)	26.1 (22.6-28.4)	34.7 (27.9-42.5)	396
Age 6-11 years	13-14	6.51 (5.49-7.72)	6.60 (5.10-8.30)	12.4 (10.2-16.4)	23.4 (17.1-30.0)	33.0 (24.2-50.7)	409
Age 6-11 years	15-16	5.97 (5.35-6.67)	6.10 (5.30-6.80)	10.0 (8.80-12.1)	19.0 (14.7-21.5)	24.5 (19.6-33.7)	415
Age 6-11 years	17-18	5.69 (5.08-6.37)	5.90 (5.30-6.90)	11.6 (8.80-13.1)	18.5 (14.9-22.6)	27.0 (20.3-34.2)	330
Age 12-19 years	11-12	5.70 (4.64-7.01)	5.70 (4.60-7.30)	12.2 (10.5-13.7)	22.2 (19.1-29.5)	35.1 (23.0-46.8)	388
Age 12-19 years	13-14	5.34 (4.57-6.24)	5.50 (4.40-7.00)	10.5 (8.10-13.3)	17.5 (14.9-23.8)	25.6 (17.6-33.7)	462
Age 12-19 years	15-16	3.75 (3.16-4.46)	3.80 (3.20-4.70)	6.90 (6.00-8.60)	10.9 (9.10-14.7)	16.2 (11.5-19.2)	405
Age 12-19 years	17-18	3.28 (2.88-3.73)	3.80 (3.30-4.30)	6.30 (5.60-7.50)	10.6 (8.90-14.0)	15.5 (12.6-18.4)	353
Age 20+ years	11-12	4.83 (4.45-5.23)	5.10 (4.70-5.60)	9.60 (8.50-10.8)	16.7 (14.5-18.6)	23.0 (20.8-26.5)	1705
Age 20+ years	13-14	3.91 (3.65-4.19)	4.40 (3.90-4.80)	7.80 (7.10-8.70)	13.9 (12.1-15.7)	19.1 (17.1-20.8)	1814
Age 20+ years	15-16	3.29 (3.05-3.56)	3.50 (3.00-3.80)	6.50 (5.90-7.30)	11.4 (10.2-13.1)	18.2 (14.3-20.3)	1690
Age 20+ years	17-18	2.70 (2.48-2.94)	2.80 (2.50-3.10)	5.40 (4.90-5.90)	9.20 (7.60-11.6)	15.0 (11.4-17.6)	1700
Male	11-12	5.50 (5.07-5.95)	5.70 (5.10-6.30)	10.5 (8.90-12.2)	18.7 (16.9-21.2)	28.1 (23.4-34.3)	1259
Male	13-14	4.45 (4.05-4.89)	4.90 (4.40-5.30)	8.10 (7.30-9.00)	13.7 (12.6-15.9)	19.8 (17.3-23.6)	1285
Male	15-16	3.74 (3.44-4.08)	4.00 (3.40-4.40)	7.00 (6.40-8.00)	12.2 (10.9-14.7)	19.6 (15.4-26.9)	1474
Male	17-18	3.24 (2.95-3.56)	3.40 (3.00-3.90)	6.40 (6.00-6.70)	12.6 (10.1-14.2)	17.9 (15.0-22.2)	1363
Female	11-12	4.71 (4.39-5.07)	5.00 (4.70-5.60)	10.2 (9.20-11.1)	18.1 (15.8-19.3)	25.4 (21.9-29.6)	1230
Female	13-14	4.06 (3.65-4.50)	4.20 (3.60-4.80)	9.00 (7.70-9.90)	16.2 (13.9-18.2)	21.5 (17.6-25.5)	1400
Female	15-16	3.42 (3.14-3.72)	3.50 (3.20-3.90)	7.00 (6.20-7.80)	12.0 (10.1-14.6)	17.1 (15.1-20.8)	1501
Female	17-18	2.78 (2.57-3.00)	2.90 (2.60-3.30)	5.50 (5.10-6.10)	9.80 (8.10-11.8)	15.0 (11.8-17.6)	1399
Mexican American	11-12	5.86 (4.69-7.33)	5.90 (4.40-7.50)	11.6 (8.40-14.4)	20.5 (15.4-25.4)	31.5 (22.5-35.1)	316
Mexican American	13-14	5.03 (4.21-6.01)	5.20 (4.60-5.80)	9.40 (7.70-11.5)	18.3 (12.3-24.2)	25.1 (19.5-34.3)	438
Mexican American	15-16	3.96 (3.53-4.45)	4.00 (3.50-4.60)	8.00 (6.10-9.90)	14.5 (11.6-16.0)	20.8 (15.4-31.3)	595
Mexican American	17-18	3.49 (3.05-4.00)	3.40 (2.90-4.10)	6.60 (6.20-7.60)	13.6 (10.0-17.6)	19.2 (15.3-24.6)	417
Non-Hispanic Black	11-12	7.30 (6.48-8.22)	7.40 (6.70-8.00)	14.0 (11.5-16.0)	26.0 (21.1-32.1)	36.9 (30.8-48.2)	665
Non-Hispanic Black	13-14	5.38 (4.58-6.31)	5.80 (5.00-7.00)	10.8 (9.10-12.0)	17.5 (15.2-21.8)	25.3 (21.7-29.7)	609
Non-Hispanic Black	15-16	4.59 (3.93-5.37)	4.50 (4.20-4.90)	8.60 (7.80-9.50)	16.6 (13.0-21.7)	28.7 (17.9-40.0)	698
Non-Hispanic Black	17-18	3.78 (3.35-4.26)	4.30 (3.70-5.00)	7.90 (6.80-8.70)	14.1 (12.1-15.3)	18.9 (16.6-20.9)	645
Non-Hispanic White	11-12	4.62 (4.31-4.96)	4.90 (4.50-5.50)	9.50 (8.40-10.8)	16.1 (13.8-18.6)	21.2 (19.0-25.9)	813
Non-Hispanic White	13-14	3.95 (3.63-4.30)	4.40 (3.90-4.80)	7.90 (7.00-9.10)	14.2 (12.0-16.5)	19.1 (16.5-23.4)	987
Non-Hispanic White	15-16	3.30 (2.95-3.68)	3.50 (2.90-4.00)	6.50 (5.90-7.30)	10.7 (9.40-12.7)	16.6 (12.8-20.3)	862
Non-Hispanic White	17-18	2.82 (2.56-3.11)	2.90 (2.50-3.40)	5.50 (5.00-6.10)	10.0 (7.90-11.9)	15.6 (11.6-19.6)	906
All Hispanic	11-12	5.94 (5.17-6.83)	6.00 (4.80-7.30)	11.8 (9.70-14.0)	22.5 (19.8-25.8)	34.3 (26.2-39.8)	571
All Hispanic	13-14	4.95 (4.46-5.49)	5.30 (4.80-5.70)	9.20 (8.30-10.4)	17.5 (12.9-20.2)	24.2 (19.7-28.5)	690
All Hispanic	15-16	3.88 (3.49-4.31)	4.00 (3.50-4.60)	7.80 (6.60-8.90)	13.5 (11.7-15.1)	18.8 (16.3-23.5)	971
All Hispanic	17-18	3.27 (2.85-3.76)	3.50 (3.00-3.90)	6.40 (5.90-6.80)	12.8 (9.50-14.8)	17.6 (14.2-22.0)	663
Non-Hispanic Asian	11-12	4.39 (3.63-5.31)	4.20 (3.30-5.20)	9.40 (7.20-11.3)	19.0 (15.0-27.8)	36.8 (25.4-52.4)	352
Non-Hispanic Asian	13-14	3.25 (2.81-3.76)	3.20 (2.60-4.10)	6.20 (5.10-7.30)	11.0 (9.50-13.7)	16.1 (11.7-23.3)	289
Non-Hispanic Asian	15-16	3.70 (3.21-4.27)	4.10 (3.20-4.60)	8.60 (6.50-10.0)	17.8 (12.5-22.0)	29.6 (17.0-56.9)	301
Non-Hispanic Asian	17-18	2.71 (2.28-3.21)	3.00 (2.30-3.60)	6.50 (5.40-7.70)	11.3 (9.10-15.0)	15.8 (12.3-23.5)	366

Limit of detection (LOD, see Data Analysis section) for Survey years 11-12, 13-14, 15-16, and 17-18 are 0.2, 0.2, 0.2, and 0.2, respectively.

† Participants are age 6+ years in Surveys 11-12 and 13-14; beginning with Survey 15-16, participants include those age 3+ years.

Urinary Mono-(2-ethyl-5-oxohexyl) phthalate (MEOHP) (creatinine corrected) (2011 - 2018)†

CAS Number 40321-98-0

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.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	11-12	5.78 (5.51-6.06)	5.51 (5.12-5.83)	8.99 (8.41-9.83)	15.6 (14.3-16.8)	23.4 (19.6-28.0)	2487
Total population	13-14	4.25 (3.92-4.61)	4.02 (3.74-4.43)	6.61 (5.93-7.26)	11.1 (9.73-12.7)	16.4 (13.9-18.1)	2684
Total population	15-16	3.70 (3.49-3.92)	3.47 (3.27-3.75)	5.90 (5.52-6.24)	10.6 (9.71-11.9)	16.9 (14.7-18.4)	2974
Total population	17-18	3.13 (2.96-3.31)	2.96 (2.85-3.08)	5.19 (4.74-5.50)	9.43 (8.24-10.7)	14.4 (12.5-16.4)	2762
Age 3-5 years	15-16	13.9 (12.9-14.8)	13.6 (12.2-15.0)	23.0 (20.5-25.2)	35.5 (30.6-40.8)	47.8 (40.8-54.3)	464
Age 3-5 years	17-18	10.9 (9.76-12.1)	11.2 (9.08-12.6)	16.4 (14.7-18.3)	27.7 (21.8-35.9)	40.5 (29.8-48.1)	379
Age 6-11 years	11-12	9.93 (8.63-11.4)	9.89 (8.25-11.4)	16.5 (14.3-18.9)	25.6 (22.9-30.2)	34.5 (27.9-41.9)	395
Age 6-11 years	13-14	8.23 (7.16-9.44)	7.77 (6.25-9.38)	12.8 (10.7-17.1)	24.7 (17.9-37.1)	37.4 (21.4-80.7)	409
Age 6-11 years	15-16	7.70 (7.12-8.32)	7.26 (6.63-8.04)	11.2 (10.0-13.0)	19.4 (14.6-22.9)	23.9 (20.6-30.3)	415
Age 6-11 years	17-18	6.62 (5.67-7.73)	7.00 (5.75-8.06)	11.2 (9.63-13.1)	17.7 (13.9-22.1)	23.3 (17.7-33.5)	330
Age 12-19 years	11-12	5.55 (4.95-6.23)	5.21 (4.81-5.61)	8.54 (7.09-11.1)	16.3 (12.9-21.3)	31.6 (16.8-35.3)	388
Age 12-19 years	13-14	4.33 (3.82-4.92)	4.07 (3.71-4.69)	6.55 (5.64-7.19)	10.7 (8.02-13.4)	15.3 (11.5-18.6)	462
Age 12-19 years	15-16	2.92 (2.66-3.20)	2.81 (2.50-3.07)	4.49 (3.72-5.22)	7.04 (5.50-8.67)	9.31 (7.26-10.7)	405
Age 12-19 years	17-18	2.83 (2.55-3.15)	2.67 (2.31-3.27)	4.53 (3.77-5.63)	7.01 (5.96-7.96)	8.62 (7.30-13.6)	353
Age 20+ years	11-12	5.48 (5.23-5.74)	5.19 (4.89-5.56)	8.39 (7.95-8.98)	13.9 (12.8-15.3)	19.3 (16.6-25.4)	1704
Age 20+ years	13-14	3.95 (3.63-4.30)	3.85 (3.54-4.15)	6.15 (5.48-6.75)	9.83 (8.57-11.1)	13.6 (12.2-16.3)	1813
Age 20+ years	15-16	3.36 (3.15-3.57)	3.26 (3.00-3.46)	5.27 (4.80-5.66)	8.64 (7.27-9.88)	13.0 (10.6-15.7)	1690
Age 20+ years	17-18	2.77 (2.61-2.94)	2.74 (2.56-2.90)	4.39 (4.15-4.67)	6.84 (6.28-7.98)	11.3 (9.36-12.6)	1700
Male	11-12	5.14 (4.86-5.43)	4.86 (4.55-5.12)	7.83 (7.29-8.24)	14.7 (12.7-16.1)	22.6 (18.1-29.7)	1258
Male	13-14	3.74 (3.45-4.06)	3.70 (3.46-3.91)	5.59 (5.13-6.37)	9.03 (8.37-9.74)	14.3 (11.6-16.8)	1284
Male	15-16	3.34 (3.03-3.67)	3.18 (2.87-3.46)	5.41 (4.74-6.00)	9.81 (8.57-11.7)	14.8 (12.8-18.8)	1474
Male	17-18	2.88 (2.68-3.10)	2.67 (2.47-2.88)	4.81 (4.34-5.28)	9.20 (7.76-11.1)	14.4 (12.5-15.8)	1363
Female	11-12	6.48 (6.07-6.91)	6.34 (5.71-6.91)	10.0 (9.34-11.0)	16.5 (14.7-18.6)	23.5 (19.5-27.9)	1229
Female	13-14	4.81 (4.31-5.37)	4.58 (4.00-5.16)	7.42 (6.58-8.62)	12.6 (10.7-15.6)	17.2 (14.8-21.3)	1400
Female	15-16	4.08 (3.85-4.34)	3.84 (3.64-4.05)	6.27 (5.87-6.82)	11.2 (10.0-13.1)	17.6 (15.0-19.6)	1500
Female	17-18	3.38 (3.17-3.62)	3.16 (3.06-3.33)	5.40 (4.83-6.00)	9.50 (8.06-11.8)	14.4 (12.0-18.2)	1399
Mexican American	11-12	6.61 (5.43-8.05)	6.00 (4.83-7.45)	11.3 (8.87-13.9)	18.9 (15.8-22.8)	28.1 (18.2-60.8)	316
Mexican American	13-14	5.13 (4.57-5.75)	4.90 (4.42-5.49)	8.51 (6.80-10.7)	14.3 (12.0-19.5)	20.7 (15.6-31.7)	438
Mexican American	15-16	4.32 (3.95-4.71)	4.34 (3.81-4.74)	7.35 (6.51-8.00)	12.3 (10.5-16.8)	19.7 (15.0-27.3)	595
Mexican American	17-18	3.78 (3.28-4.36)	3.44 (2.78-4.44)	7.11 (6.05-8.79)	13.1 (10.8-15.9)	20.5 (14.9-27.6)	417
Non-Hispanic Black	11-12	5.68 (5.11-6.32)	5.31 (4.71-5.70)	9.33 (7.79-10.8)	16.9 (13.6-23.4)	29.4 (18.8-39.2)	665
Non-Hispanic Black	13-14	3.97 (3.55-4.44)	3.79 (3.28-4.42)	6.43 (5.67-7.31)	10.6 (9.55-12.2)	14.1 (11.2-18.6)	609
Non-Hispanic Black	15-16	3.66 (3.31-4.03)	3.33 (3.04-3.74)	6.33 (5.27-7.50)	12.0 (10.8-14.0)	19.8 (14.7-23.8)	697
Non-Hispanic Black	17-18	2.85 (2.64-3.07)	2.71 (2.50-2.92)	4.97 (4.56-5.68)	8.93 (7.80-11.6)	14.4 (10.6-18.4)	645
Non-Hispanic White	11-12	5.61 (5.17-6.08)	5.41 (4.90-5.99)	8.42 (7.84-9.61)	14.3 (12.5-15.8)	20.5 (16.6-25.4)	811
Non-Hispanic White	13-14	4.16 (3.75-4.62)	3.96 (3.70-4.41)	6.37 (5.47-7.23)	10.3 (8.57-12.7)	15.6 (12.8-17.3)	987
Non-Hispanic White	15-16	3.54 (3.26-3.86)	3.36 (3.10-3.64)	5.49 (5.07-5.98)	9.27 (7.33-12.5)	14.6 (12.5-18.3)	862
Non-Hispanic White	17-18	3.01 (2.82-3.21)	2.90 (2.71-3.06)	4.71 (4.29-5.39)	7.85 (6.54-9.50)	12.6 (10.0-15.8)	906
All Hispanic	11-12	6.66 (6.05-7.33)	6.04 (5.49-6.74)	11.3 (10.0-13.5)	18.9 (16.9-21.0)	30.2 (20.8-41.9)	571
All Hispanic	13-14	4.91 (4.55-5.31)	4.60 (4.26-5.07)	7.76 (6.94-9.27)	13.6 (11.5-17.0)	20.2 (16.9-25.2)	690
All Hispanic	15-16	4.09 (3.80-4.39)	4.00 (3.68-4.29)	6.78 (6.36-7.27)	11.6 (10.5-12.9)	18.6 (14.9-22.0)	971
All Hispanic	17-18	3.51 (3.13-3.94)	3.30 (2.86-3.75)	6.25 (5.44-7.30)	11.4 (9.65-13.3)	16.0 (13.0-23.8)	663
Non-Hispanic Asian	11-12	5.88 (4.96-6.97)	5.30 (4.59-6.36)	10.0 (8.11-12.2)	20.2 (14.7-26.3)	39.3 (23.5-50.1)	352
Non-Hispanic Asian	13-14	4.12 (3.68-4.62)	3.67 (3.20-4.49)	7.02 (5.79-8.62)	11.2 (10.0-13.9)	15.7 (12.1-24.4)	288
Non-Hispanic Asian	15-16	4.59 (3.93-5.35)	4.04 (3.53-4.78)	7.73 (6.67-10.5)	20.0 (11.4-25.5)	27.7 (20.0-45.0)	301
Non-Hispanic Asian	17-18	4.00 (3.34-4.79)	3.90 (3.16-4.38)	7.43 (5.88-10.0)	14.3 (10.0-22.6)	21.3 (14.2-38.9)	366

† Participants are age 6+ years in Surveys 11-12 and 13-14; beginning with Survey 15-16, participants include those age 3+ years.

Urinary Mono-(2-ethyl-5-carboxypentyl) phthalate (MECPP) (2003 - 2010)

CAS Number 40809-41-4

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.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	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
Total population	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
Total population	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
Total population	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
Age 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
Age 6-11 years	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
Age 6-11 years	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
Age 6-11 years	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
Age 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
Age 12-19 years	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
Age 12-19 years	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
Age 12-19 years	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
Age 20+ years	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
Age 20+ years	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
Age 20+ years	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
Age 20+ years	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
Male	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
Male	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
Male	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
Male	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
Female	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
Female	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
Female	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
Female	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
Mexican American	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
Mexican American	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
Mexican American	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
Mexican American	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 Black	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
Non-Hispanic Black	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
Non-Hispanic Black	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
Non-Hispanic Black	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 White	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
Non-Hispanic White	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
Non-Hispanic White	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
Non-Hispanic White	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.

Urinary Mono-(2-ethyl-5-carboxypentyl) phthalate (MECPP) (creatinine corrected) (2003 - 2010)

CAS Number 40809-41-4

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.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	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
Total population	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
Total population	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
Total population	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
Age 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
Age 6-11 years	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
Age 6-11 years	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
Age 6-11 years	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
Age 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
Age 12-19 years	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
Age 12-19 years	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
Age 12-19 years	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
Age 20+ years	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
Age 20+ years	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
Age 20+ years	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
Age 20+ years	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
Male	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
Male	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
Male	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
Male	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
Female	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
Female	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
Female	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
Female	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
Mexican American	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
Mexican American	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
Mexican American	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
Mexican American	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 Black	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
Non-Hispanic Black	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
Non-Hispanic Black	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
Non-Hispanic Black	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 White	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
Non-Hispanic White	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
Non-Hispanic White	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
Non-Hispanic White	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

Urinary Mono-(2-ethyl-5-carboxypentyl) phthalate (MECPP) (2011 - 2018)†

CAS Number 40809-41-4

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.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	11-12	12.9 (12.0-13.9)	13.5 (12.4-14.8)	25.3 (23.6-26.7)	43.9 (40.0-51.1)	68.9 (60.4-75.2)	2489
Total population	13-14	10.5 (9.71-11.5)	11.1 (10.1-12.0)	20.0 (17.9-22.5)	36.4 (31.4-42.0)	50.7 (46.5-58.7)	2685
Total population	15-16	8.83 (8.10-9.64)	9.00 (8.30-10.0)	17.1 (15.2-19.0)	29.2 (25.3-33.1)	46.2 (37.1-50.6)	2975
Total population	17-18	7.32 (6.80-7.87)	7.80 (6.80-8.70)	13.8 (12.7-15.3)	23.4 (21.0-26.5)	36.5 (31.2-43.1)	2762
Age 3-5 years	15-16	14.9 (13.5-16.6)	14.4 (12.4-15.9)	29.5 (24.3-32.6)	56.1 (44.0-65.0)	74.8 (64.3-88.1)	465
Age 3-5 years	17-18	12.7 (11.3-14.4)	12.9 (10.5-15.2)	24.1 (21.1-28.8)	41.9 (36.1-50.6)	60.7 (48.3-71.1)	379
Age 6-11 years	11-12	18.8 (16.1-21.9)	21.6 (17.3-24.1)	36.8 (31.5-41.4)	63.5 (51.5-71.5)	81.5 (68.1-95.1)	396
Age 6-11 years	13-14	18.2 (15.5-21.4)	18.1 (14.2-23.4)	33.9 (28.3-39.6)	54.3 (45.5-71.8)	81.1 (58.5-142)	409
Age 6-11 years	15-16	14.6 (12.9-16.6)	14.9 (13.3-16.7)	24.5 (21.5-28.5)	42.5 (35.3-54.8)	60.3 (54.2-75.0)	415
Age 6-11 years	17-18	13.9 (12.6-15.2)	14.5 (11.4-17.4)	24.8 (20.8-28.9)	45.4 (37.7-58.3)	61.2 (48.4-76.9)	330
Age 12-19 years	11-12	14.3 (11.3-18.0)	14.0 (11.6-17.5)	28.4 (23.5-36.8)	59.3 (47.1-70.2)	74.6 (59.3-135)	388
Age 12-19 years	13-14	13.6 (11.8-15.7)	13.8 (11.2-16.2)	25.7 (20.0-29.9)	44.4 (31.2-64.6)	64.9 (48.6-99.5)	462
Age 12-19 years	15-16	9.38 (7.97-11.0)	9.60 (8.30-11.8)	16.5 (14.2-19.5)	24.6 (20.9-36.9)	41.4 (25.8-49.7)	405
Age 12-19 years	17-18	7.68 (6.82-8.65)	8.50 (7.50-9.60)	14.6 (12.5-16.3)	24.0 (20.1-28.0)	35.7 (25.5-42.5)	353
Age 20+ years	11-12	12.2 (11.3-13.3)	13.0 (11.4-14.4)	23.8 (21.8-25.8)	40.2 (36.9-43.9)	61.8 (52.1-73.6)	1705
Age 20+ years	13-14	9.57 (8.84-10.4)	10.1 (9.10-11.3)	18.3 (16.6-19.8)	32.1 (27.5-37.8)	46.4 (39.5-51.8)	1814
Age 20+ years	15-16	8.12 (7.42-8.88)	8.30 (7.60-8.90)	16.0 (14.0-17.9)	26.3 (23.5-31.7)	42.7 (32.3-50.2)	1690
Age 20+ years	17-18	6.63 (6.09-7.21)	6.90 (6.00-8.00)	12.4 (11.0-13.7)	20.2 (17.5-23.0)	31.0 (23.5-37.5)	1700
Male	11-12	14.3 (13.0-15.6)	14.6 (12.7-16.4)	24.7 (23.1-27.6)	45.7 (40.2-54.9)	71.5 (59.8-88.4)	1259
Male	13-14	11.1 (9.98-12.3)	11.6 (10.6-12.5)	19.3 (17.1-22.3)	35.1 (29.3-44.0)	50.7 (47.4-58.4)	1285
Male	15-16	9.36 (8.42-10.4)	9.60 (8.40-11.0)	17.8 (15.9-20.6)	31.0 (25.8-35.0)	47.6 (34.2-54.7)	1474
Male	17-18	7.87 (7.16-8.66)	8.20 (7.20-9.40)	14.8 (13.5-15.6)	24.0 (21.0-29.6)	41.0 (30.3-48.4)	1363
Female	11-12	11.8 (10.8-12.9)	12.4 (11.2-13.7)	25.6 (23.4-26.6)	42.3 (37.4-49.5)	64.9 (54.4-76.8)	1230
Female	13-14	10.1 (9.05-11.2)	10.2 (8.90-11.7)	20.6 (18.4-23.2)	36.9 (31.5-41.8)	51.7 (41.3-64.9)	1400
Female	15-16	8.35 (7.62-9.15)	8.40 (7.70-9.30)	16.4 (14.1-18.6)	27.8 (22.1-33.7)	42.4 (34.6-49.7)	1501
Female	17-18	6.82 (6.29-7.40)	7.20 (6.30-8.30)	13.2 (10.9-15.4)	22.8 (19.3-26.2)	32.9 (27.4-39.0)	1399
Mexican American	11-12	15.8 (12.7-19.6)	14.9 (12.7-18.3)	28.1 (22.6-34.3)	51.3 (42.5-71.3)	72.6 (56.6-109)	316
Mexican American	13-14	13.4 (11.0-16.2)	13.1 (12.1-14.2)	23.4 (18.0-30.2)	44.4 (31.8-67.9)	67.9 (42.0-95.0)	438
Mexican American	15-16	10.4 (9.29-11.7)	10.3 (8.80-11.8)	20.1 (16.6-23.1)	32.8 (26.1-42.5)	53.2 (35.5-76.4)	595
Mexican American	17-18	8.66 (7.31-10.3)	8.00 (7.10-10.1)	16.5 (13.3-20.9)	33.6 (24.6-43.2)	45.1 (34.6-61.2)	417
Non-Hispanic Black	11-12	16.4 (14.5-18.5)	16.2 (14.4-18.8)	30.7 (26.0-36.6)	60.9 (47.5-69.9)	78.1 (68.2-96.7)	665
Non-Hispanic Black	13-14	11.5 (9.62-13.8)	12.7 (10.4-14.6)	21.5 (18.5-25.6)	36.4 (30.4-48.6)	58.5 (42.1-71.8)	609
Non-Hispanic Black	15-16	10.7 (8.95-12.7)	10.4 (9.20-12.0)	19.5 (16.5-23.2)	37.4 (27.7-47.1)	58.9 (44.0-79.6)	698
Non-Hispanic Black	17-18	8.68 (7.71-9.77)	9.60 (8.30-10.9)	16.8 (15.5-18.9)	27.8 (25.4-30.5)	43.2 (32.2-51.7)	645
Non-Hispanic White	11-12	11.8 (10.9-12.9)	12.5 (11.0-14.6)	23.8 (21.8-25.7)	39.9 (34.8-44.2)	55.8 (47.1-76.8)	813
Non-Hispanic White	13-14	9.81 (8.92-10.8)	10.3 (9.20-11.4)	19.3 (16.5-22.0)	34.1 (28.7-41.0)	49.1 (43.1-54.8)	987
Non-Hispanic White	15-16	8.07 (7.20-9.04)	8.40 (7.40-9.40)	15.5 (14.0-17.9)	25.7 (21.6-31.4)	39.3 (31.0-47.9)	862
Non-Hispanic White	17-18	6.89 (6.25-7.60)	7.30 (6.20-8.70)	12.9 (11.0-14.6)	20.2 (17.9-23.7)	32.0 (22.5-43.6)	906
All Hispanic	11-12	16.0 (14.0-18.2)	15.2 (12.9-18.2)	30.1 (24.5-37.8)	59.8 (50.0-68.9)	76.0 (70.2-104)	571
All Hispanic	13-14	13.1 (11.7-14.7)	13.4 (12.3-14.4)	23.1 (20.6-26.5)	41.6 (35.1-54.1)	63.5 (45.5-75.4)	690
All Hispanic	15-16	10.2 (9.16-11.3)	10.1 (9.10-11.5)	20.0 (16.9-22.1)	33.1 (29.3-37.4)	48.8 (38.8-59.4)	971
All Hispanic	17-18	8.28 (7.11-9.65)	8.40 (7.30-10.1)	15.8 (13.6-18.9)	29.7 (23.8-33.8)	40.9 (33.6-49.0)	663
Non-Hispanic Asian	11-12	12.0 (10.2-14.2)	11.7 (10.2-13.7)	23.6 (19.5-27.7)	51.1 (36.5-70.0)	80.5 (58.7-138)	352
Non-Hispanic Asian	13-14	9.01 (7.74-10.5)	9.20 (7.20-11.1)	16.5 (14.3-18.5)	27.3 (22.9-31.4)	39.4 (29.4-63.2)	289
Non-Hispanic Asian	15-16	9.47 (8.10-11.1)	9.90 (8.10-11.5)	19.4 (16.8-22.7)	41.2 (27.5-48.5)	58.3 (41.2-112)	301
Non-Hispanic Asian	17-18	6.89 (5.97-7.96)	6.70 (5.90-7.90)	15.3 (11.7-17.9)	29.4 (22.1-36.8)	42.1 (30.6-53.7)	366

Limit of detection (LOD, see Data Analysis section) for Survey years 11-12, 13-14, 15-16, and 17-18 are 0.2, 0.4, 0.4, and 0.4, respectively.

† Participants are age 6+ years in Surveys 11-12 and 13-14; beginning with Survey 15-16, participants include those age 3+ years.

Urinary Mono-(2-ethyl-5-carboxypentyl) phthalate (MECPP) (creatinine corrected) (2011 - 2018)†

CAS Number 40809-41-4

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.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	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
Total population	13-14	10.6 (9.68-11.6)	10.2 (9.32-11.0)	16.2 (14.5-18.2)	28.5 (25.3-32.0)	40.3 (35.2-46.0)	2684
Total population	15-16	9.14 (8.58-9.74)	8.50 (7.86-9.23)	14.0 (13.2-15.1)	24.3 (22.6-26.9)	39.1 (35.6-45.2)	2974
Total population	17-18	7.64 (7.26-8.03)	7.00 (6.76-7.30)	11.6 (11.1-12.2)	21.7 (18.4-24.9)	33.1 (28.8-38.3)	2762
Age 3-5 years	15-16	35.7 (32.9-38.7)	35.0 (30.8-39.2)	57.5 (50.2-64.1)	94.0 (78.2-111)	122 (98.0-152)	464
Age 3-5 years	17-18	27.6 (24.9-30.6)	26.7 (22.9-30.0)	41.7 (37.1-47.3)	65.5 (56.4-82.1)	94.0 (78.6-112)	379
Age 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
Age 6-11 years	13-14	23.0 (20.4-26.0)	21.1 (18.4-24.7)	33.8 (29.6-41.3)	64.7 (41.9-97.3)	97.3 (60.0-180)	409
Age 6-11 years	15-16	18.9 (17.5-20.4)	17.5 (16.6-19.1)	27.3 (24.5-31.6)	48.3 (35.6-57.5)	62.5 (57.0-78.9)	415
Age 6-11 years	17-18	16.1 (14.5-17.9)	16.5 (14.1-18.7)	26.0 (22.9-29.6)	39.4 (31.3-56.6)	57.3 (44.5-87.1)	330
Age 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
Age 12-19 years	13-14	11.0 (9.68-12.6)	10.2 (8.77-12.2)	16.9 (14.4-20.5)	28.9 (23.2-35.5)	40.7 (33.8-48.8)	462
Age 12-19 years	15-16	7.29 (6.63-8.00)	6.85 (6.09-7.31)	10.3 (8.92-12.9)	16.5 (14.0-19.8)	23.2 (16.2-31.0)	405
Age 12-19 years	17-18	6.64 (6.05-7.29)	6.37 (5.51-7.50)	10.9 (8.01-12.5)	15.1 (12.5-18.6)	18.6 (15.5-24.6)	353
Age 20+ years	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
Age 20+ years	13-14	9.65 (8.80-10.6)	9.62 (8.61-10.4)	14.5 (13.0-16.3)	24.4 (21.0-28.3)	34.2 (28.9-39.6)	1813
Age 20+ years	15-16	8.28 (7.72-8.87)	7.93 (7.39-8.55)	12.7 (11.9-13.4)	20.1 (17.8-22.2)	28.8 (23.1-36.2)	1690
Age 20+ years	17-18	6.79 (6.42-7.18)	6.43 (6.11-6.79)	10.0 (9.63-10.6)	15.7 (14.2-17.7)	24.4 (18.8-30.4)	1700
Male	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
Male	13-14	9.32 (8.50-10.2)	9.05 (8.18-9.88)	14.1 (12.6-15.5)	24.7 (21.0-29.0)	37.1 (33.8-41.9)	1284
Male	15-16	8.35 (7.51-9.28)	7.65 (6.79-8.72)	13.1 (11.8-14.8)	22.9 (20.1-27.0)	36.0 (30.8-46.6)	1474
Male	17-18	6.99 (6.57-7.44)	6.43 (6.11-6.90)	11.0 (9.81-11.9)	20.5 (17.0-25.1)	31.7 (27.3-37.3)	1363
Female	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
Female	13-14	11.9 (10.6-13.4)	11.4 (10.1-12.8)	18.2 (15.9-21.6)	30.1 (27.2-35.2)	42.5 (35.2-57.4)	1400
Female	15-16	9.98 (9.36-10.6)	9.47 (8.55-10.3)	14.6 (13.7-16.3)	26.4 (23.6-29.3)	39.5 (35.4-45.5)	1500
Female	17-18	8.31 (7.81-8.83)	7.50 (7.08-7.85)	12.1 (11.2-13.5)	22.2 (18.5-26.2)	35.0 (27.8-41.1)	1399
Mexican American	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
Mexican American	13-14	13.6 (12.1-15.3)	12.1 (11.3-13.6)	22.0 (17.3-27.4)	39.5 (30.0-51.6)	55.9 (41.5-66.7)	438
Mexican American	15-16	11.3 (10.4-12.3)	10.8 (9.69-12.0)	17.9 (16.0-19.3)	32.3 (27.3-41.0)	51.2 (41.9-63.8)	595
Mexican American	17-18	9.39 (8.13-10.8)	8.36 (7.23-10.0)	17.0 (13.0-23.4)	32.9 (26.3-43.7)	50.3 (39.5-63.1)	417
Non-Hispanic Black	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 Black	13-14	8.51 (7.48-9.68)	8.22 (7.07-9.65)	14.2 (12.1-16.4)	23.9 (20.9-27.1)	35.3 (27.3-41.6)	609
Non-Hispanic Black	15-16	8.51 (7.60-9.53)	7.81 (6.80-8.91)	14.3 (12.1-16.7)	25.7 (23.2-31.7)	45.2 (35.0-55.3)	697
Non-Hispanic Black	17-18	6.54 (6.11-7.00)	6.32 (5.73-6.78)	10.9 (9.28-12.3)	18.6 (16.9-22.2)	27.4 (22.2-34.8)	645
Non-Hispanic White	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
Non-Hispanic White	13-14	10.3 (9.23-11.6)	10.0 (9.02-11.1)	15.4 (13.0-18.6)	27.2 (21.6-32.0)	35.9 (30.0-48.2)	987
Non-Hispanic White	15-16	8.67 (8.02-9.38)	8.04 (7.48-8.82)	13.1 (11.9-14.1)	20.9 (18.1-26.5)	33.6 (27.9-39.5)	862
Non-Hispanic White	17-18	7.35 (6.91-7.81)	6.82 (6.30-7.14)	11.0 (10.3-11.4)	18.2 (15.3-22.4)	28.3 (22.3-36.8)	906
All Hispanic	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
All Hispanic	13-14	13.0 (12.0-14.1)	12.1 (11.3-12.9)	20.7 (17.7-23.8)	37.6 (30.9-42.5)	54.1 (42.5-64.4)	690
All Hispanic	15-16	10.7 (10.0-11.5)	10.1 (9.23-11.0)	17.6 (16.3-18.6)	31.7 (27.6-34.6)	48.3 (41.6-58.1)	971
All Hispanic	17-18	8.89 (8.01-9.87)	8.18 (7.27-9.28)	15.1 (12.8-17.1)	27.8 (24.2-32.3)	44.7 (34.5-50.7)	663
Non-Hispanic Asian	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
Non-Hispanic Asian	13-14	11.5 (10.3-12.8)	10.8 (8.94-12.1)	18.2 (15.1-20.9)	30.7 (27.2-38.0)	40.8 (32.2-65.0)	288
Non-Hispanic Asian	15-16	11.7 (10.2-13.5)	9.60 (8.53-10.8)	20.1 (16.2-22.9)	44.3 (26.5-60.0)	67.8 (45.2-107)	301
Non-Hispanic Asian	17-18	10.2 (8.63-12.0)	9.50 (8.20-10.6)	18.0 (14.6-22.4)	35.6 (24.2-49.7)	54.8 (35.2-92.2)	366

† Participants are age 6+ years in Surveys 11-12 and 13-14; beginning with Survey 15-16, participants include those age 3+ years.

Urinary Mono-(carboxynonyl) phthalate (MCNP) (2005 - 2010)

CAS Number 1373125-93-9

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.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	05-06	2.73 (2.50-2.98)	2.70 (2.40-3.00)	5.30 (4.80-5.90)	10.2 (8.80-11.9)	17.5 (14.0-21.4)	2548
Total population	07-08	2.42 (2.17-2.71)	2.40 (2.20-2.70)	4.70 (4.20-5.30)	9.20 (8.00-10.6)	16.1 (12.3-21.0)	2604
Total population	09-10	2.88 (2.58-3.22)	2.91 (2.51-3.26)	5.52 (4.83-6.30)	10.6 (9.14-12.6)	16.8 (13.9-22.1)	2749
Age 6-11 years	05-06	4.54 (3.94-5.24)	4.70 (4.00-5.60)	8.10 (6.80-9.60)	14.6 (10.8-19.1)	22.8 (16.7-35.3)	356
Age 6-11 years	07-08	3.15 (2.65-3.74)	3.40 (2.90-3.80)	5.40 (4.60-6.80)	9.10 (7.40-12.3)	14.9 (9.10-24.8)	389
Age 6-11 years	09-10	3.45 (2.95-4.03)	3.59 (3.04-4.34)	6.39 (5.39-7.41)	9.65 (8.75-11.2)	14.5 (10.4-23.2)	415
Age 12-19 years	05-06	3.18 (2.74-3.68)	3.30 (2.90-3.80)	6.00 (4.70-7.20)	10.3 (7.60-13.7)	16.5 (11.5-21.5)	702
Age 12-19 years	07-08	2.86 (2.59-3.16)	2.70 (2.40-2.90)	5.10 (4.30-5.70)	10.3 (8.90-13.0)	16.8 (10.7-32.4)	401
Age 12-19 years	09-10	3.02 (2.61-3.51)	3.05 (2.41-3.65)	5.11 (4.49-6.43)	11.0 (7.24-14.6)	16.9 (10.9-32.0)	420
Age 20+ years	05-06	2.51 (2.27-2.78)	2.40 (2.20-2.70)	4.90 (4.40-5.40)	9.50 (7.90-11.9)	17.0 (13.1-21.5)	1490
Age 20+ years	07-08	2.29 (2.04-2.58)	2.30 (2.00-2.50)	4.50 (4.00-5.10)	9.10 (7.60-10.7)	16.1 (12.2-21.4)	1814
Age 20+ years	09-10	2.81 (2.49-3.16)	2.80 (2.44-3.09)	5.52 (4.69-6.45)	10.7 (8.95-13.5)	17.3 (13.5-23.7)	1914
Male	05-06	3.16 (2.82-3.54)	3.00 (2.70-3.50)	5.90 (5.10-6.90)	11.0 (8.80-14.0)	19.5 (14.0-28.0)	1270
Male	07-08	2.75 (2.50-3.03)	2.60 (2.40-2.90)	5.10 (4.50-5.70)	9.50 (8.00-12.2)	19.4 (12.4-29.1)	1294
Male	09-10	3.14 (2.80-3.53)	3.11 (2.72-3.61)	5.75 (5.13-6.56)	10.4 (9.14-11.5)	15.1 (12.5-20.5)	1399
Female	05-06	2.37 (2.13-2.65)	2.30 (2.00-2.70)	4.80 (4.30-5.30)	9.30 (7.60-11.5)	14.7 (13.1-18.2)	1278
Female	07-08	2.14 (1.84-2.49)	2.20 (1.80-2.60)	4.40 (3.80-4.90)	9.00 (7.30-10.3)	14.1 (10.8-18.5)	1310
Female	09-10	2.66 (2.32-3.04)	2.60 (2.21-2.98)	5.21 (4.43-6.17)	11.6 (8.88-14.8)	17.5 (14.6-23.4)	1350
Mexican American	05-06	2.72 (2.40-3.08)	2.70 (2.40-3.20)	4.90 (4.30-5.70)	9.00 (7.00-12.4)	14.4 (9.00-26.8)	637
Mexican American	07-08	2.37 (2.15-2.62)	2.30 (2.10-2.60)	4.30 (3.70-5.10)	8.40 (6.50-10.5)	12.3 (8.40-16.2)	531
Mexican American	09-10	2.35 (2.15-2.57)	2.51 (2.18-2.69)	4.35 (3.83-4.83)	7.72 (6.56-9.53)	11.0 (8.09-14.1)	566
Non-Hispanic Black	05-06	3.18 (2.75-3.67)	3.20 (2.70-3.80)	5.90 (4.90-7.30)	13.0 (9.50-14.6)	19.2 (14.6-30.5)	678
Non-Hispanic Black	07-08	2.89 (2.64-3.17)	2.90 (2.50-3.10)	5.60 (4.80-6.20)	11.9 (9.10-15.4)	21.7 (17.9-28.9)	597
Non-Hispanic Black	09-10	3.51 (2.92-4.22)	3.64 (2.97-4.24)	6.94 (5.75-8.47)	13.2 (10.2-17.5)	20.8 (13.5-41.7)	516
Non-Hispanic White	05-06	2.67 (2.39-2.98)	2.60 (2.30-2.90)	5.30 (4.70-6.10)	10.1 (8.20-12.6)	17.6 (12.6-24.3)	1038
Non-Hispanic White	07-08	2.42 (2.09-2.81)	2.40 (2.10-2.70)	4.70 (4.10-5.60)	9.10 (7.60-11.6)	14.9 (10.5-29.1)	1077
Non-Hispanic White	09-10	2.98 (2.61-3.40)	2.96 (2.53-3.48)	5.59 (4.78-6.57)	10.7 (8.83-14.3)	16.6 (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.

Urinary Mono-(carboxynonyl) phthalate (MCNP) (creatinine corrected) (2005 - 2010)

CAS Number 1373125-93-9

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.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	05-06	2.66 (2.43-2.91)	2.48 (2.29-2.71)	4.48 (4.05-4.85)	8.67 (7.17-9.71)	13.2 (10.8-17.5)	2548
Total population	07-08	2.44 (2.25-2.65)	2.21 (2.00-2.36)	4.00 (3.68-4.44)	8.31 (6.96-9.04)	12.8 (11.2-15.1)	2604
Total population	09-10	3.01 (2.74-3.31)	2.79 (2.48-3.10)	5.04 (4.47-5.66)	9.76 (8.41-11.2)	15.5 (12.8-18.9)	2749
Age 6-11 years	05-06	5.00 (4.45-5.63)	5.06 (4.18-5.76)	7.48 (6.70-8.84)	16.1 (12.5-18.9)	23.5 (16.1-31.7)	356
Age 6-11 years	07-08	3.88 (3.34-4.50)	3.82 (3.17-4.18)	6.07 (5.14-7.00)	11.2 (9.01-13.6)	18.2 (12.6-27.0)	389
Age 6-11 years	09-10	4.49 (4.01-5.03)	4.33 (3.95-4.82)	7.30 (6.41-8.54)	11.2 (9.74-13.6)	14.9 (12.7-23.1)	415
Age 12-19 years	05-06	2.37 (2.04-2.75)	2.18 (1.91-2.52)	3.64 (2.94-4.55)	6.26 (5.15-8.70)	10.7 (7.57-14.1)	702
Age 12-19 years	07-08	2.23 (2.07-2.40)	1.96 (1.83-2.08)	3.68 (3.08-3.83)	6.39 (4.88-9.01)	10.0 (7.26-13.5)	401
Age 12-19 years	09-10	2.43 (2.10-2.81)	2.17 (1.79-2.54)	3.94 (3.23-4.87)	7.67 (5.32-11.2)	12.8 (8.43-14.4)	420
Age 20+ years	05-06	2.52 (2.29-2.78)	2.37 (2.14-2.57)	4.05 (3.77-4.51)	7.90 (6.46-9.40)	12.0 (9.71-16.7)	1490
Age 20+ years	07-08	2.36 (2.15-2.58)	2.14 (1.91-2.32)	3.88 (3.44-4.29)	8.21 (6.67-9.00)	12.3 (11.0-15.3)	1814
Age 20+ years	09-10	2.97 (2.69-3.29)	2.72 (2.43-3.03)	4.93 (4.32-5.62)	9.68 (7.90-11.6)	15.6 (11.9-22.5)	1914
Male	05-06	2.53 (2.28-2.82)	2.36 (2.14-2.56)	4.38 (3.74-5.04)	7.41 (6.47-8.88)	13.0 (9.40-19.6)	1270
Male	07-08	2.32 (2.11-2.55)	2.12 (1.90-2.32)	3.88 (3.50-4.29)	7.13 (5.78-9.15)	11.4 (9.68-15.5)	1294
Male	09-10	2.82 (2.55-3.12)	2.56 (2.28-2.96)	4.73 (4.19-5.49)	8.68 (7.21-10.2)	13.4 (11.2-15.4)	1399
Female	05-06	2.79 (2.47-3.15)	2.65 (2.34-2.95)	4.51 (4.03-5.15)	9.41 (6.82-11.6)	13.5 (10.7-19.7)	1278
Female	07-08	2.57 (2.33-2.83)	2.27 (2.03-2.57)	4.13 (3.78-4.82)	8.71 (7.41-9.50)	13.5 (12.0-16.0)	1310
Female	09-10	3.20 (2.88-3.57)	2.98 (2.72-3.28)	5.40 (4.70-6.23)	10.6 (8.39-13.8)	16.9 (12.5-27.3)	1350
Mexican American	05-06	2.45 (2.13-2.81)	2.32 (2.14-2.60)	4.04 (3.64-4.58)	6.96 (5.73-8.14)	11.0 (7.89-19.1)	637
Mexican American	07-08	2.32 (2.10-2.56)	2.10 (1.90-2.34)	4.12 (3.54-4.68)	6.89 (5.73-7.67)	9.75 (7.69-11.7)	531
Mexican American	09-10	2.33 (2.08-2.62)	2.12 (1.80-2.66)	3.80 (3.27-4.58)	7.02 (5.44-9.66)	11.3 (8.09-13.0)	566
Non-Hispanic Black	05-06	2.24 (1.96-2.55)	1.97 (1.78-2.37)	3.60 (3.25-4.24)	7.82 (6.38-10.4)	12.1 (10.1-17.4)	678
Non-Hispanic Black	07-08	2.25 (2.05-2.47)	2.00 (1.88-2.17)	3.88 (3.50-4.27)	8.18 (6.25-10.4)	14.9 (9.31-20.4)	597
Non-Hispanic Black	09-10	2.54 (2.24-2.88)	2.46 (2.02-2.96)	4.52 (4.20-5.13)	8.51 (6.35-10.9)	11.3 (9.81-16.0)	516
Non-Hispanic White	05-06	2.81 (2.51-3.14)	2.57 (2.33-2.85)	4.62 (4.10-5.19)	9.26 (7.00-10.8)	13.5 (10.3-23.5)	1038
Non-Hispanic White	07-08	2.53 (2.23-2.86)	2.26 (1.98-2.57)	4.11 (3.66-4.70)	8.51 (6.59-10.2)	13.3 (10.7-17.6)	1077
Non-Hispanic White	09-10	3.35 (2.98-3.77)	3.06 (2.76-3.36)	5.51 (4.74-6.35)	10.4 (8.43-13.5)	15.8 (12.3-24.8)	1206

Urinary Mono-(carboxyisononyl) phthalate (MCNP) (2011 - 2018)†

CAS Number 1373125-93-9 (refers to one of the potential isomers of MCNP)

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.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	11-12	2.49 (2.31-2.68)	2.40 (2.10-2.60)	4.60 (4.20-5.30)	8.90 (8.00-10.6)	15.2 (11.4-20.0)	2489
Total population	13-14	2.81 (2.56-3.10)	2.70 (2.50-2.90)	5.60 (5.00-6.00)	11.1 (9.60-12.5)	17.4 (15.4-20.1)	2685
Total population	15-16	1.75 (1.57-1.95)	1.80 (1.60-2.00)	3.30 (2.90-3.60)	6.00 (5.10-7.20)	9.90 (7.60-12.4)	2975
Total population	17-18	1.25 (1.15-1.36)	1.20 (1.10-1.30)	2.30 (2.10-2.50)	4.00 (3.80-4.60)	6.70 (5.20-9.20)	2762
Age 3-5 years	15-16	2.07 (1.86-2.30)	2.10 (1.80-2.30)	3.50 (3.20-3.90)	7.00 (5.80-8.20)	11.3 (8.20-15.2)	465
Age 3-5 years	17-18	1.69 (1.49-1.90)	1.60 (1.30-1.90)	3.00 (2.30-3.50)	6.10 (4.20-7.90)	11.0 (6.50-14.5)	379
Age 6-11 years	11-12	2.51 (2.15-2.93)	2.70 (2.00-3.00)	4.50 (3.80-5.40)	7.60 (6.60-8.90)	12.9 (7.90-15.4)	396
Age 6-11 years	13-14	3.63 (3.21-4.10)	3.50 (2.90-4.20)	6.60 (5.50-7.90)	11.6 (8.80-16.3)	17.6 (11.6-28.5)	409
Age 6-11 years	15-16	2.26 (1.99-2.57)	2.40 (2.00-2.80)	3.90 (3.40-4.50)	6.70 (5.90-8.00)	9.00 (7.50-12.4)	415
Age 6-11 years	17-18	1.92 (1.51-2.43)	1.80 (1.50-2.10)	3.10 (2.40-4.00)	5.20 (4.00-10.9)	15.4 (4.20-43.8)	330
Age 12-19 years	11-12	2.65 (2.24-3.13)	2.50 (2.20-3.00)	5.00 (4.00-6.30)	9.10 (7.70-10.5)	12.2 (10.3-18.0)	388
Age 12-19 years	13-14	3.25 (2.81-3.75)	2.90 (2.70-3.50)	5.60 (4.60-7.10)	11.2 (8.30-14.7)	16.7 (12.7-22.5)	462
Age 12-19 years	15-16	2.18 (1.86-2.54)	2.30 (1.90-2.60)	3.70 (3.20-4.00)	6.10 (4.90-7.80)	10.5 (6.90-14.6)	405
Age 12-19 years	17-18	1.43 (1.19-1.71)	1.30 (1.20-1.60)	2.50 (2.10-3.40)	5.00 (3.40-8.60)	8.60 (4.70-41.7)	353
Age 20+ years	11-12	2.46 (2.24-2.71)	2.30 (2.10-2.60)	4.60 (4.10-5.30)	9.00 (7.70-11.4)	16.9 (11.4-22.2)	1705
Age 20+ years	13-14	2.68 (2.41-2.98)	2.60 (2.30-2.80)	5.40 (4.70-6.00)	10.7 (9.00-12.6)	17.5 (15.0-21.1)	1814
Age 20+ years	15-16	1.63 (1.45-1.84)	1.60 (1.40-1.90)	3.00 (2.70-3.50)	5.70 (4.70-7.80)	10.0 (7.00-12.9)	1690
Age 20+ years	17-18	1.16 (1.06-1.28)	1.20 (1.10-1.30)	2.10 (1.90-2.40)	3.90 (3.40-4.30)	5.70 (4.40-7.90)	1700
Male	11-12	2.81 (2.52-3.14)	2.60 (2.30-3.10)	5.40 (4.60-6.20)	9.80 (8.10-14.3)	18.8 (10.7-22.9)	1259
Male	13-14	3.14 (2.80-3.53)	3.00 (2.70-3.30)	6.00 (5.10-6.80)	11.8 (10.4-14.2)	18.9 (15.5-23.0)	1285
Male	15-16	1.92 (1.66-2.22)	2.00 (1.70-2.30)	3.50 (3.10-3.80)	6.40 (5.30-8.60)	11.0 (8.00-12.9)	1474
Male	17-18	1.35 (1.18-1.53)	1.20 (1.20-1.40)	2.40 (2.20-2.60)	4.50 (3.80-6.20)	8.40 (4.80-14.2)	1363
Female	11-12	2.21 (2.03-2.40)	2.20 (1.90-2.40)	4.10 (3.70-4.60)	8.50 (7.70-9.90)	12.0 (10.8-13.7)	1230
Female	13-14	2.53 (2.24-2.85)	2.50 (2.10-2.80)	5.10 (4.40-5.70)	9.80 (8.50-11.7)	16.0 (12.8-20.4)	1400
Female	15-16	1.59 (1.41-1.80)	1.60 (1.40-1.90)	3.00 (2.60-3.30)	5.60 (4.40-7.20)	8.90 (6.40-15.2)	1501
Female	17-18	1.17 (1.06-1.30)	1.20 (1.00-1.40)	2.10 (1.90-2.50)	3.90 (3.20-4.30)	5.40 (4.00-7.90)	1399
Mexican American	11-12	2.22 (1.87-2.64)	2.10 (1.70-2.30)	3.70 (3.10-4.30)	7.20 (4.80-11.0)	17.8 (7.90-28.5)	316
Mexican American	13-14	2.48 (2.18-2.83)	2.50 (2.20-2.90)	4.30 (3.70-5.00)	7.50 (6.30-8.90)	10.2 (8.30-15.5)	438
Mexican American	15-16	1.64 (1.47-1.83)	1.70 (1.50-1.90)	2.90 (2.50-3.30)	5.10 (4.40-5.90)	6.80 (6.20-8.10)	595
Mexican American	17-18	1.10 (.918-1.33)	1.20 (1.00-1.40)	2.00 (1.60-2.30)	3.30 (2.70-3.60)	4.00 (3.50-5.00)	417
Non-Hispanic Black	11-12	3.02 (2.82-3.25)	2.90 (2.70-3.20)	6.00 (5.00-7.20)	10.2 (8.90-12.5)	17.3 (12.5-21.0)	665
Non-Hispanic Black	13-14	3.05 (2.77-3.36)	2.90 (2.60-3.20)	5.60 (4.50-6.60)	10.9 (9.50-11.9)	16.7 (11.7-21.5)	609
Non-Hispanic Black	15-16	2.21 (1.84-2.67)	2.10 (1.60-2.70)	4.40 (3.50-5.40)	8.80 (7.10-10.0)	14.6 (10.0-18.3)	698
Non-Hispanic Black	17-18	1.54 (1.34-1.77)	1.50 (1.30-1.80)	2.70 (2.40-3.00)	5.60 (4.60-6.70)	9.50 (7.10-12.7)	645
Non-Hispanic White	11-12	2.55 (2.31-2.82)	2.50 (2.10-2.80)	4.80 (4.10-5.60)	9.00 (7.70-11.4)	15.2 (10.3-20.8)	813
Non-Hispanic White	13-14	2.88 (2.55-3.25)	2.80 (2.50-3.00)	5.70 (4.90-6.50)	11.4 (9.30-13.8)	17.1 (15.4-20.1)	987
Non-Hispanic White	15-16	1.76 (1.54-2.00)	1.80 (1.50-2.10)	3.30 (2.90-3.60)	6.00 (5.00-8.10)	10.5 (7.20-13.1)	862
Non-Hispanic White	17-18	1.29 (1.14-1.46)	1.20 (1.10-1.40)	2.40 (2.00-2.70)	4.00 (3.70-4.70)	6.60 (4.70-10.5)	906
All Hispanic	11-12	2.27 (2.04-2.53)	2.10 (1.80-2.40)	3.80 (3.40-4.50)	7.90 (6.30-10.4)	16.1 (10.8-21.0)	571
All Hispanic	13-14	2.65 (2.38-2.95)	2.60 (2.30-2.90)	4.90 (4.30-5.40)	8.90 (7.70-11.0)	15.0 (11.0-21.1)	690
All Hispanic	15-16	1.66 (1.48-1.85)	1.70 (1.50-1.90)	3.00 (2.70-3.50)	5.10 (4.50-5.70)	6.70 (6.20-7.40)	971
All Hispanic	17-18	1.22 (1.05-1.42)	1.30 (1.10-1.50)	2.20 (2.00-2.40)	4.00 (3.50-4.40)	6.00 (4.60-13.3)	663
Non-Hispanic Asian	11-12	1.56 (1.33-1.83)	1.40 (1.20-1.50)	2.90 (2.30-4.10)	7.30 (5.90-8.50)	11.2 (8.10-20.0)	352
Non-Hispanic Asian	13-14	1.82 (1.54-2.15)	1.70 (1.40-2.00)	3.80 (2.80-4.50)	7.10 (5.00-14.0)	14.0 (7.10-29.2)	289
Non-Hispanic Asian	15-16	1.13 (.917-1.39)	1.10 (.900-1.50)	2.20 (1.90-2.80)	4.60 (2.70-7.80)	7.80 (3.90-19.6)	301
Non-Hispanic Asian	17-18	.682 (.594-.784)	.700 (.600-.800)	1.20 (1.10-1.60)	2.60 (1.90-4.10)	4.20 (2.60-5.40)	366

Limit of detection (LOD, see Data Analysis section) for Survey years 11-12, 13-14, 15-16, and 17-18 are 0.2, 0.2, 0.2, and 0.2, respectively.

† Participants are age 6+ years in Surveys 11-12 and 13-14; beginning with Survey 15-16, participants include those age 3+ years.

Urinary Mono-(carboxyisononyl) phthalate (MCNP) (creatinine corrected) (2011 - 2018)†

CAS Number 1373125-93-9 (refers to one of the potential isomers of MCNP)

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.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	11-12	2.83 (2.57-3.11)	2.50 (2.28-2.80)	4.59 (4.13-5.29)	9.36 (7.85-11.1)	14.6 (11.9-16.8)	2487
Total population	13-14	2.82 (2.65-3.00)	2.62 (2.45-2.83)	4.60 (4.29-5.12)	8.85 (8.01-10.0)	14.4 (12.9-16.0)	2684
Total population	15-16	1.81 (1.67-1.96)	1.73 (1.54-1.88)	2.96 (2.69-3.30)	5.17 (4.63-5.86)	8.33 (6.73-9.60)	2974
Total population	17-18	1.31 (1.23-1.39)	1.20 (1.14-1.30)	2.03 (1.94-2.20)	3.64 (3.36-3.96)	5.81 (4.95-7.31)	2762
Age 3-5 years	15-16	4.94 (4.53-5.38)	4.70 (4.17-5.28)	7.54 (6.82-8.40)	12.6 (10.4-16.1)	20.0 (15.6-23.7)	464
Age 3-5 years	17-18	3.66 (3.26-4.11)	3.33 (2.86-3.72)	5.07 (4.38-6.58)	8.98 (7.50-12.5)	18.1 (9.13-25.4)	379
Age 6-11 years	11-12	3.55 (3.13-4.03)	3.16 (2.73-3.94)	5.25 (4.55-6.45)	9.15 (6.64-14.3)	14.7 (10.0-16.8)	395
Age 6-11 years	13-14	4.59 (4.06-5.18)	4.33 (3.69-4.75)	7.33 (5.75-8.95)	13.1 (8.40-17.7)	18.9 (13.1-31.1)	409
Age 6-11 years	15-16	2.92 (2.65-3.21)	2.75 (2.50-3.04)	4.46 (3.78-5.10)	6.67 (5.94-8.30)	9.51 (7.02-14.8)	415
Age 6-11 years	17-18	2.23 (1.79-2.78)	2.11 (1.72-2.45)	3.27 (2.58-3.88)	5.32 (3.80-7.72)	9.75 (5.12-65.4)	330
Age 12-19 years	11-12	2.58 (2.16-3.09)	2.34 (1.96-3.04)	4.67 (3.38-6.13)	7.74 (5.97-11.3)	12.0 (7.74-15.6)	388
Age 12-19 years	13-14	2.64 (2.38-2.91)	2.43 (2.07-2.79)	4.02 (3.57-4.79)	7.73 (5.73-9.22)	12.0 (8.10-19.0)	462
Age 12-19 years	15-16	1.69 (1.54-1.86)	1.58 (1.32-1.82)	2.59 (2.21-2.96)	4.61 (4.15-5.65)	6.24 (5.37-9.62)	405
Age 12-19 years	17-18	1.23 (1.03-1.48)	1.11 (1.02-1.29)	1.91 (1.48-2.50)	3.51 (2.11-5.00)	4.12 (3.51-21.4)	353
Age 20+ years	11-12	2.79 (2.51-3.10)	2.43 (2.21-2.77)	4.46 (4.02-5.27)	9.73 (7.85-11.7)	14.9 (11.8-17.5)	1704
Age 20+ years	13-14	2.70 (2.50-2.91)	2.52 (2.34-2.78)	4.38 (3.93-5.00)	8.62 (7.62-9.77)	14.0 (12.2-15.4)	1813
Age 20+ years	15-16	1.67 (1.53-1.81)	1.55 (1.37-1.77)	2.71 (2.42-3.00)	4.62 (3.88-5.41)	7.44 (5.68-9.61)	1690
Age 20+ years	17-18	1.19 (1.12-1.26)	1.12 (1.05-1.19)	1.82 (1.75-1.94)	3.14 (2.65-3.67)	4.95 (3.93-5.91)	1700
Male	11-12	2.63 (2.42-2.86)	2.37 (2.17-2.54)	4.43 (3.83-4.92)	8.49 (6.61-10.0)	12.5 (9.58-15.5)	1258
Male	13-14	2.64 (2.43-2.87)	2.49 (2.32-2.75)	4.20 (3.79-5.00)	8.20 (7.50-9.77)	13.5 (11.2-17.4)	1284
Male	15-16	1.71 (1.53-1.92)	1.61 (1.41-1.82)	2.76 (2.40-3.40)	5.00 (4.43-5.68)	6.96 (5.86-8.89)	1474
Male	17-18	1.20 (1.07-1.34)	1.10 (1.02-1.22)	1.86 (1.67-2.18)	3.63 (2.93-4.44)	5.91 (4.67-7.54)	1363
Female	11-12	3.03 (2.65-3.46)	2.70 (2.30-3.21)	4.82 (4.18-5.80)	10.7 (8.66-12.1)	15.6 (12.3-17.6)	1229
Female	13-14	3.00 (2.72-3.31)	2.74 (2.47-3.06)	5.16 (4.51-5.69)	9.60 (8.10-11.7)	15.4 (12.7-17.7)	1400
Female	15-16	1.90 (1.73-2.10)	1.80 (1.61-1.97)	3.06 (2.75-3.40)	5.50 (4.62-6.60)	9.62 (7.37-12.7)	1500
Female	17-18	1.43 (1.31-1.55)	1.31 (1.19-1.46)	2.22 (2.00-2.46)	3.64 (3.29-4.26)	5.80 (4.47-7.31)	1399
Mexican American	11-12	2.50 (2.21-2.83)	2.18 (2.02-2.42)	3.73 (3.00-4.38)	8.00 (5.46-10.7)	13.2 (8.49-18.8)	316
Mexican American	13-14	2.53 (2.32-2.76)	2.39 (2.31-2.58)	3.75 (3.51-4.13)	6.80 (5.61-7.89)	9.44 (7.65-11.5)	438
Mexican American	15-16	1.79 (1.61-1.99)	1.71 (1.47-1.95)	2.76 (2.56-2.97)	4.92 (4.16-6.04)	7.27 (6.00-9.33)	595
Mexican American	17-18	1.20 (1.05-1.37)	1.21 (1.06-1.35)	1.94 (1.75-2.13)	3.23 (2.75-3.67)	4.31 (3.58-6.05)	417
Non-Hispanic Black	11-12	2.35 (2.19-2.53)	2.20 (2.06-2.39)	3.99 (3.56-4.38)	6.95 (6.17-8.18)	12.1 (9.30-15.7)	665
Non-Hispanic Black	13-14	2.25 (2.11-2.41)	2.10 (1.93-2.37)	3.68 (3.26-4.29)	7.27 (6.21-8.16)	11.6 (8.69-15.3)	609
Non-Hispanic Black	15-16	1.76 (1.57-1.98)	1.64 (1.44-1.88)	3.11 (2.61-3.71)	5.68 (5.07-6.87)	9.68 (8.33-11.8)	697
Non-Hispanic Black	17-18	1.16 (1.05-1.29)	1.04 (.964-1.16)	1.91 (1.67-2.14)	3.85 (3.31-4.44)	6.28 (4.44-8.12)	645
Non-Hispanic White	11-12	3.09 (2.75-3.47)	2.75 (2.36-3.25)	5.05 (4.35-5.89)	10.4 (8.08-12.3)	15.3 (11.9-17.6)	811
Non-Hispanic White	13-14	3.03 (2.80-3.28)	2.86 (2.61-3.08)	5.07 (4.43-5.65)	9.51 (8.19-11.1)	15.4 (12.5-17.7)	987
Non-Hispanic White	15-16	1.89 (1.72-2.07)	1.79 (1.56-1.94)	3.04 (2.64-3.46)	5.29 (4.46-6.34)	8.99 (6.40-10.4)	862
Non-Hispanic White	17-18	1.37 (1.26-1.49)	1.22 (1.13-1.36)	2.04 (1.92-2.25)	3.57 (3.29-4.02)	5.83 (4.78-8.18)	906
All Hispanic	11-12	2.54 (2.37-2.73)	2.25 (2.06-2.42)	3.92 (3.54-4.41)	8.20 (6.72-9.71)	13.9 (10.0-16.8)	571
All Hispanic	13-14	2.63 (2.45-2.82)	2.47 (2.37-2.60)	4.01 (3.70-4.57)	7.50 (6.78-8.85)	11.5 (8.85-14.1)	690
All Hispanic	15-16	1.75 (1.58-1.93)	1.71 (1.44-1.94)	2.80 (2.58-3.13)	4.82 (4.02-5.67)	6.69 (5.90-7.66)	971
All Hispanic	17-18	1.31 (1.16-1.48)	1.32 (1.18-1.43)	2.13 (1.85-2.37)	3.70 (3.24-4.24)	6.34 (4.38-7.69)	663
Non-Hispanic Asian	11-12	2.09 (1.76-2.49)	1.95 (1.70-2.19)	3.75 (3.04-4.44)	6.36 (5.53-7.89)	9.02 (7.50-17.9)	352
Non-Hispanic Asian	13-14	2.29 (1.97-2.67)	1.91 (1.69-2.27)	4.10 (3.24-5.38)	8.89 (5.46-19.2)	19.2 (8.50-41.1)	288
Non-Hispanic Asian	15-16	1.40 (1.23-1.59)	1.25 (1.07-1.53)	2.35 (1.94-2.75)	4.90 (3.10-7.70)	7.70 (5.17-12.7)	301
Non-Hispanic Asian	17-18	1.01 (.860-1.18)	.957 (.822-1.04)	1.74 (1.27-2.17)	3.50 (2.46-4.13)	4.94 (3.87-6.45)	366

† Participants are age 6+ years in Surveys 11-12 and 13-14; beginning with Survey 15-16, participants include those age 3+ years.

Urinary Mono-isononyl phthalate (MiNP) (1999 - 2010)

CAS Number 297182-83-3

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.**

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	99-00	*	<LOD	<LOD	<LOD	5.39 (<LOD-21.3)	2541
Total population	01-02	*	<LOD	<LOD	<LOD	<LOD	2782
Total population	03-04	*	<LOD	<LOD	<LOD	1.54 (<LOD-2.00)	2605
Total population	05-06	*	<LOD	<LOD	1.69 (<LOD-2.00)	3.54 (2.31-6.16)	2548
Total population	07-08	*	<LOD	<LOD	1.54 (<LOD-1.69)	3.08 (2.16-4.16)	2604
Total population	09-10	*	<LOD	1.80 (1.49-2.13)	5.62 (4.48-7.28)	14.6 (10.7-18.3)	2749
Age 6-11 years	99-00	*	<LOD	<LOD	<LOD	9.55 (<LOD-34.7)	328
Age 6-11 years	01-02	*	<LOD	<LOD	<LOD	<LOD	393
Age 6-11 years	03-04	*	<LOD	<LOD	1.54 (<LOD-2.31)	2.62 (1.85-4.77)	342
Age 6-11 years	05-06	*	<LOD	<LOD	1.69 (<LOD-2.00)	2.16 (2.00-2.62)	356
Age 6-11 years	07-08	*	<LOD	<LOD	1.39 (<LOD-2.00)	2.16 (1.54-3.85)	389
Age 6-11 years	09-10	*	<LOD	1.72 (1.09-2.94)	5.30 (3.08-8.98)	13.1 (5.33-21.5)	415
Age 12-19 years	99-00	*	<LOD	<LOD	<LOD	3.54 (<LOD-31.3)	752
Age 12-19 years	01-02	*	<LOD	<LOD	<LOD	1.39 (<LOD-1.69)	742
Age 12-19 years	03-04	*	<LOD	<LOD	<LOD	2.16 (<LOD-2.77)	729
Age 12-19 years	05-06	*	<LOD	<LOD	2.16 (<LOD-4.31)	5.39 (2.00-12.2)	702
Age 12-19 years	07-08	*	<LOD	<LOD	2.46 (1.39-5.39)	5.54 (2.46-8.01)	401
Age 12-19 years	09-10	*	<LOD	2.20 (1.42-3.96)	10.7 (4.87-17.1)	20.6 (14.8-36.1)	420
Age 20+ years	99-00	*	<LOD	<LOD	<LOD	4.77 (<LOD-20.3)	1461
Age 20+ years	01-02	*	<LOD	<LOD	<LOD	<LOD	1647
Age 20+ years	03-04	*	<LOD	<LOD	<LOD	<LOD	1534
Age 20+ years	05-06	*	<LOD	<LOD	1.54 (<LOD-2.00)	3.54 (2.16-6.47)	1490
Age 20+ years	07-08	*	<LOD	<LOD	1.39 (<LOD-1.69)	2.77 (1.85-3.85)	1814
Age 20+ years	09-10	*	<LOD	1.76 (1.43-2.11)	5.44 (4.31-6.64)	12.9 (8.32-17.9)	1914
Male	99-00	*	<LOD	<LOD	<LOD	7.55 (<LOD-29.1)	1215
Male	01-02	*	<LOD	<LOD	<LOD	<LOD	1371
Male	03-04	*	<LOD	<LOD	<LOD	1.54 (<LOD-2.77)	1250
Male	05-06	*	<LOD	<LOD	2.00 (1.39-2.93)	4.00 (3.23-6.31)	1270
Male	07-08	*	<LOD	<LOD	1.54 (<LOD-2.16)	3.23 (2.31-4.93)	1294
Male	09-10	*	<LOD	2.06 (1.74-2.68)	7.19 (5.62-10.5)	17.1 (11.7-27.6)	1399
Female	99-00	*	<LOD	<LOD	<LOD	3.85 (<LOD-10.5)	1326
Female	01-02	*	<LOD	<LOD	<LOD	1.39 (<LOD-1.69)	1411
Female	03-04	*	<LOD	<LOD	<LOD	<LOD	1355
Female	05-06	*	<LOD	<LOD	1.39 (<LOD-1.54)	2.62 (1.85-4.31)	1278
Female	07-08	*	<LOD	<LOD	1.39 (<LOD-1.69)	2.77 (2.00-3.70)	1310
Female	09-10	*	<LOD	1.52 (1.12-1.91)	4.70 (3.80-5.47)	12.3 (6.61-16.5)	1350
Mexican American	99-00	*	<LOD	<LOD	<LOD	2.31 (<LOD-4.31)	814
Mexican American	01-02	*	<LOD	<LOD	<LOD	1.54 (<LOD-2.16)	677
Mexican American	03-04	*	<LOD	<LOD	<LOD	<LOD	652
Mexican American	05-06	*	<LOD	<LOD	1.54 (<LOD-2.00)	4.31 (2.00-8.62)	637
Mexican American	07-08	*	<LOD	<LOD	1.39 (<LOD-2.93)	3.08 (2.00-3.85)	531
Mexican American	09-10	*	<LOD	1.52 (1.19-1.91)	5.11 (3.77-7.67)	12.9 (6.27-22.2)	566
Non-Hispanic Black	99-00	*	<LOD	<LOD	3.54 (<LOD-21.3)	10.5 (<LOD-46.5)	603
Non-Hispanic Black	01-02	*	<LOD	<LOD	<LOD	1.54 (<LOD-2.62)	703
Non-Hispanic Black	03-04	*	<LOD	<LOD	<LOD	2.00 (1.54-3.08)	699
Non-Hispanic Black	05-06	*	<LOD	<LOD	2.00 (1.54-2.77)	5.70 (3.54-8.62)	678
Non-Hispanic Black	07-08	*	<LOD	<LOD	1.69 (<LOD-2.31)	3.70 (2.16-5.70)	597
Non-Hispanic Black	09-10	*	<LOD	2.14 (1.79-2.56)	6.05 (4.48-10.5)	17.1 (8.32-21.9)	516
Non-Hispanic White	99-00	*	<LOD	<LOD	<LOD	5.39 (<LOD-24.6)	912

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Non-Hispanic White	01-02	*	<LOD	<LOD	<LOD	<LOD	1216
Non-Hispanic White	03-04	*	<LOD	<LOD	<LOD	<LOD	1088
Non-Hispanic White	05-06	*	<LOD	<LOD	1.54 (<LOD-2.16)	3.23 (1.85-6.47)	1038
Non-Hispanic White	07-08	*	<LOD	<LOD	1.39 (<LOD-2.00)	2.77 (1.69-4.93)	1077
Non-Hispanic White	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

Urinary Mono-isononyl phthalate (MiNP) (creatinine corrected) (1999 - 2010)

CAS Number 297182-83-3

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.**

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	99-00	*	<LOD	<LOD	<LOD	6.61 (<LOD-12.8)	2541
Total population	01-02	*	<LOD	<LOD	<LOD	<LOD	2782
Total population	03-04	*	<LOD	<LOD	<LOD	4.50 (<LOD-4.90)	2605
Total population	05-06	*	<LOD	<LOD	3.20 (<LOD-3.82)	5.16 (3.99-5.67)	2548
Total population	07-08	*	<LOD	<LOD	3.35 (<LOD-3.96)	5.05 (4.15-6.22)	2604
Total population	09-10	*	<LOD	2.16 (1.91-2.41)	5.40 (4.21-7.00)	11.8 (9.59-14.2)	2749
Age 6-11 years	99-00	*	<LOD	<LOD	<LOD	9.24 (<LOD-21.9)	328
Age 6-11 years	01-02	*	<LOD	<LOD	<LOD	<LOD	393
Age 6-11 years	03-04	*	<LOD	<LOD	3.71 (<LOD-4.82)	5.04 (3.71-7.19)	342
Age 6-11 years	05-06	*	<LOD	<LOD	2.37 (<LOD-2.93)	3.03 (2.54-5.16)	356
Age 6-11 years	07-08	*	<LOD	<LOD	3.35 (<LOD-5.33)	5.33 (3.11-7.26)	389
Age 6-11 years	09-10	*	<LOD	2.53 (1.93-3.09)	6.61 (3.77-9.73)	10.7 (6.70-21.7)	415
Age 12-19 years	99-00	*	<LOD	<LOD	<LOD	3.08 (<LOD-11.8)	752
Age 12-19 years	01-02	*	<LOD	<LOD	<LOD	3.19 (<LOD-5.13)	742
Age 12-19 years	03-04	*	<LOD	<LOD	<LOD	3.03 (<LOD-3.99)	729
Age 12-19 years	05-06	*	<LOD	<LOD	2.66 (<LOD-3.59)	3.99 (2.97-5.28)	702
Age 12-19 years	07-08	*	<LOD	<LOD	2.56 (2.10-3.23)	3.68 (2.90-6.84)	401
Age 12-19 years	09-10	*	<LOD	2.14 (1.40-3.40)	7.58 (4.06-11.2)	13.2 (10.2-23.4)	420
Age 20+ years	99-00	*	<LOD	<LOD	<LOD	7.11 (<LOD-12.4)	1461
Age 20+ years	01-02	*	<LOD	<LOD	<LOD	<LOD	1647
Age 20+ years	03-04	*	<LOD	<LOD	<LOD	<LOD	1534
Age 20+ years	05-06	*	<LOD	<LOD	3.37 (<LOD-4.19)	5.17 (4.17-6.11)	1490
Age 20+ years	07-08	*	<LOD	<LOD	3.48 (<LOD-4.15)	5.45 (4.15-6.39)	1814
Age 20+ years	09-10	*	<LOD	2.12 (1.86-2.35)	5.00 (3.91-6.67)	11.7 (8.29-14.5)	1914
Male	99-00	*	<LOD	<LOD	<LOD	6.53 (<LOD-15.7)	1215
Male	01-02	*	<LOD	<LOD	<LOD	<LOD	1371
Male	03-04	*	<LOD	<LOD	<LOD	3.56 (<LOD-4.54)	1250
Male	05-06	*	<LOD	<LOD	2.51 (1.96-3.51)	3.99 (2.79-5.61)	1270
Male	07-08	*	<LOD	<LOD	2.42 (<LOD-2.95)	3.96 (3.23-5.05)	1294
Male	09-10	*	<LOD	1.91 (1.59-2.37)	5.54 (4.14-7.89)	12.9 (9.90-18.8)	1399
Female	99-00	*	<LOD	<LOD	<LOD	6.61 (<LOD-11.8)	1326
Female	01-02	*	<LOD	<LOD	<LOD	4.20 (<LOD-4.40)	1411
Female	03-04	*	<LOD	<LOD	<LOD	<LOD	1355
Female	05-06	*	<LOD	<LOD	3.67 (<LOD-4.39)	5.37 (4.88-6.27)	1278
Female	07-08	*	<LOD	<LOD	4.08 (<LOD-4.84)	5.81 (4.36-7.26)	1310
Female	09-10	*	<LOD	2.35 (2.01-2.49)	5.40 (4.13-7.00)	10.8 (7.58-14.9)	1350
Mexican American	99-00	*	<LOD	<LOD	<LOD	5.44 (<LOD-7.70)	814
Mexican American	01-02	*	<LOD	<LOD	<LOD	3.70 (<LOD-4.20)	677
Mexican American	03-04	*	<LOD	<LOD	<LOD	<LOD	652
Mexican American	05-06	*	<LOD	<LOD	2.71 (<LOD-3.73)	4.88 (3.73-6.27)	637
Mexican American	07-08	*	<LOD	<LOD	2.81 (<LOD-3.23)	3.96 (3.23-5.13)	531
Mexican American	09-10	*	<LOD	1.74 (1.42-2.35)	4.35 (3.10-9.92)	11.5 (8.42-19.1)	566
Non-Hispanic Black	99-00	*	<LOD	<LOD	3.13 (<LOD-8.18)	6.61 (<LOD-22.1)	603
Non-Hispanic Black	01-02	*	<LOD	<LOD	<LOD	2.71 (<LOD-3.30)	703
Non-Hispanic Black	03-04	*	<LOD	<LOD	<LOD	3.37 (2.57-3.85)	699
Non-Hispanic Black	05-06	*	<LOD	<LOD	2.22 (1.83-2.59)	4.39 (2.83-6.75)	678
Non-Hispanic Black	07-08	*	<LOD	<LOD	2.49 (<LOD-3.35)	4.19 (3.11-4.62)	597
Non-Hispanic Black	09-10	*	<LOD	1.51 (1.25-1.80)	4.00 (2.90-5.61)	8.97 (5.15-15.1)	516
Non-Hispanic White	99-00	*	<LOD	<LOD	<LOD	8.39 (<LOD-15.4)	912

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Non-Hispanic White	01-02	*	<LOD	<LOD	<LOD	<LOD	1216
Non-Hispanic White	03-04	*	<LOD	<LOD	<LOD	<LOD	1088
Non-Hispanic White	05-06	*	<LOD	<LOD	3.37 (<LOD-3.99)	4.88 (3.99-5.41)	1038
Non-Hispanic White	07-08	*	<LOD	<LOD	3.60 (<LOD-4.15)	5.45 (3.96-6.96)	1077
Non-Hispanic White	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

Urinary Mono-isobutyl phthalate (MiNP) (2011 - 2018)†

CAS Number 297182-83-3 (refers to one of the potential isomers of MiNP)

Metabolite of Di-isobutyl 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.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	11-12	*	.800 (.600-.900)	2.60 (2.00-3.20)	8.80 (6.80-12.5)	18.6 (13.3-28.3)	2489
Total population	13-14	*	<LOD	1.80 (1.60-2.10)	5.70 (4.60-7.00)	12.3 (9.10-16.3)	2685
Total population	15-16	*	<LOD	<LOD	2.20 (1.50-3.80)	5.30 (3.10-9.80)	2975
Total population	17-18	*	<LOD	<LOD	1.00 (.900-1.20)	1.80 (1.40-2.40)	2762
Age 3-5 years	15-16	*	<LOD	<LOD	1.60 (1.30-2.20)	2.90 (1.90-9.10)	465
Age 3-5 years	17-18	*	<LOD	<LOD	.900 (<LOD-1.10)	1.30 (1.10-1.60)	379
Age 6-11 years	11-12	*	.700 (<LOD-1.10)	1.90 (1.50-2.50)	4.40 (2.50-6.20)	6.20 (4.40-11.4)	396
Age 6-11 years	13-14	*	<LOD	2.10 (1.70-3.00)	6.50 (4.10-10.1)	11.0 (8.70-17.9)	409
Age 6-11 years	15-16	*	<LOD	1.00 (<LOD-1.30)	2.30 (1.40-4.80)	5.00 (3.40-10.2)	415
Age 6-11 years	17-18	*	<LOD	<LOD	1.10 (.900-1.50)	1.90 (1.20-2.80)	330
Age 12-19 years	11-12	1.36 (1.12-1.65)	.900 (.800-1.20)	2.80 (2.20-4.00)	13.1 (5.90-23.4)	24.9 (17.8-90.6)	388
Age 12-19 years	13-14	*	<LOD	2.80 (1.60-3.70)	8.80 (5.00-16.3)	17.6 (8.70-25.5)	462
Age 12-19 years	15-16	*	<LOD	1.10 (<LOD-1.30)	2.20 (1.50-4.20)	4.80 (2.20-14.3)	405
Age 12-19 years	17-18	*	<LOD	<LOD	1.20 (1.00-1.70)	2.40 (1.30-4.00)	353
Age 20+ years	11-12	*	.700 (.600-.800)	2.70 (2.00-3.40)	9.60 (7.30-13.0)	18.4 (13.1-32.1)	1705
Age 20+ years	13-14	*	<LOD	1.70 (1.40-2.10)	5.10 (4.10-6.70)	11.8 (8.80-15.8)	1814
Age 20+ years	15-16	*	<LOD	<LOD	2.30 (1.50-3.80)	5.60 (3.10-10.0)	1690
Age 20+ years	17-18	*	<LOD	<LOD	1.00 (<LOD-1.30)	1.80 (1.20-2.50)	1700
Male	11-12	1.26 (1.12-1.42)	.900 (.800-1.10)	3.10 (2.60-3.70)	9.30 (7.20-12.8)	20.0 (12.5-39.6)	1259
Male	13-14	*	<LOD	1.90 (1.50-2.50)	6.50 (4.60-7.40)	12.3 (7.70-17.6)	1285
Male	15-16	*	<LOD	1.00 (<LOD-1.30)	2.60 (1.90-4.70)	6.10 (3.80-11.1)	1474
Male	17-18	*	<LOD	<LOD	1.10 (.900-1.40)	1.90 (1.30-2.50)	1363
Female	11-12	*	.700 (<LOD-.800)	2.10 (1.70-2.80)	8.20 (4.50-14.4)	18.4 (14.9-26.9)	1230
Female	13-14	*	<LOD	1.70 (1.40-2.10)	5.50 (4.20-7.70)	12.6 (8.70-17.9)	1400
Female	15-16	*	<LOD	<LOD	1.90 (1.30-3.10)	3.80 (2.00-10.0)	1501
Female	17-18	*	<LOD	<LOD	1.00 (<LOD-1.20)	1.70 (1.30-2.40)	1399
Mexican American	11-12	*	.700 (<LOD-1.10)	2.30 (1.50-3.20)	5.30 (3.70-7.70)	16.8 (5.60-31.2)	316
Mexican American	13-14	*	<LOD	1.50 (1.00-2.00)	5.00 (3.90-7.60)	10.1 (6.60-13.4)	438
Mexican American	15-16	*	<LOD	1.00 (<LOD-1.20)	2.90 (2.00-4.40)	7.70 (3.20-10.6)	595
Mexican American	17-18	*	<LOD	<LOD	1.10 (<LOD-1.80)	2.20 (1.10-3.10)	417
Non-Hispanic Black	11-12	1.40 (1.19-1.65)	1.00 (.900-1.20)	3.20 (2.40-4.30)	13.1 (7.70-19.5)	24.1 (15.3-36.8)	665
Non-Hispanic Black	13-14	*	<LOD	2.20 (1.60-2.90)	6.80 (4.30-9.20)	14.3 (8.70-18.4)	609
Non-Hispanic Black	15-16	*	<LOD	1.10 (<LOD-1.60)	2.80 (1.60-7.20)	7.30 (2.70-20.5)	698
Non-Hispanic Black	17-18	*	<LOD	<LOD	1.30 (1.00-1.50)	1.90 (1.50-3.00)	645
Non-Hispanic White	11-12	*	.700 (<LOD-.900)	2.60 (1.90-3.40)	9.20 (6.30-12.6)	17.5 (13.0-33.5)	813
Non-Hispanic White	13-14	*	<LOD	1.70 (1.40-2.10)	5.40 (4.10-7.10)	11.3 (8.70-15.8)	987
Non-Hispanic White	15-16	*	<LOD	<LOD	2.10 (1.40-3.10)	4.80 (2.40-9.60)	862
Non-Hispanic White	17-18	*	<LOD	<LOD	.900 (<LOD-1.30)	1.70 (1.10-2.40)	906
All Hispanic	11-12	*	.800 (.600-1.00)	2.40 (1.80-3.30)	6.20 (4.40-9.30)	17.9 (10.4-24.9)	571
All Hispanic	13-14	*	<LOD	1.80 (1.40-2.60)	5.80 (4.70-8.80)	13.1 (8.70-18.5)	690
All Hispanic	15-16	*	<LOD	1.10 (<LOD-1.30)	3.00 (1.90-5.00)	7.70 (4.50-10.6)	971
All Hispanic	17-18	*	<LOD	<LOD	1.20 (1.00-1.50)	2.40 (1.50-3.00)	663
Non-Hispanic Asian	11-12	*	.700 (<LOD-.800)	2.30 (1.40-3.60)	6.50 (5.30-9.80)	19.1 (7.80-25.9)	352
Non-Hispanic Asian	13-14	*	<LOD	1.70 (1.20-2.20)	3.80 (2.80-6.50)	7.90 (4.80-19.6)	289
Non-Hispanic Asian	15-16	*	<LOD	1.10 (<LOD-1.70)	2.70 (1.50-4.20)	4.20 (2.50-20.1)	301
Non-Hispanic Asian	17-18	*	<LOD	<LOD	<LOD	1.50 (<LOD-4.60)	366

Limit of detection (LOD, see Data Analysis section) for Survey years 11-12, 13-14, 15-16, and 17-18 are 0.5, 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.

† Participants are age 6+ years in Surveys 11-12 and 13-14; beginning with Survey 15-16, participants include those age 3+ years.

Urinary Mono-isobutyl phthalate (MiNP) (creatinine corrected) (2011 - 2018)†

CAS Number 297182-83-3 (refers to one of the potential isomers of MiNP)

Metabolite of Di-isobutyl 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.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	11-12	*	1.08 (.921-1.25)	2.69 (2.25-3.26)	7.88 (5.88-11.3)	17.6 (11.6-26.6)	2487
Total population	13-14	*	<LOD	2.29 (1.98-2.50)	5.39 (4.83-6.00)	9.64 (8.34-11.7)	2684
Total population	15-16	*	<LOD	<LOD	3.05 (2.60-3.77)	5.33 (4.00-7.11)	2974
Total population	17-18	*	<LOD	<LOD	2.56 (2.22-2.78)	3.56 (3.05-4.27)	2762
Age 3-5 years	15-16	*	<LOD	<LOD	5.82 (4.57-7.11)	8.84 (6.40-12.4)	464
Age 3-5 years	17-18	*	<LOD	<LOD	4.27 (<LOD-4.92)	5.82 (4.27-7.11)	379
Age 6-11 years	11-12	*	1.13 (<LOD-1.40)	2.44 (1.84-2.98)	4.20 (3.27-7.88)	7.88 (4.00-15.2)	395
Age 6-11 years	13-14	*	<LOD	3.17 (2.47-4.07)	7.14 (5.11-13.2)	14.3 (7.81-17.0)	409
Age 6-11 years	15-16	*	<LOD	2.00 (<LOD-2.46)	3.56 (2.78-5.00)	6.60 (3.94-9.79)	415
Age 6-11 years	17-18	*	<LOD	<LOD	1.88 (1.64-2.39)	2.78 (2.07-3.37)	330
Age 12-19 years	11-12	1.33 (1.05-1.68)	1.01 (.818-1.40)	2.72 (1.94-3.89)	10.6 (4.63-17.6)	33.0 (11.8-53.5)	388
Age 12-19 years	13-14	*	<LOD	2.18 (1.60-3.22)	7.33 (4.74-9.72)	11.7 (7.73-22.4)	462
Age 12-19 years	15-16	*	<LOD	1.14 (<LOD-1.28)	1.93 (1.62-2.78)	3.84 (2.07-9.14)	405
Age 12-19 years	17-18	*	<LOD	<LOD	2.37 (1.78-2.91)	3.05 (2.13-5.33)	353
Age 20+ years	11-12	*	1.09 (.876-1.30)	2.78 (2.22-3.33)	8.23 (5.95-11.4)	18.1 (11.4-33.8)	1704
Age 20+ years	13-14	*	<LOD	2.21 (1.94-2.46)	4.92 (3.97-6.01)	8.97 (7.29-11.4)	1813
Age 20+ years	15-16	*	<LOD	<LOD	3.05 (2.48-3.92)	5.06 (4.00-6.94)	1690
Age 20+ years	17-18	*	<LOD	<LOD	2.56 (<LOD-2.91)	3.56 (3.05-4.27)	1700
Male	11-12	1.18 (1.04-1.33)	.982 (.778-1.16)	2.50 (2.15-3.06)	7.88 (5.65-11.4)	15.6 (10.1-24.1)	1258
Male	13-14	*	<LOD	1.84 (1.64-2.13)	4.34 (3.27-6.57)	8.69 (6.81-11.7)	1284
Male	15-16	*	<LOD	1.39 (<LOD-1.58)	2.78 (2.46-3.77)	4.92 (3.77-6.87)	1474
Male	17-18	*	<LOD	<LOD	1.88 (1.49-2.37)	2.70 (2.37-3.14)	1363
Female	11-12	*	1.21 (<LOD-1.40)	2.86 (2.18-3.88)	7.73 (5.20-13.0)	20.1 (11.4-33.8)	1229
Female	13-14	*	<LOD	2.56 (2.29-2.82)	5.95 (4.83-7.29)	11.7 (8.28-16.1)	1400
Female	15-16	*	<LOD	<LOD	3.20 (2.67-4.03)	5.56 (3.72-8.84)	1500
Female	17-18	*	<LOD	<LOD	3.05 (<LOD-3.56)	4.27 (3.56-5.33)	1399
Mexican American	11-12	*	.942 (<LOD-1.13)	2.04 (1.65-2.50)	4.68 (3.19-13.8)	17.1 (8.39-42.6)	316
Mexican American	13-14	*	<LOD	1.82 (1.39-2.75)	4.42 (2.79-8.39)	9.41 (5.40-12.1)	438
Mexican American	15-16	*	<LOD	1.76 (<LOD-2.13)	3.37 (2.67-5.56)	6.71 (3.56-10.2)	595
Mexican American	17-18	*	<LOD	<LOD	2.46 (<LOD-2.67)	3.05 (2.48-4.27)	417
Non-Hispanic Black	11-12	1.09 (.915-1.29)	.896 (.750-1.05)	2.31 (1.73-3.33)	7.45 (5.19-10.7)	15.2 (9.60-22.5)	665
Non-Hispanic Black	13-14	*	<LOD	1.78 (1.39-2.37)	5.08 (3.72-6.67)	8.86 (7.29-10.6)	609
Non-Hispanic Black	15-16	*	<LOD	1.30 (<LOD-1.52)	2.82 (1.94-4.92)	5.33 (3.37-10.5)	697
Non-Hispanic Black	17-18	*	<LOD	<LOD	1.83 (1.47-2.29)	3.20 (2.07-4.25)	645
Non-Hispanic White	11-12	*	1.15 (<LOD-1.38)	3.06 (2.35-3.60)	8.23 (5.91-11.9)	20.1 (11.4-33.8)	811
Non-Hispanic White	13-14	*	<LOD	2.37 (2.00-2.67)	5.20 (4.23-6.25)	9.20 (7.50-13.2)	987
Non-Hispanic White	15-16	*	<LOD	<LOD	3.05 (2.46-3.77)	4.92 (3.56-6.85)	862
Non-Hispanic White	17-18	*	<LOD	<LOD	2.56 (<LOD-3.05)	3.56 (3.05-4.27)	906
All Hispanic	11-12	*	1.02 (.875-1.20)	2.18 (1.90-2.46)	6.67 (4.00-9.25)	14.9 (10.1-29.7)	571
All Hispanic	13-14	*	<LOD	2.00 (1.56-2.79)	5.45 (4.21-8.00)	11.7 (8.00-14.9)	690
All Hispanic	15-16	*	<LOD	1.68 (<LOD-2.07)	3.56 (2.80-5.05)	7.11 (4.76-8.56)	971
All Hispanic	17-18	*	<LOD	<LOD	2.53 (2.09-3.05)	3.62 (2.78-5.33)	663
Non-Hispanic Asian	11-12	*	1.21 (<LOD-1.49)	2.70 (2.00-3.50)	6.75 (4.62-10.1)	14.9 (8.75-21.5)	352
Non-Hispanic Asian	13-14	*	<LOD	2.37 (1.86-3.05)	5.88 (3.56-8.66)	11.4 (7.39-22.2)	288
Non-Hispanic Asian	15-16	*	<LOD	2.10 (<LOD-2.67)	3.70 (2.78-4.79)	5.85 (3.43-13.3)	301
Non-Hispanic Asian	17-18	*	<LOD	<LOD	<LOD	4.27 (<LOD-5.82)	366

<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.

† Participants are age 6+ years in Surveys 11-12 and 13-14; beginning with Survey 15-16, participants include those age 3+ years.

Urinary Mono-oxoisobutyl phthalate (MONP) (2015 - 2018)

CAS Number 936022-00-3 (refers to one of the potential isomers of MONP)

Metabolite of Di-isobutyl 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.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	15-16	2.09 (1.74-2.51)	1.80 (1.60-2.10)	3.80 (3.20-4.80)	11.0 (7.40-15.9)	21.8 (14.6-35.7)	2393
Total population	17-18	1.34 (1.25-1.44)	1.30 (1.20-1.40)	2.50 (2.30-2.70)	5.20 (4.50-6.20)	8.90 (7.10-10.8)	2762
Age 3-5 years	15-16	2.52 (2.07-3.06)	2.30 (1.80-2.90)	4.70 (3.80-5.50)	9.40 (7.50-13.3)	17.2 (11.8-25.6)	328
Age 3-5 years	17-18	1.73 (1.50-2.00)	1.80 (1.40-2.00)	3.50 (2.70-4.50)	6.50 (5.00-8.00)	9.80 (7.10-15.9)	379
Age 6-11 years	15-16	2.80 (2.32-3.38)	2.50 (2.10-3.10)	4.60 (3.90-6.90)	11.2 (7.80-16.6)	18.4 (12.7-53.8)	323
Age 6-11 years	17-18	2.00 (1.77-2.26)	1.90 (1.60-2.20)	3.70 (3.20-4.50)	7.30 (5.60-8.70)	10.3 (8.10-18.1)	330
Age 12-19 years	15-16	2.56 (2.02-3.25)	2.10 (1.80-2.50)	4.50 (3.30-6.40)	12.2 (7.20-30.5)	33.2 (9.80-82.1)	307
Age 12-19 years	17-18	1.67 (1.42-1.95)	1.70 (1.40-1.90)	3.30 (2.30-4.30)	6.80 (5.00-8.00)	10.1 (7.20-18.4)	353
Age 20+ years	15-16	1.95 (1.61-2.37)	1.70 (1.50-2.00)	3.50 (2.80-4.70)	11.0 (7.00-16.8)	22.1 (13.6-38.0)	1435
Age 20+ years	17-18	1.23 (1.12-1.35)	1.10 (1.10-1.30)	2.30 (2.10-2.50)	4.50 (3.90-5.80)	8.60 (5.80-11.7)	1700
Male	15-16	2.28 (1.84-2.81)	2.00 (1.60-2.40)	4.00 (3.10-6.10)	12.4 (7.60-18.8)	30.2 (14.3-48.7)	1189
Male	17-18	1.39 (1.25-1.55)	1.30 (1.20-1.40)	2.50 (2.30-2.70)	5.20 (3.90-7.00)	8.90 (6.80-14.5)	1363
Female	15-16	1.93 (1.62-2.29)	1.70 (1.40-2.00)	3.60 (3.00-4.50)	10.2 (6.50-15.3)	17.9 (13.4-31.1)	1204
Female	17-18	1.29 (1.19-1.40)	1.20 (1.10-1.40)	2.50 (2.20-2.80)	5.20 (4.50-6.10)	9.20 (6.60-11.2)	1399
Mexican American	15-16	2.22 (1.91-2.58)	2.00 (1.70-2.30)	4.00 (3.40-5.10)	10.7 (7.60-13.8)	21.5 (11.9-30.5)	485
Mexican American	17-18	1.34 (1.10-1.64)	1.20 (1.10-1.40)	2.40 (1.70-3.00)	5.40 (3.80-8.70)	11.5 (5.70-20.8)	417
Non-Hispanic Black	15-16	2.51 (1.83-3.43)	2.20 (1.60-3.00)	4.80 (3.10-7.40)	13.1 (6.70-21.6)	24.4 (13.1-51.7)	518
Non-Hispanic Black	17-18	1.75 (1.57-1.95)	1.70 (1.50-1.80)	3.20 (2.70-3.80)	6.70 (5.50-7.50)	9.80 (7.70-14.7)	645
Non-Hispanic White	15-16	2.01 (1.64-2.47)	1.70 (1.50-2.10)	3.50 (2.80-4.50)	11.5 (6.90-15.9)	25.1 (13.4-38.4)	742
Non-Hispanic White	17-18	1.30 (1.17-1.45)	1.20 (1.10-1.40)	2.50 (2.20-2.80)	5.10 (3.90-6.60)	8.10 (5.80-14.3)	906
All Hispanic	15-16	2.28 (1.96-2.65)	2.10 (1.80-2.30)	4.50 (3.50-5.90)	10.9 (8.30-14.3)	22.1 (13.3-35.8)	795
All Hispanic	17-18	1.41 (1.21-1.63)	1.30 (1.10-1.40)	2.50 (2.00-3.20)	5.80 (4.50-8.70)	10.8 (8.00-17.7)	663
Non-Hispanic Asian	15-16	1.70 (1.29-2.23)	1.40 (1.10-1.90)	3.60 (2.40-6.00)	10.1 (6.00-25.0)	25.0 (7.40-95.9)	219
Non-Hispanic Asian	17-18	.919 (.803-1.05)	.800 (.700-1.00)	1.80 (1.40-2.20)	3.60 (2.70-4.70)	5.40 (3.20-8.20)	366

Limit of detection (LOD, see Data Analysis section) for Survey years 15-16 and 17-18 are 0.4 and 0.4, respectively.

Urinary Mono-oxoisobutyl phthalate (MONP) (creatinine corrected) (2015 - 2018)

CAS Number 936022-00-3 (refers to one of the potential isomers of MONP)

Metabolite of Di-isobutyl 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.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	15-16	2.21 (1.90-2.58)	1.78 (1.54-2.03)	3.65 (2.94-4.57)	10.7 (7.59-14.6)	19.2 (13.5-26.4)	2392
Total population	17-18	1.40 (1.31-1.49)	1.24 (1.17-1.31)	2.30 (2.06-2.41)	4.21 (3.60-5.30)	8.97 (6.27-11.0)	2762
Age 3-5 years	15-16	6.01 (5.09-7.10)	5.39 (4.55-6.47)	9.36 (7.69-11.9)	16.6 (12.7-39.4)	40.4 (19.1-53.8)	327
Age 3-5 years	17-18	3.76 (3.32-4.25)	3.57 (3.23-3.91)	5.61 (5.00-6.96)	9.87 (8.55-11.3)	13.6 (11.2-20.0)	379
Age 6-11 years	15-16	3.52 (3.01-4.12)	3.02 (2.50-3.56)	5.39 (4.20-8.41)	12.5 (9.46-14.4)	25.9 (13.8-32.2)	323
Age 6-11 years	17-18	2.33 (1.98-2.74)	2.31 (1.91-2.56)	3.53 (2.86-4.30)	6.61 (4.74-10.0)	12.1 (6.83-16.5)	330
Age 12-19 years	15-16	2.00 (1.62-2.46)	1.61 (1.32-1.95)	2.92 (2.35-4.21)	8.69 (4.78-16.9)	17.4 (7.84-54.0)	307
Age 12-19 years	17-18	1.44 (1.23-1.69)	1.27 (1.09-1.60)	2.33 (1.88-2.84)	4.01 (3.09-9.71)	11.0 (4.05-20.5)	353
Age 20+ years	15-16	2.04 (1.74-2.39)	1.64 (1.44-1.89)	3.10 (2.50-3.88)	9.50 (6.47-14.6)	18.8 (13.1-25.0)	1435
Age 20+ years	17-18	1.26 (1.17-1.36)	1.15 (1.05-1.23)	1.87 (1.74-2.06)	3.36 (2.78-4.13)	7.72 (5.16-9.78)	1700
Male	15-16	2.07 (1.71-2.52)	1.56 (1.36-2.00)	3.64 (2.64-5.00)	10.7 (7.44-14.2)	17.2 (12.4-24.3)	1189
Male	17-18	1.24 (1.14-1.35)	1.11 (1.04-1.21)	1.97 (1.77-2.17)	3.73 (3.19-4.44)	7.00 (4.87-10.0)	1363
Female	15-16	2.35 (2.07-2.67)	1.91 (1.72-2.13)	3.65 (3.03-4.41)	10.0 (6.93-16.7)	22.2 (14.4-27.2)	1203
Female	17-18	1.57 (1.44-1.72)	1.37 (1.27-1.52)	2.43 (2.29-2.55)	5.00 (3.61-7.54)	9.78 (7.54-13.2)	1399
Mexican American	15-16	2.48 (2.15-2.86)	2.07 (1.79-2.27)	4.14 (3.21-5.64)	11.5 (7.68-14.8)	19.1 (12.4-26.4)	485
Mexican American	17-18	1.45 (1.20-1.75)	1.21 (1.00-1.49)	2.29 (1.93-2.69)	5.08 (3.17-9.13)	12.1 (6.38-22.3)	417
Non-Hispanic Black	15-16	2.10 (1.63-2.72)	1.74 (1.36-2.39)	3.68 (2.50-6.31)	10.4 (5.92-16.5)	16.6 (11.6-41.6)	517
Non-Hispanic Black	17-18	1.32 (1.18-1.47)	1.19 (1.00-1.33)	2.10 (1.87-2.33)	4.69 (3.14-6.86)	8.24 (6.14-13.6)	645
Non-Hispanic White	15-16	2.21 (1.88-2.59)	1.75 (1.51-1.98)	3.55 (2.82-4.32)	10.7 (6.71-15.6)	20.1 (12.7-30.6)	742
Non-Hispanic White	17-18	1.39 (1.28-1.51)	1.24 (1.14-1.33)	2.22 (1.92-2.45)	3.92 (3.20-5.56)	8.58 (5.42-11.2)	906
All Hispanic	15-16	2.44 (2.10-2.85)	2.06 (1.82-2.27)	4.29 (3.38-5.64)	11.7 (7.93-15.5)	19.7 (13.8-26.3)	795
All Hispanic	17-18	1.51 (1.32-1.73)	1.27 (1.09-1.52)	2.55 (2.12-2.86)	5.39 (3.78-9.02)	10.2 (8.60-17.5)	663
Non-Hispanic Asian	15-16	2.15 (1.64-2.83)	1.67 (1.39-2.00)	3.17 (2.38-5.44)	12.5 (5.97-25.0)	25.0 (9.25-29.6)	219
Non-Hispanic Asian	17-18	1.36 (1.17-1.58)	1.26 (1.10-1.47)	2.41 (1.88-2.83)	4.26 (3.40-5.25)	5.50 (4.55-6.83)	366

Urinary Mono-(carboxyoctyl) phthalate (MCOP) (2005 - 2010)

CAS Number 898544-09-7

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.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	05-06	5.39 (4.68-6.22)	5.10 (4.40-6.00)	10.9 (9.10-13.1)	25.5 (19.1-35.4)	54.4 (32.5-85.2)	2548
Total population	07-08	6.79 (5.83-7.92)	6.40 (5.60-7.40)	14.9 (12.1-18.2)	34.6 (25.2-43.8)	63.0 (41.8-80.0)	2604
Total population	09-10	12.6 (10.4-15.2)	11.8 (9.26-14.7)	33.1 (25.8-40.2)	83.3 (61.2-113)	160 (117-191)	2749
Age 6-11 years	05-06	8.52 (7.19-10.1)	8.90 (7.60-9.90)	15.0 (11.3-19.3)	26.4 (19.9-37.3)	40.3 (26.4-61.6)	356
Age 6-11 years	07-08	10.8 (9.25-12.6)	10.7 (9.10-13.1)	19.8 (15.8-24.5)	33.8 (26.1-50.3)	59.9 (33.5-79.5)	389
Age 6-11 years	09-10	15.0 (10.8-20.7)	14.2 (9.15-20.7)	34.7 (18.6-56.5)	74.6 (41.6-135)	120 (74.6-340)	415
Age 12-19 years	05-06	6.61 (5.42-8.06)	6.30 (5.20-7.30)	11.9 (9.60-16.0)	28.4 (18.2-58.7)	63.2 (28.4-106)	702
Age 12-19 years	07-08	9.25 (7.33-11.7)	8.10 (6.80-10.3)	20.8 (15.4-28.7)	60.5 (29.6-79.4)	79.4 (49.7-166)	401
Age 12-19 years	09-10	16.1 (12.3-20.9)	14.5 (11.6-17.0)	39.8 (22.5-61.2)	96.8 (66.7-191)	209 (135-263)	420
Age 20+ years	05-06	4.96 (4.27-5.76)	4.50 (3.90-5.20)	9.70 (8.20-12.3)	25.1 (18.2-35.7)	54.4 (30.8-88.5)	1490
Age 20+ years	07-08	6.15 (5.20-7.29)	5.80 (5.00-6.60)	13.2 (10.5-16.8)	32.0 (23.0-41.8)	61.2 (38.9-80.0)	1814
Age 20+ years	09-10	11.9 (9.89-14.3)	11.0 (8.58-13.7)	32.1 (25.8-39.0)	83.7 (56.0-114)	158 (109-188)	1914
Male	05-06	6.24 (5.25-7.42)	5.70 (4.70-6.90)	12.1 (10.2-15.1)	30.8 (19.0-58.8)	66.4 (33.8-122)	1270
Male	07-08	7.14 (6.10-8.36)	6.60 (5.70-7.70)	15.6 (12.4-19.3)	35.7 (24.7-43.2)	61.2 (40.1-89.1)	1294
Male	09-10	14.0 (11.6-16.8)	13.4 (10.5-15.6)	36.0 (27.5-45.9)	92.9 (66.1-134)	168 (111-217)	1399
Female	05-06	4.69 (4.14-5.30)	4.50 (4.00-5.20)	9.30 (8.20-11.1)	21.5 (17.5-27.0)	41.7 (28.1-61.7)	1278
Female	07-08	6.48 (5.49-7.65)	6.20 (5.40-7.40)	14.3 (12.0-17.0)	32.6 (24.8-47.0)	64.8 (47.0-73.3)	1310
Female	09-10	11.4 (9.17-14.1)	10.6 (8.05-13.7)	29.6 (20.8-38.4)	70.4 (50.1-113)	146 (85.2-188)	1350
Mexican American	05-06	5.77 (4.84-6.87)	5.20 (4.50-5.70)	9.90 (8.50-12.0)	23.6 (14.9-49.7)	54.4 (23.0-185)	637
Mexican American	07-08	6.83 (6.23-7.49)	6.20 (5.60-6.80)	12.9 (11.3-14.9)	29.1 (25.2-33.8)	52.0 (36.8-61.2)	531
Mexican American	09-10	9.96 (7.99-12.4)	8.59 (6.21-12.1)	20.3 (15.8-32.6)	59.3 (44.0-69.5)	86.2 (63.2-136)	566
Non-Hispanic Black	05-06	6.08 (5.60-6.61)	6.00 (5.10-6.70)	11.4 (10.4-13.0)	24.5 (20.3-28.1)	50.0 (32.0-70.3)	678
Non-Hispanic Black	07-08	7.55 (6.21-9.17)	7.00 (6.00-8.00)	16.6 (12.0-22.9)	40.3 (25.5-51.9)	60.4 (41.8-97.8)	597
Non-Hispanic Black	09-10	12.6 (9.85-16.1)	11.0 (7.35-16.2)	34.5 (26.5-42.1)	82.4 (63.8-109)	137 (83.3-188)	516
Non-Hispanic White	05-06	5.25 (4.40-6.27)	5.00 (4.10-6.20)	11.1 (8.60-13.6)	25.5 (17.7-43.5)	56.1 (28.1-88.5)	1038
Non-Hispanic White	07-08	6.81 (5.48-8.46)	6.40 (5.20-7.90)	15.1 (11.0-20.8)	35.7 (23.2-62.0)	64.7 (39.4-89.0)	1077
Non-Hispanic White	09-10	13.4 (10.7-16.8)	12.9 (10.1-16.1)	34.8 (27.5-43.4)	88.9 (64.4-136)	168 (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.

Urinary Mono-(carboxyoctyl) phthalate (MCOP) (creatinine corrected) (2005 - 2010)

CAS Number 898544-09-7

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.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	05-06	5.26 (4.54-6.10)	4.53 (3.95-5.11)	9.25 (7.64-11.2)	24.0 (17.1-30.8)	40.2 (30.3-55.2)	2548
Total population	07-08	6.85 (6.05-7.75)	5.94 (5.19-6.67)	12.6 (10.8-14.4)	30.6 (23.4-38.5)	50.2 (40.0-60.0)	2604
Total population	09-10	13.1 (11.1-15.5)	11.6 (9.69-13.8)	29.3 (23.7-36.2)	72.3 (55.0-93.8)	119 (89.1-147)	2749
Age 6-11 years	05-06	9.38 (8.08-10.9)	8.48 (7.66-10.1)	14.8 (12.2-18.7)	30.3 (20.0-38.8)	40.1 (28.2-57.3)	356
Age 6-11 years	07-08	13.3 (11.4-15.5)	11.6 (9.90-14.2)	23.1 (16.2-32.5)	44.2 (27.0-64.1)	60.3 (44.2-110)	389
Age 6-11 years	09-10	19.5 (14.7-25.9)	18.6 (11.7-26.9)	35.9 (25.7-56.9)	87.8 (43.7-132)	139 (80.1-312)	415
Age 12-19 years	05-06	4.93 (4.10-5.93)	4.32 (3.61-4.89)	7.44 (5.93-11.0)	19.4 (12.4-31.8)	34.7 (24.1-58.3)	702
Age 12-19 years	07-08	7.20 (5.94-8.73)	6.28 (4.79-8.08)	12.6 (10.0-20.7)	32.7 (22.6-56.9)	56.9 (31.4-103)	401
Age 12-19 years	09-10	12.9 (10.5-15.8)	11.5 (8.38-15.1)	26.3 (19.2-37.9)	74.8 (43.5-120)	125 (101-167)	420
Age 20+ years	05-06	4.97 (4.26-5.81)	4.17 (3.68-4.77)	8.58 (7.23-10.6)	23.4 (15.5-31.8)	41.1 (29.2-55.9)	1490
Age 20+ years	07-08	6.32 (5.49-7.27)	5.31 (4.77-6.05)	11.8 (9.27-13.9)	27.5 (19.5-36.8)	47.7 (34.4-60.9)	1814
Age 20+ years	09-10	12.6 (10.7-14.8)	10.9 (9.42-12.7)	28.5 (23.3-35.9)	69.5 (52.5-89.4)	113 (81.9-153)	1914
Male	05-06	5.01 (4.21-5.97)	4.29 (3.75-5.03)	8.44 (7.17-10.9)	21.6 (15.1-35.4)	44.6 (25.7-85.9)	1270
Male	07-08	6.01 (5.29-6.84)	5.14 (4.54-6.26)	11.5 (9.32-13.6)	24.5 (19.2-31.0)	43.2 (31.2-54.9)	1294
Male	09-10	12.5 (10.6-14.7)	11.4 (9.29-13.9)	28.6 (23.5-36.6)	67.2 (52.0-85.9)	106 (82.2-138)	1399
Female	05-06	5.51 (4.75-6.39)	4.73 (4.23-5.32)	9.55 (8.26-12.2)	24.7 (17.3-30.3)	39.3 (30.3-45.0)	1278
Female	07-08	7.76 (6.84-8.81)	6.52 (5.95-7.39)	13.7 (11.9-16.5)	35.3 (26.6-44.2)	57.7 (43.5-74.4)	1310
Female	09-10	13.7 (11.5-16.4)	11.8 (9.80-14.4)	29.5 (22.8-37.9)	75.3 (54.2-110)	123 (93.8-197)	1350
Mexican American	05-06	5.19 (4.38-6.14)	4.50 (3.64-5.29)	8.04 (7.13-10.1)	19.5 (12.3-37.7)	43.6 (20.9-93.4)	637
Mexican American	07-08	6.66 (5.97-7.44)	5.29 (4.69-6.20)	11.6 (10.4-13.0)	25.7 (20.9-29.8)	38.3 (30.8-58.3)	531
Mexican American	09-10	9.89 (7.75-12.6)	8.53 (6.98-10.0)	20.9 (12.8-28.3)	51.6 (34.2-72.3)	89.4 (59.3-125)	566
Non-Hispanic Black	05-06	4.28 (3.86-4.74)	3.67 (3.26-4.09)	7.60 (6.80-8.81)	17.1 (13.2-21.5)	31.8 (22.5-43.7)	678
Non-Hispanic Black	07-08	5.87 (4.82-7.13)	5.37 (4.16-6.50)	11.1 (8.68-15.2)	28.1 (17.7-37.2)	40.2 (32.0-57.8)	597
Non-Hispanic Black	09-10	9.11 (7.52-11.0)	7.62 (5.84-10.8)	19.8 (15.5-26.5)	47.6 (36.9-57.7)	77.8 (57.0-104)	516
Non-Hispanic White	05-06	5.53 (4.61-6.63)	4.81 (4.13-5.56)	10.0 (7.63-13.3)	25.2 (16.3-34.5)	39.3 (26.8-59.7)	1038
Non-Hispanic White	07-08	7.11 (5.91-8.56)	6.27 (5.09-7.50)	13.0 (10.4-16.3)	31.1 (21.3-43.2)	54.2 (40.2-64.1)	1077
Non-Hispanic White	09-10	15.1 (12.6-18.1)	13.5 (11.3-16.4)	33.6 (27.0-43.5)	79.2 (60.0-106)	126 (97.9-186)	1206

Urinary Mono-(carboxyisooctyl) phthalate (MCOP) (2011 - 2018)†

CAS Number 898544-09-7 (refers to one of the potential isomers of MCOP)

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.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	11-12	19.7 (17.4-22.3)	18.7 (15.6-21.3)	50.0 (43.0-61.8)	123 (98.3-160)	214 (180-275)	2489
Total population	13-14	21.3 (19.5-23.3)	19.8 (17.8-21.5)	54.8 (48.1-58.9)	136 (122-159)	247 (213-272)	2685
Total population	15-16	8.26 (6.46-10.6)	7.40 (5.70-9.30)	17.5 (12.9-22.7)	47.0 (31.9-74.5)	93.8 (63.8-144)	2975
Total population	17-18	4.89 (4.43-5.40)	4.60 (4.30-5.00)	9.00 (8.10-10.1)	19.8 (18.1-22.4)	33.8 (26.1-45.2)	2762
Age 3-5 years	15-16	9.05 (7.37-11.1)	8.00 (6.40-10.0)	15.6 (12.7-22.2)	35.4 (29.4-59.9)	69.2 (35.4-127)	465
Age 3-5 years	17-18	6.42 (5.50-7.50)	5.90 (5.20-6.70)	11.2 (9.30-16.0)	23.1 (18.5-31.6)	34.3 (22.4-66.3)	379
Age 6-11 years	11-12	18.3 (15.7-21.4)	17.0 (14.7-19.8)	35.2 (30.2-46.4)	88.2 (63.1-108)	144 (90.7-249)	396
Age 6-11 years	13-14	27.6 (22.9-33.1)	26.4 (18.7-36.1)	60.8 (51.1-82.1)	150 (110-209)	272 (152-428)	409
Age 6-11 years	15-16	11.1 (9.15-13.4)	10.2 (8.50-12.0)	19.9 (15.3-27.4)	51.9 (34.3-71.5)	94.7 (63.3-137)	415
Age 6-11 years	17-18	7.47 (6.45-8.65)	6.70 (5.80-7.90)	12.8 (9.70-18.7)	27.2 (19.4-48.3)	50.6 (27.2-62.9)	330
Age 12-19 years	11-12	21.7 (17.2-27.3)	20.7 (16.0-25.8)	51.4 (35.9-68.0)	160 (80.4-261)	289 (174-421)	388
Age 12-19 years	13-14	28.1 (23.6-33.4)	23.8 (18.7-32.4)	75.7 (54.2-99.3)	167 (137-184)	286 (167-612)	462
Age 12-19 years	15-16	10.3 (7.72-13.7)	9.00 (6.50-12.6)	19.4 (15.5-26.7)	55.3 (37.2-101)	120 (54.5-192)	405
Age 12-19 years	17-18	5.72 (4.85-6.74)	5.40 (4.30-7.30)	11.5 (9.60-15.3)	21.0 (17.0-30.9)	36.7 (22.4-57.3)	353
Age 20+ years	11-12	19.6 (17.0-22.6)	18.6 (14.7-21.5)	51.4 (43.4-66.1)	127 (103-165)	199 (178-273)	1705
Age 20+ years	13-14	19.9 (18.1-21.9)	18.2 (16.9-20.4)	50.4 (43.2-56.9)	131 (109-150)	239 (211-260)	1814
Age 20+ years	15-16	7.72 (5.95-10.0)	6.90 (5.20-8.50)	16.6 (11.8-22.0)	44.6 (29.1-75.4)	89.3 (54.6-146)	1690
Age 20+ years	17-18	4.52 (3.99-5.12)	4.30 (3.80-4.80)	8.20 (7.20-9.60)	18.5 (13.9-23.4)	32.1 (23.1-47.6)	1700
Male	11-12	22.8 (19.9-26.1)	20.2 (16.6-22.1)	59.8 (50.0-67.5)	155 (120-184)	255 (184-379)	1259
Male	13-14	23.4 (20.5-26.6)	21.0 (18.2-23.4)	57.0 (47.7-70.9)	142 (122-184)	256 (215-293)	1285
Male	15-16	9.02 (6.84-11.9)	8.00 (6.10-9.90)	18.5 (13.4-25.6)	51.9 (31.9-84.2)	111 (60.0-192)	1474
Male	17-18	5.07 (4.45-5.79)	4.60 (4.00-5.30)	9.40 (8.10-10.7)	21.0 (17.3-25.6)	36.0 (30.7-50.5)	1363
Female	11-12	17.1 (14.7-19.9)	16.3 (13.5-20.4)	43.3 (35.3-58.6)	103 (75.4-138)	180 (119-259)	1230
Female	13-14	19.5 (17.4-21.9)	18.5 (15.8-21.4)	49.1 (41.7-57.1)	128 (108-164)	239 (180-262)	1400
Female	15-16	7.58 (5.98-9.62)	6.90 (5.30-8.50)	15.9 (11.7-22.2)	40.5 (31.3-71.5)	86.1 (53.5-125)	1501
Female	17-18	4.73 (4.25-5.26)	4.60 (4.20-5.20)	8.60 (7.40-10.3)	19.4 (15.6-23.9)	31.5 (24.2-47.3)	1399
Mexican American	11-12	17.1 (14.8-19.9)	14.4 (11.5-20.5)	38.1 (33.9-46.6)	96.7 (70.3-133)	174 (98.9-251)	316
Mexican American	13-14	17.7 (15.2-20.6)	15.7 (11.6-22.1)	39.9 (27.4-53.1)	100 (63.2-117)	131 (115-184)	438
Mexican American	15-16	9.29 (7.73-11.2)	8.10 (6.90-10.2)	16.6 (12.7-25.9)	49.2 (37.1-59.8)	103 (64.2-126)	595
Mexican American	17-18	4.93 (4.01-6.06)	4.20 (3.90-5.40)	8.90 (7.40-11.7)	20.7 (15.3-24.8)	35.8 (21.3-94.2)	417
Non-Hispanic Black	11-12	24.1 (21.0-27.5)	22.4 (19.0-25.1)	58.2 (45.7-75.9)	165 (102-220)	273 (206-306)	665
Non-Hispanic Black	13-14	22.0 (18.9-25.5)	20.4 (16.9-24.1)	51.4 (41.6-59.6)	126 (80.9-158)	208 (136-322)	609
Non-Hispanic Black	15-16	9.66 (6.35-14.7)	8.50 (5.70-13.5)	20.5 (10.7-47.3)	64.9 (26.9-118)	108 (75.2-146)	698
Non-Hispanic Black	17-18	6.20 (5.39-7.12)	5.80 (5.20-6.50)	11.1 (9.50-14.5)	23.2 (19.4-27.2)	42.7 (27.5-73.8)	645
Non-Hispanic White	11-12	20.1 (17.2-23.4)	19.5 (15.6-21.8)	52.8 (43.1-68.0)	123 (94.0-166)	196 (166-275)	813
Non-Hispanic White	13-14	22.0 (19.6-24.8)	20.6 (17.7-22.8)	56.9 (47.9-66.8)	144 (122-180)	251 (211-272)	987
Non-Hispanic White	15-16	7.95 (6.15-10.3)	7.20 (5.50-8.90)	16.9 (12.1-21.4)	41.8 (29.7-75.3)	89.3 (50.7-159)	862
Non-Hispanic White	17-18	4.77 (4.20-5.43)	4.50 (4.10-5.00)	8.80 (7.50-10.5)	19.4 (15.4-24.8)	32.1 (22.1-51.6)	906
All Hispanic	11-12	18.5 (15.3-22.2)	15.8 (11.9-21.1)	42.3 (35.3-55.1)	104 (77.9-153)	221 (133-297)	571
All Hispanic	13-14	20.0 (17.2-23.2)	18.0 (13.7-23.5)	49.4 (39.1-57.1)	115 (79.7-147)	200 (139-293)	690
All Hispanic	15-16	9.72 (7.91-12.0)	8.60 (6.80-11.0)	19.7 (14.5-26.5)	53.8 (38.0-73.6)	103 (67.7-128)	971
All Hispanic	17-18	5.35 (4.59-6.25)	5.00 (4.20-5.60)	9.70 (8.70-11.7)	22.7 (19.1-31.9)	40.1 (33.8-55.9)	663
Non-Hispanic Asian	11-12	12.2 (10.0-14.8)	11.0 (8.40-13.8)	36.7 (25.6-47.1)	81.9 (66.1-127)	135 (91.9-204)	352
Non-Hispanic Asian	13-14	14.9 (11.5-19.3)	12.6 (9.80-19.7)	43.7 (35.6-52.6)	140 (71.3-183)	193 (156-287)	289
Non-Hispanic Asian	15-16	5.91 (4.26-8.18)	5.20 (4.30-7.10)	13.6 (9.50-24.3)	43.1 (24.3-74.8)	74.8 (32.2-386)	301
Non-Hispanic Asian	17-18	3.08 (2.56-3.70)	2.80 (2.30-3.30)	6.40 (4.70-8.30)	13.3 (9.80-19.4)	22.1 (13.2-51.5)	366

Limit of detection (LOD, see Data Analysis section) for Survey years 11-12, 13-14, 15-16, and 17-18 are 0.2, 0.3, 0.3, and 0.3, respectively.

† Participants are age 6+ years in Surveys 11-12 and 13-14; beginning with Survey 15-16, participants include those age 3+ years.

Urinary Mono-(carboxyisooctyl) phthalate (MCOP) (creatinine corrected) (2011 - 2018)†

CAS Number 898544-09-7 (refers to one of the potential isomers of MCOP)

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.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	11-12	22.4 (19.4-25.8)	20.4 (17.0-24.4)	54.1 (42.0-62.1)	118 (92.5-144)	194 (144-239)	2487
Total population	13-14	21.4 (19.8-23.1)	19.5 (16.9-22.6)	46.5 (41.9-51.1)	123 (98.0-134)	196 (162-240)	2684
Total population	15-16	8.55 (6.88-10.6)	6.89 (5.61-8.76)	17.2 (12.8-23.0)	43.3 (31.5-62.3)	75.2 (53.3-102)	2974
Total population	17-18	5.11 (4.69-5.56)	4.41 (4.09-4.78)	7.67 (7.14-8.57)	18.0 (14.8-20.2)	30.6 (26.3-40.5)	2762
Age 3-5 years	15-16	21.6 (18.1-25.8)	18.2 (15.2-21.2)	35.3 (24.5-46.7)	75.6 (45.7-151)	151 (85.9-210)	464
Age 3-5 years	17-18	13.9 (12.2-16.0)	12.0 (10.7-14.0)	20.8 (18.1-25.0)	36.7 (29.5-46.0)	54.3 (38.6-162)	379
Age 6-11 years	11-12	25.9 (22.8-29.6)	22.1 (18.7-25.8)	42.3 (32.7-54.2)	116 (56.9-161)	161 (117-259)	395
Age 6-11 years	13-14	34.8 (29.6-40.9)	33.1 (24.4-42.8)	71.4 (51.4-94.7)	176 (104-254)	278 (176-412)	409
Age 6-11 years	15-16	14.3 (12.0-16.9)	11.5 (9.60-14.3)	23.1 (17.5-33.3)	59.6 (39.6-90.4)	107 (66.9-140)	415
Age 6-11 years	17-18	8.69 (7.30-10.4)	7.81 (6.54-9.02)	12.2 (10.4-14.9)	24.3 (15.3-40.0)	55.0 (25.0-87.0)	330
Age 12-19 years	11-12	21.1 (16.6-26.9)	16.9 (13.7-20.2)	45.6 (28.8-63.4)	120 (73.7-209)	238 (117-396)	388
Age 12-19 years	13-14	22.8 (19.2-27.1)	21.7 (15.0-26.8)	50.8 (39.5-63.2)	140 (95.5-193)	208 (160-300)	462
Age 12-19 years	15-16	7.99 (6.21-10.3)	6.27 (4.41-9.13)	16.4 (10.4-19.4)	40.7 (25.7-55.5)	70.2 (41.7-116)	405
Age 12-19 years	17-18	4.94 (4.18-5.83)	4.29 (3.79-4.85)	7.46 (5.97-10.8)	16.9 (11.1-32.5)	36.5 (16.0-62.7)	353
Age 20+ years	11-12	22.2 (19.1-25.8)	20.8 (16.7-25.1)	55.3 (42.0-64.5)	118 (92.2-144)	194 (136-250)	1704
Age 20+ years	13-14	20.1 (18.6-21.7)	18.3 (15.9-21.3)	43.2 (38.6-48.5)	111 (87.8-127)	181 (148-218)	1813
Age 20+ years	15-16	7.87 (6.26-9.90)	6.42 (4.88-7.87)	15.3 (10.6-22.1)	39.7 (28.6-62.5)	71.5 (49.4-96.1)	1690
Age 20+ years	17-18	4.64 (4.21-5.10)	4.00 (3.64-4.44)	6.71 (6.25-7.18)	15.5 (12.5-18.3)	29.4 (20.0-39.9)	1700
Male	11-12	21.3 (18.9-23.9)	20.0 (16.1-23.2)	54.2 (45.8-58.8)	112 (90.3-144)	189 (136-222)	1258
Male	13-14	19.6 (17.7-21.8)	17.9 (15.1-21.9)	42.4 (37.0-51.2)	111 (86.6-125)	192 (133-245)	1284
Male	15-16	8.05 (6.27-10.3)	6.68 (4.76-9.00)	16.5 (11.6-22.3)	44.7 (29.0-64.4)	75.1 (48.7-97.3)	1474
Male	17-18	4.51 (4.11-4.94)	3.76 (3.59-4.09)	7.14 (6.38-7.98)	16.2 (13.8-19.0)	29.6 (20.0-37.6)	1363
Female	11-12	23.5 (19.4-28.5)	20.8 (16.6-26.2)	53.7 (38.3-68.5)	121 (86.8-156)	194 (135-290)	1229
Female	13-14	23.2 (20.3-26.5)	20.9 (17.4-24.1)	49.5 (42.5-60.8)	130 (95.7-166)	201 (164-268)	1400
Female	15-16	9.06 (7.39-11.1)	7.17 (6.00-8.95)	17.8 (13.1-23.4)	42.6 (30.2-67.4)	75.2 (52.9-118)	1500
Female	17-18	5.76 (5.20-6.37)	5.00 (4.58-5.33)	8.33 (7.27-9.44)	18.9 (14.0-27.9)	40.5 (24.6-66.4)	1399
Mexican American	11-12	19.3 (16.8-22.2)	16.3 (12.8-20.7)	35.7 (26.8-55.5)	81.9 (70.6-115)	136 (81.1-384)	316
Mexican American	13-14	18.0 (14.7-22.1)	16.1 (12.4-22.6)	36.7 (29.3-45.7)	67.4 (53.3-108)	119 (81.4-152)	438
Mexican American	15-16	10.1 (8.48-12.1)	8.29 (6.98-10.5)	19.4 (15.0-25.4)	42.4 (35.1-62.3)	79.3 (60.5-90.6)	595
Mexican American	17-18	5.34 (4.49-6.35)	4.36 (3.79-5.13)	7.80 (7.00-9.41)	20.0 (13.4-30.8)	54.8 (21.9-95.6)	417
Non-Hispanic Black	11-12	18.7 (16.5-21.3)	16.1 (14.1-19.6)	40.0 (32.6-51.6)	102 (76.4-134)	154 (132-201)	665
Non-Hispanic Black	13-14	16.2 (14.3-18.3)	14.3 (12.2-16.7)	36.6 (29.3-44.0)	86.6 (73.2-104)	128 (107-156)	609
Non-Hispanic Black	15-16	7.70 (5.36-11.0)	6.33 (4.54-9.36)	15.3 (8.40-29.7)	46.0 (24.5-77.0)	77.0 (55.0-100)	697
Non-Hispanic Black	17-18	4.67 (4.08-5.35)	4.03 (3.55-4.48)	7.11 (6.20-9.09)	16.2 (12.5-21.1)	31.3 (18.9-52.1)	645
Non-Hispanic White	11-12	24.3 (20.4-29.0)	21.9 (18.1-27.5)	58.8 (48.3-71.3)	127 (101-161)	203 (146-284)	811
Non-Hispanic White	13-14	23.2 (21.0-25.7)	22.0 (17.7-24.8)	50.0 (42.3-58.2)	127 (99.4-159)	205 (160-276)	987
Non-Hispanic White	15-16	8.55 (6.89-10.6)	6.78 (5.49-8.66)	16.6 (12.7-22.9)	42.6 (30.0-63.3)	75.2 (49.0-118)	862
Non-Hispanic White	17-18	5.09 (4.63-5.60)	4.49 (4.09-4.86)	7.38 (6.56-9.00)	16.7 (13.4-20.7)	29.8 (21.1-38.5)	906
All Hispanic	11-12	20.7 (18.0-23.7)	18.3 (15.5-21.7)	38.7 (31.2-53.0)	90.7 (79.3-117)	163 (121-276)	571
All Hispanic	13-14	19.8 (16.9-23.3)	18.1 (14.6-21.7)	42.6 (36.6-47.2)	87.8 (65.5-119)	186 (115-240)	690
All Hispanic	15-16	10.2 (8.32-12.6)	8.24 (6.84-11.0)	20.1 (15.8-26.3)	48.8 (35.0-67.2)	80.1 (60.5-103)	971
All Hispanic	17-18	5.75 (5.08-6.51)	4.90 (4.33-5.26)	8.99 (7.68-10.6)	21.0 (16.2-31.0)	57.7 (30.0-78.8)	663
Non-Hispanic Asian	11-12	16.3 (13.7-19.4)	16.5 (11.5-22.3)	37.5 (31.5-51.3)	71.8 (58.5-110)	121 (77.5-172)	352
Non-Hispanic Asian	13-14	18.8 (15.1-23.4)	17.0 (11.5-23.1)	46.0 (34.8-67.3)	167 (81.3-215)	230 (172-383)	288
Non-Hispanic Asian	15-16	7.31 (5.59-9.56)	5.60 (4.36-7.62)	19.1 (10.4-24.9)	39.4 (25.9-56.6)	92.5 (38.9-156)	301
Non-Hispanic Asian	17-18	4.55 (3.77-5.49)	4.17 (3.33-5.16)	8.00 (6.58-9.51)	17.9 (12.1-23.4)	26.8 (19.1-39.9)	366

† Participants are age 6+ years in Surveys 11-12 and 13-14; beginning with Survey 15-16, participants include those age 3+ years.

Urinary Mono-methyl phthalate (MMP) (2001 - 2010)

CAS Number 4376-18-5

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.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	01-02	1.15 (.985-1.34)	1.50 (1.30-1.80)	3.30 (2.90-3.70)	6.00 (5.10-7.50)	9.80 (8.00-12.5)	2782
Total population	03-04	*	1.30 (<LOD-1.70)	3.90 (3.00-4.90)	9.70 (7.70-12.2)	16.3 (12.0-20.4)	2605
Total population	05-06	*	<LOD	2.50 (1.90-3.40)	7.40 (6.10-8.60)	12.4 (10.8-14.7)	2548
Total population	07-08	*	<LOD	2.20 (1.80-2.70)	6.50 (4.70-8.30)	11.3 (8.40-16.3)	2604
Total population	09-10	*	.940 (.670-1.21)	2.89 (2.51-3.28)	6.72 (5.76-8.16)	12.0 (9.29-15.3)	2749
Age 6-11 years	01-02	1.45 (1.13-1.87)	1.90 (1.40-2.80)	4.00 (3.40-4.90)	7.20 (6.00-8.00)	11.8 (7.60-20.8)	393
Age 6-11 years	03-04	2.10 (1.67-2.63)	1.70 (1.20-2.40)	4.30 (2.80-6.40)	9.50 (6.40-18.8)	18.8 (9.40-33.4)	342
Age 6-11 years	05-06	*	<LOD	4.00 (3.30-4.80)	10.6 (7.40-13.4)	15.4 (10.6-30.6)	356
Age 6-11 years	07-08	*	1.20 (<LOD-1.60)	3.70 (3.00-5.30)	8.00 (6.50-8.70)	12.1 (8.30-35.8)	389
Age 6-11 years	09-10	2.13 (1.83-2.47)	2.36 (1.72-2.92)	4.83 (3.85-5.61)	10.8 (8.59-16.7)	22.3 (11.4-25.8)	415
Age 12-19 years	01-02	1.59 (1.28-1.96)	2.10 (1.80-2.50)	3.90 (3.30-4.70)	8.50 (5.30-10.5)	13.0 (9.60-17.8)	742
Age 12-19 years	03-04	*	1.50 (1.00-2.20)	4.40 (3.00-7.00)	13.3 (7.40-20.9)	21.8 (17.8-31.5)	729
Age 12-19 years	05-06	*	<LOD	3.70 (2.70-4.60)	8.60 (7.00-9.50)	12.4 (9.30-20.7)	702
Age 12-19 years	07-08	*	<LOD	2.30 (1.70-3.20)	6.70 (4.20-8.90)	12.0 (7.90-17.4)	401
Age 12-19 years	09-10	1.45 (1.12-1.89)	1.37 (.870-1.98)	3.33 (2.76-4.53)	7.68 (5.27-11.7)	12.0 (7.33-19.6)	420
Age 20+ years	01-02	1.06 (.904-1.25)	1.40 (1.10-1.60)	3.10 (2.50-3.50)	5.60 (4.60-7.10)	9.20 (7.40-12.3)	1647
Age 20+ years	03-04	*	1.20 (<LOD-1.50)	3.80 (2.80-4.90)	9.30 (7.10-11.8)	14.3 (10.8-19.9)	1534
Age 20+ years	05-06	*	<LOD	2.20 (1.60-2.80)	6.90 (5.30-8.40)	11.9 (9.50-14.7)	1490
Age 20+ years	07-08	*	<LOD	2.00 (1.60-2.50)	6.00 (4.20-8.30)	11.1 (8.10-17.3)	1814
Age 20+ years	09-10	*	.750 (<LOD-1.02)	2.59 (2.19-2.90)	6.30 (5.22-7.60)	10.5 (8.49-14.2)	1914
Male	01-02	1.17 (.962-1.43)	1.50 (1.30-1.90)	3.30 (2.90-4.00)	5.90 (4.80-7.90)	9.20 (7.10-13.5)	1371
Male	03-04	*	1.30 (1.00-1.80)	4.00 (3.20-5.20)	10.0 (7.30-13.5)	17.7 (11.8-20.4)	1250
Male	05-06	*	<LOD	2.40 (1.80-3.50)	7.40 (5.70-9.20)	13.4 (11.0-15.7)	1270
Male	07-08	*	<LOD	2.40 (1.80-3.20)	6.90 (4.70-8.70)	10.3 (8.20-17.2)	1294
Male	09-10	*	1.04 (.730-1.40)	2.92 (2.60-3.47)	6.53 (5.38-8.66)	11.4 (8.86-13.9)	1399
Female	01-02	1.13 (.973-1.31)	1.40 (1.10-1.70)	3.30 (2.80-3.70)	6.40 (5.00-7.80)	10.3 (8.20-16.2)	1411
Female	03-04	*	1.20 (<LOD-1.60)	3.60 (2.80-4.70)	9.50 (7.70-12.2)	15.3 (11.7-22.9)	1355
Female	05-06	*	<LOD	2.60 (1.80-3.40)	7.40 (5.10-9.30)	12.0 (9.30-16.0)	1278
Female	07-08	*	<LOD	2.10 (1.70-2.50)	6.20 (4.30-8.20)	12.0 (7.90-16.1)	1310
Female	09-10	*	.840 (.600-1.09)	2.81 (2.30-3.25)	6.81 (5.49-8.27)	13.5 (8.91-16.8)	1350
Mexican American	01-02	1.21 (1.02-1.45)	1.60 (1.30-1.70)	3.30 (2.70-4.00)	5.60 (4.70-7.30)	8.60 (6.40-15.2)	677
Mexican American	03-04	*	1.40 (1.10-1.80)	4.00 (2.50-6.30)	9.60 (7.30-13.4)	15.0 (11.4-18.8)	652
Mexican American	05-06	*	<LOD	3.10 (2.20-4.30)	7.30 (5.90-9.40)	11.3 (8.50-18.0)	637
Mexican American	07-08	*	<LOD	2.50 (1.30-3.70)	6.40 (4.20-11.1)	12.1 (6.80-16.3)	531
Mexican American	09-10	1.36 (1.22-1.51)	1.26 (.970-1.53)	3.67 (2.97-4.16)	8.30 (6.51-9.24)	12.0 (9.36-18.2)	566
Non-Hispanic Black	01-02	1.64 (1.37-1.98)	2.10 (1.70-2.70)	4.40 (3.60-5.10)	8.30 (6.20-10.1)	11.0 (9.50-13.4)	703
Non-Hispanic Black	03-04	2.16 (1.64-2.84)	1.70 (1.00-2.80)	5.10 (3.70-7.00)	11.4 (7.30-17.3)	17.8 (10.2-39.4)	699
Non-Hispanic Black	05-06	*	<LOD	3.70 (2.40-4.70)	8.20 (6.10-10.6)	13.0 (10.6-15.8)	678
Non-Hispanic Black	07-08	*	<LOD	2.40 (1.50-3.40)	6.10 (4.10-8.80)	10.6 (6.70-16.4)	597
Non-Hispanic Black	09-10	1.71 (1.32-2.21)	1.89 (1.33-2.66)	4.11 (3.38-5.12)	7.87 (5.90-12.5)	14.2 (8.47-17.0)	516
Non-Hispanic White	01-02	1.08 (.906-1.29)	1.40 (1.10-1.70)	3.20 (2.50-3.60)	5.60 (4.70-6.70)	9.70 (7.10-14.0)	1216
Non-Hispanic White	03-04	*	1.20 (<LOD-1.60)	3.60 (2.80-4.80)	9.70 (7.50-12.2)	16.5 (12.0-20.4)	1088
Non-Hispanic White	05-06	*	<LOD	2.30 (1.70-2.80)	7.40 (5.50-8.80)	12.5 (10.4-15.0)	1038
Non-Hispanic White	07-08	*	<LOD	2.10 (1.70-2.60)	6.80 (4.30-8.50)	11.2 (8.00-18.7)	1077
Non-Hispanic White	09-10	*	.690 (<LOD-.930)	2.37 (1.95-2.85)	6.17 (5.23-8.04)	12.3 (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.

Urinary Mono-methyl phthalate (MMP) (creatinine corrected) (2001 - 2010)

CAS Number 4376-18-5

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.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	01-02	1.08 (.936-1.25)	1.33 (1.13-1.55)	2.62 (2.36-2.97)	5.00 (3.97-6.02)	8.00 (6.07-11.0)	2782
Total population	03-04	*	1.53 (<LOD-1.79)	3.45 (2.76-4.37)	7.95 (5.83-11.8)	13.5 (11.3-18.1)	2605
Total population	05-06	*	<LOD	2.85 (2.52-3.25)	6.53 (5.49-7.67)	12.2 (9.74-14.3)	2548
Total population	07-08	*	<LOD	2.79 (2.31-3.25)	5.68 (4.77-7.36)	10.8 (8.00-13.6)	2604
Total population	09-10	*	1.18 (1.03-1.38)	2.56 (2.29-2.92)	5.55 (4.81-6.54)	10.6 (7.70-13.1)	2749
Age 6-11 years	01-02	1.65 (1.28-2.14)	2.32 (1.72-2.86)	3.97 (3.27-4.71)	7.20 (5.99-9.41)	13.2 (7.60-22.5)	393
Age 6-11 years	03-04	2.22 (1.75-2.81)	1.88 (1.49-2.60)	4.96 (2.81-6.49)	9.67 (6.15-14.6)	16.2 (12.1-34.5)	342
Age 6-11 years	05-06	*	<LOD	4.59 (3.09-6.35)	11.0 (8.07-15.0)	18.6 (10.4-21.9)	356
Age 6-11 years	07-08	*	2.05 (<LOD-2.33)	4.56 (3.85-5.36)	9.06 (6.63-11.4)	13.6 (10.4-36.0)	389
Age 6-11 years	09-10	2.77 (2.44-3.15)	2.85 (2.46-3.29)	5.24 (4.34-6.18)	14.7 (9.87-16.6)	20.5 (14.7-27.7)	415
Age 12-19 years	01-02	1.23 (1.01-1.48)	1.51 (1.32-1.82)	2.84 (2.52-3.33)	5.36 (3.68-6.39)	7.27 (5.64-11.4)	742
Age 12-19 years	03-04	*	1.34 (1.12-1.73)	3.19 (2.26-4.43)	7.84 (4.95-12.1)	13.3 (9.49-19.1)	729
Age 12-19 years	05-06	*	<LOD	2.80 (2.15-3.55)	5.65 (4.33-6.52)	12.4 (6.45-18.9)	702
Age 12-19 years	07-08	*	<LOD	2.00 (1.63-2.63)	4.32 (3.10-6.05)	7.25 (4.77-10.8)	401
Age 12-19 years	09-10	1.17 (.907-1.51)	1.18 (.930-1.49)	2.24 (1.81-2.62)	4.17 (3.09-6.47)	7.33 (4.56-15.9)	420
Age 20+ years	01-02	1.00 (.868-1.16)	1.21 (1.05-1.40)	2.44 (2.14-2.68)	4.53 (3.49-6.02)	7.72 (5.52-11.4)	1647
Age 20+ years	03-04	*	1.52 (<LOD-1.79)	3.39 (2.69-4.31)	7.69 (5.40-11.8)	13.3 (10.1-18.9)	1534
Age 20+ years	05-06	*	<LOD	2.76 (2.44-3.12)	6.09 (5.00-7.75)	11.2 (9.17-13.4)	1490
Age 20+ years	07-08	*	<LOD	2.75 (2.26-3.25)	5.58 (4.33-7.59)	10.4 (7.09-14.8)	1814
Age 20+ years	09-10	*	1.09 (<LOD-1.23)	2.34 (2.02-2.69)	5.16 (4.25-6.39)	9.53 (7.07-12.1)	1914
Male	01-02	.954 (.794-1.15)	1.17 (1.02-1.40)	2.37 (2.03-2.75)	4.18 (3.45-5.64)	6.42 (4.94-9.59)	1371
Male	03-04	*	1.35 (1.15-1.52)	2.95 (2.26-4.09)	7.11 (5.00-10.2)	11.8 (9.05-13.3)	1250
Male	05-06	*	<LOD	2.19 (1.89-2.50)	5.03 (4.09-6.45)	10.2 (7.75-13.4)	1270
Male	07-08	*	<LOD	2.33 (1.92-2.88)	4.88 (3.85-7.25)	8.56 (6.25-13.8)	1294
Male	09-10	*	1.02 (.850-1.21)	2.49 (2.00-2.86)	5.23 (4.25-6.84)	9.51 (7.20-12.4)	1399
Female	01-02	1.21 (1.06-1.38)	1.45 (1.23-1.82)	2.87 (2.58-3.06)	5.56 (4.55-7.14)	10.0 (7.20-15.3)	1411
Female	03-04	*	1.83 (<LOD-2.10)	3.87 (3.04-4.96)	9.41 (6.41-13.6)	16.5 (12.5-23.5)	1355
Female	05-06	*	<LOD	3.47 (3.00-4.11)	7.67 (6.00-9.75)	13.2 (9.75-18.7)	1278
Female	07-08	*	<LOD	3.12 (2.72-3.71)	6.50 (5.20-8.67)	11.7 (8.56-14.8)	1310
Female	09-10	*	1.35 (1.16-1.57)	2.76 (2.34-3.18)	5.77 (4.94-7.22)	11.3 (8.29-15.5)	1350
Mexican American	01-02	1.14 (.975-1.34)	1.48 (1.30-1.63)	2.50 (2.20-2.94)	4.19 (3.77-5.76)	8.47 (5.58-12.5)	677
Mexican American	03-04	*	1.36 (1.15-1.71)	3.56 (2.45-4.90)	7.53 (5.62-9.64)	12.5 (9.44-16.9)	652
Mexican American	05-06	*	<LOD	2.86 (2.07-3.67)	6.48 (4.21-8.24)	11.5 (6.94-21.7)	637
Mexican American	07-08	*	<LOD	2.59 (2.06-3.39)	5.65 (3.60-8.13)	9.40 (6.06-13.9)	531
Mexican American	09-10	1.35 (1.19-1.53)	1.37 (1.13-1.67)	3.13 (2.61-3.57)	6.18 (5.33-8.40)	10.7 (8.33-15.2)	566
Non-Hispanic Black	01-02	1.15 (.949-1.40)	1.39 (1.29-1.67)	2.70 (2.36-2.95)	4.87 (4.21-5.93)	8.09 (5.86-11.0)	703
Non-Hispanic Black	03-04	1.53 (1.21-1.94)	1.40 (1.07-1.75)	3.14 (2.26-4.37)	7.50 (4.29-14.6)	13.7 (7.70-20.7)	699
Non-Hispanic Black	05-06	*	<LOD	2.59 (1.87-3.28)	5.20 (4.53-6.29)	8.50 (6.79-10.3)	678
Non-Hispanic Black	07-08	*	<LOD	2.10 (1.69-2.44)	4.22 (2.94-5.74)	7.36 (4.88-8.79)	597
Non-Hispanic Black	09-10	1.24 (.983-1.56)	1.35 (1.08-1.58)	2.69 (2.22-3.23)	4.94 (4.03-6.54)	8.18 (5.74-15.5)	516
Non-Hispanic White	01-02	1.07 (.914-1.26)	1.30 (1.05-1.58)	2.62 (2.32-2.99)	5.22 (3.68-6.82)	8.26 (6.07-12.6)	1216
Non-Hispanic White	03-04	*	1.56 (<LOD-1.89)	3.50 (2.71-4.67)	8.10 (6.00-11.9)	13.6 (11.3-18.9)	1088
Non-Hispanic White	05-06	*	<LOD	2.98 (2.60-3.39)	7.19 (5.58-9.51)	13.4 (10.4-16.6)	1038
Non-Hispanic White	07-08	*	<LOD	2.89 (2.26-3.67)	6.01 (4.63-8.57)	11.7 (7.47-15.6)	1077
Non-Hispanic White	09-10	*	1.13 (<LOD-1.29)	2.48 (2.06-2.80)	5.38 (4.44-6.76)	10.9 (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.

Urinary Mono-methyl phthalate (MMP) (2011 - 2012)

CAS Number 4376-18-5

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.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	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
Age 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
Age 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
Age 20+ years	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
Male	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
Female	11-12	*	.800 (.600-.900)	2.50 (2.20-2.90)	6.30 (5.00-7.30)	10.5 (8.80-13.6)	1230
Mexican American	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 Black	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 White	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 Hispanic	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
Non-Hispanic Asian	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.

Urinary Mono-methyl phthalate (MMP) (creatinine corrected) (2011 - 2012)

CAS Number 4376-18-5

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.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	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
Age 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
Age 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
Age 20+ years	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
Male	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
Female	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
Mexican American	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 Black	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 White	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 Hispanic	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
Non-Hispanic Asian	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.

Urinary Mono-(3-carboxypropyl) phthalate (MCP) (2001 - 2010)

CAS Number 66851-46-5

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.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	01-02	2.75 (2.49-3.04)	3.10 (2.80-3.30)	5.70 (5.10-6.40)	10.0 (8.90-11.3)	14.6 (12.7-17.5)	2782
Total population	03-04	2.91 (2.79-3.04)	3.10 (3.00-3.30)	5.70 (5.20-6.10)	10.2 (9.20-11.8)	15.3 (13.8-16.2)	2605
Total population	05-06	2.05 (1.87-2.26)	2.10 (1.90-2.40)	4.40 (4.00-4.80)	8.90 (7.60-10.1)	13.1 (10.6-17.4)	2548
Total population	07-08	2.76 (2.52-3.04)	2.70 (2.50-3.00)	5.80 (5.20-6.50)	11.1 (9.70-13.1)	18.1 (15.4-22.3)	2604
Total population	09-10	3.02 (2.58-3.53)	3.10 (2.57-3.65)	6.44 (5.44-7.70)	13.4 (11.4-16.5)	22.3 (19.5-26.2)	2749
Age 6-11 years	01-02	6.11 (5.46-6.84)	6.70 (5.40-7.50)	11.8 (10.2-13.3)	20.1 (17.8-23.1)	24.7 (22.2-31.6)	393
Age 6-11 years	03-04	6.86 (5.80-8.11)	7.10 (6.00-8.90)	12.7 (10.4-16.4)	22.0 (17.2-27.7)	29.2 (22.3-36.6)	342
Age 6-11 years	05-06	4.82 (4.09-5.68)	4.90 (4.30-5.90)	8.50 (6.70-10.4)	13.1 (10.3-17.9)	17.9 (12.6-34.5)	356
Age 6-11 years	07-08	6.01 (4.80-7.53)	6.40 (5.10-8.00)	11.3 (8.40-15.9)	20.3 (13.2-27.3)	23.9 (19.1-34.1)	389
Age 6-11 years	09-10	4.54 (3.74-5.52)	4.86 (3.71-6.49)	9.08 (7.14-11.2)	14.4 (10.8-20.3)	20.3 (14.3-51.9)	415
Age 12-19 years	01-02	3.71 (3.18-4.33)	4.00 (3.40-4.70)	7.10 (6.10-8.10)	11.5 (9.50-12.7)	14.1 (11.8-19.0)	742
Age 12-19 years	03-04	3.72 (3.33-4.15)	4.10 (3.50-4.60)	7.20 (5.80-8.40)	11.0 (9.50-13.6)	15.4 (13.4-17.9)	729
Age 12-19 years	05-06	2.96 (2.52-3.46)	3.10 (2.50-3.60)	5.90 (4.80-7.30)	11.8 (9.10-14.5)	17.0 (12.7-21.5)	702
Age 12-19 years	07-08	3.81 (3.15-4.61)	4.00 (3.20-4.70)	8.20 (6.90-9.40)	13.3 (11.1-17.1)	24.1 (13.8-25.6)	401
Age 12-19 years	09-10	3.65 (2.88-4.64)	3.74 (2.90-4.74)	7.16 (5.48-9.32)	15.9 (10.8-25.8)	32.3 (20.9-54.3)	420
Age 20+ years	01-02	2.37 (2.11-2.66)	2.60 (2.20-3.00)	4.80 (4.30-5.40)	8.10 (7.20-9.50)	12.0 (10.1-14.2)	1647
Age 20+ years	03-04	2.53 (2.41-2.66)	2.80 (2.60-2.90)	4.90 (4.50-5.20)	8.10 (7.50-8.90)	13.2 (10.8-14.3)	1534
Age 20+ years	05-06	1.76 (1.60-1.93)	1.70 (1.60-2.00)	3.60 (3.20-4.10)	7.10 (6.10-8.40)	11.3 (9.60-13.6)	1490
Age 20+ years	07-08	2.41 (2.18-2.67)	2.50 (2.20-2.60)	5.00 (4.60-5.50)	9.60 (8.00-11.1)	15.6 (12.9-19.9)	1814
Age 20+ years	09-10	2.80 (2.40-3.28)	2.88 (2.42-3.39)	6.00 (5.04-7.15)	13.1 (10.8-16.4)	21.8 (18.7-27.9)	1914
Male	01-02	2.89 (2.64-3.17)	3.10 (2.80-3.40)	5.70 (5.00-6.80)	9.90 (8.70-12.0)	14.2 (12.4-18.1)	1371
Male	03-04	3.25 (3.01-3.52)	3.30 (3.00-3.60)	6.00 (5.60-6.80)	11.8 (10.1-13.6)	16.0 (14.2-20.0)	1250
Male	05-06	2.32 (2.11-2.54)	2.40 (2.00-2.70)	4.70 (4.30-5.20)	9.60 (7.90-11.8)	14.5 (11.5-22.3)	1270
Male	07-08	3.02 (2.70-3.39)	2.90 (2.60-3.30)	5.80 (5.10-6.60)	12.3 (10.1-15.3)	21.3 (16.7-28.5)	1294
Male	09-10	3.37 (2.86-3.96)	3.42 (2.91-4.04)	7.09 (6.04-8.32)	15.5 (12.9-18.7)	23.6 (19.9-33.0)	1399
Female	01-02	2.62 (2.29-2.99)	3.00 (2.50-3.30)	5.70 (5.00-6.30)	10.0 (8.50-11.5)	14.7 (11.2-20.3)	1411
Female	03-04	2.63 (2.44-2.83)	3.00 (2.60-3.20)	5.20 (4.70-5.80)	9.20 (8.20-10.3)	13.4 (11.0-16.2)	1355
Female	05-06	1.83 (1.59-2.10)	1.80 (1.60-2.10)	4.00 (3.30-4.60)	8.00 (6.60-9.50)	12.1 (9.50-14.7)	1278
Female	07-08	2.54 (2.30-2.79)	2.60 (2.30-3.00)	5.90 (5.00-6.80)	10.5 (9.10-12.3)	15.4 (13.3-21.5)	1310
Female	09-10	2.72 (2.29-3.22)	2.79 (2.25-3.40)	5.78 (4.67-7.20)	12.6 (9.86-15.9)	20.7 (15.9-29.7)	1350
Mexican American	01-02	2.67 (2.26-3.16)	3.00 (2.30-3.50)	5.30 (4.40-5.90)	9.20 (7.30-12.4)	13.6 (10.4-18.7)	677
Mexican American	03-04	3.08 (2.86-3.32)	3.10 (2.80-3.40)	5.50 (4.80-6.10)	9.90 (7.90-12.6)	13.7 (11.5-19.8)	652
Mexican American	05-06	2.24 (1.71-2.94)	2.20 (1.60-3.10)	4.50 (3.30-6.50)	9.40 (6.50-13.1)	14.1 (9.90-25.4)	637
Mexican American	07-08	2.66 (2.37-3.00)	2.70 (2.40-3.20)	5.00 (4.30-5.70)	8.80 (7.60-11.2)	14.5 (11.5-17.8)	531
Mexican American	09-10	2.31 (1.95-2.74)	2.32 (1.92-2.93)	5.11 (4.44-5.58)	8.95 (7.39-11.3)	14.8 (11.1-23.2)	566
Non-Hispanic Black	01-02	3.09 (2.81-3.40)	3.30 (2.90-3.60)	6.30 (5.50-6.50)	10.9 (9.10-13.0)	15.1 (13.5-22.4)	703
Non-Hispanic Black	03-04	3.30 (3.01-3.62)	3.20 (2.90-3.60)	6.10 (5.50-6.90)	11.6 (9.30-13.4)	20.1 (13.6-25.5)	699
Non-Hispanic Black	05-06	2.28 (2.03-2.57)	2.40 (2.10-2.80)	4.50 (3.80-5.60)	8.70 (7.10-10.3)	13.3 (10.4-16.5)	678
Non-Hispanic Black	07-08	2.94 (2.50-3.44)	2.90 (2.50-3.40)	5.80 (4.90-6.80)	12.2 (8.50-17.1)	21.1 (13.7-42.4)	597
Non-Hispanic Black	09-10	3.38 (2.66-4.31)	3.35 (2.49-4.56)	6.92 (5.86-8.97)	13.6 (10.2-21.0)	22.9 (17.9-28.7)	516
Non-Hispanic White	01-02	2.72 (2.40-3.08)	3.00 (2.60-3.30)	5.80 (4.80-6.80)	10.3 (8.90-11.9)	15.8 (12.6-19.5)	1216
Non-Hispanic White	03-04	2.87 (2.73-3.02)	3.10 (2.90-3.30)	5.60 (5.00-6.00)	10.1 (9.10-12.0)	15.2 (13.4-16.1)	1088
Non-Hispanic White	05-06	1.97 (1.81-2.15)	2.00 (1.80-2.20)	4.20 (3.80-4.60)	8.70 (6.80-10.3)	13.1 (10.0-17.5)	1038
Non-Hispanic White	07-08	2.84 (2.51-3.21)	2.90 (2.50-3.40)	6.10 (5.30-7.00)	11.4 (9.70-14.0)	18.1 (14.0-24.1)	1077
Non-Hispanic White	09-10	3.17 (2.65-3.79)	3.16 (2.60-3.87)	6.86 (5.72-8.32)	14.5 (12.6-17.8)	23.6 (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.

Urinary Mono-(3-carboxypropyl) phthalate (MCPP) (creatinine corrected) (2001 - 2010)

CAS Number 66851-46-5

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.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	01-02	2.58 (2.35-2.83)	2.47 (2.25-2.76)	4.08 (3.87-4.48)	7.24 (6.58-8.00)	11.4 (10.0-12.5)	2782
Total population	03-04	2.74 (2.56-2.93)	2.60 (2.42-2.79)	4.39 (3.94-4.86)	7.70 (6.65-8.60)	10.7 (9.53-11.9)	2605
Total population	05-06	2.00 (1.82-2.20)	1.86 (1.67-2.06)	3.55 (3.14-4.00)	6.80 (5.77-7.95)	10.3 (8.68-12.7)	2548
Total population	07-08	2.79 (2.63-2.96)	2.53 (2.37-2.70)	4.76 (4.33-5.16)	9.70 (8.52-10.9)	14.8 (12.7-17.0)	2604
Total population	09-10	3.15 (2.77-3.59)	2.94 (2.55-3.38)	5.71 (4.88-6.72)	11.8 (10.5-13.5)	18.8 (16.0-21.9)	2749
Age 6-11 years	01-02	6.96 (6.29-7.70)	7.08 (5.83-7.87)	11.2 (9.15-14.0)	20.7 (15.5-22.3)	26.4 (20.7-27.0)	393
Age 6-11 years	03-04	7.25 (6.43-8.18)	7.06 (5.93-7.59)	11.2 (9.38-12.4)	19.1 (14.4-25.6)	26.9 (19.3-29.0)	342
Age 6-11 years	05-06	5.31 (4.57-6.17)	5.06 (4.57-5.79)	8.78 (7.50-10.0)	13.7 (10.2-21.3)	21.3 (13.2-36.7)	356
Age 6-11 years	07-08	7.41 (5.87-9.34)	6.81 (5.50-9.05)	11.6 (9.43-14.1)	20.2 (12.7-39.2)	30.4 (16.5-68.9)	389
Age 6-11 years	09-10	5.92 (5.09-6.88)	5.94 (5.09-6.92)	9.47 (8.38-10.3)	15.5 (10.7-23.7)	22.7 (13.6-47.2)	415
Age 12-19 years	01-02	2.86 (2.52-3.25)	2.94 (2.50-3.36)	4.59 (4.03-5.23)	6.69 (6.30-7.25)	9.55 (8.03-10.7)	742
Age 12-19 years	03-04	2.78 (2.54-3.05)	2.75 (2.53-2.99)	4.55 (4.05-5.15)	6.61 (6.15-7.20)	8.24 (7.00-10.2)	729
Age 12-19 years	05-06	2.20 (1.90-2.55)	2.07 (1.76-2.46)	3.67 (2.99-4.39)	6.84 (5.35-8.67)	9.67 (7.12-11.4)	702
Age 12-19 years	07-08	2.96 (2.59-3.38)	2.95 (2.51-3.62)	5.04 (4.33-6.00)	8.18 (6.75-10.4)	10.9 (9.38-15.1)	401
Age 12-19 years	09-10	2.94 (2.40-3.60)	2.67 (2.26-3.28)	4.68 (4.04-5.56)	10.8 (7.30-17.8)	21.4 (15.6-29.9)	420
Age 20+ years	01-02	2.24 (2.03-2.47)	2.20 (2.00-2.40)	3.51 (3.11-3.95)	5.39 (4.82-6.18)	7.71 (6.71-9.28)	1647
Age 20+ years	03-04	2.43 (2.27-2.61)	2.38 (2.19-2.56)	3.70 (3.33-4.08)	6.09 (5.38-7.06)	8.79 (7.84-9.56)	1534
Age 20+ years	05-06	1.76 (1.60-1.94)	1.67 (1.47-1.86)	2.96 (2.60-3.38)	5.55 (4.61-6.46)	8.46 (7.00-10.3)	1490
Age 20+ years	07-08	2.48 (2.33-2.64)	2.26 (2.14-2.36)	4.00 (3.68-4.39)	8.03 (7.11-9.09)	12.7 (11.1-14.8)	1814
Age 20+ years	09-10	2.97 (2.60-3.39)	2.75 (2.38-3.22)	5.25 (4.45-6.31)	11.3 (9.63-13.2)	18.1 (15.4-21.6)	1914
Male	01-02	2.35 (2.17-2.56)	2.20 (2.02-2.42)	3.76 (3.45-4.20)	7.17 (6.27-8.06)	11.5 (9.28-15.1)	1371
Male	03-04	2.55 (2.39-2.72)	2.36 (2.22-2.47)	4.14 (3.52-4.86)	7.84 (6.80-8.79)	11.6 (10.2-13.5)	1250
Male	05-06	1.86 (1.70-2.03)	1.70 (1.53-1.88)	3.33 (2.92-3.70)	6.70 (5.59-8.33)	10.7 (8.72-14.2)	1270
Male	07-08	2.54 (2.34-2.76)	2.32 (2.10-2.50)	4.17 (3.80-4.81)	8.91 (7.37-11.2)	14.7 (12.9-17.5)	1294
Male	09-10	3.02 (2.61-3.49)	2.82 (2.43-3.36)	5.51 (4.70-6.36)	10.9 (9.84-12.1)	18.5 (13.7-23.7)	1399
Female	01-02	2.81 (2.48-3.18)	2.76 (2.46-3.02)	4.39 (3.97-4.92)	7.66 (6.17-8.69)	11.0 (8.62-15.9)	1411
Female	03-04	2.93 (2.68-3.20)	2.89 (2.58-3.23)	4.53 (4.09-5.00)	7.58 (6.44-8.57)	10.0 (8.60-11.6)	1355
Female	05-06	2.15 (1.88-2.45)	2.00 (1.72-2.44)	3.77 (3.15-4.47)	6.90 (5.62-8.43)	10.0 (8.14-12.5)	1278
Female	07-08	3.04 (2.84-3.25)	2.80 (2.50-3.11)	5.08 (4.64-5.52)	10.3 (8.67-11.3)	15.0 (11.8-17.8)	1310
Female	09-10	3.28 (2.88-3.74)	3.00 (2.58-3.46)	5.87 (4.96-7.05)	13.0 (10.3-14.8)	19.1 (15.4-29.5)	1350
Mexican American	01-02	2.52 (2.21-2.88)	2.37 (2.07-2.73)	4.29 (3.73-5.00)	7.36 (5.58-10.3)	11.4 (8.36-14.5)	677
Mexican American	03-04	2.78 (2.56-3.02)	2.63 (2.30-2.96)	4.32 (3.66-4.96)	8.14 (6.72-10.3)	12.8 (9.37-17.1)	652
Mexican American	05-06	2.02 (1.62-2.51)	1.79 (1.42-2.53)	3.85 (2.74-5.22)	7.00 (5.40-8.82)	10.2 (7.64-16.4)	637
Mexican American	07-08	2.60 (2.26-2.99)	2.45 (2.05-3.10)	4.31 (3.49-5.22)	8.31 (6.67-9.76)	12.9 (9.50-15.5)	531
Mexican American	09-10	2.29 (1.92-2.74)	2.08 (1.76-2.60)	4.29 (3.61-5.05)	9.02 (7.16-11.4)	13.7 (10.9-17.8)	566
Non-Hispanic Black	01-02	2.17 (2.02-2.33)	2.07 (1.88-2.28)	3.68 (3.25-4.07)	6.73 (5.46-7.70)	10.0 (8.27-13.1)	703
Non-Hispanic Black	03-04	2.34 (2.13-2.58)	2.17 (1.99-2.45)	3.96 (3.33-4.43)	6.93 (6.03-8.80)	13.4 (9.32-15.9)	699
Non-Hispanic Black	05-06	1.61 (1.42-1.81)	1.58 (1.38-1.77)	2.76 (2.27-3.37)	5.63 (4.33-7.59)	8.68 (6.86-10.4)	678
Non-Hispanic Black	07-08	2.28 (1.96-2.65)	2.11 (1.72-2.35)	3.91 (3.33-4.56)	7.97 (5.58-12.8)	16.4 (8.21-57.0)	597
Non-Hispanic Black	09-10	2.45 (2.02-2.97)	2.26 (1.81-2.84)	4.14 (3.35-5.19)	8.02 (6.24-11.3)	14.7 (9.92-19.7)	516
Non-Hispanic White	01-02	2.69 (2.42-3.00)	2.57 (2.25-2.94)	4.19 (3.87-4.79)	7.63 (6.58-8.45)	11.8 (10.0-14.7)	1216
Non-Hispanic White	03-04	2.83 (2.60-3.09)	2.65 (2.43-2.96)	4.55 (3.90-5.16)	7.79 (6.59-8.79)	10.6 (9.43-11.3)	1088
Non-Hispanic White	05-06	2.08 (1.92-2.24)	1.95 (1.76-2.12)	3.60 (3.26-4.00)	6.47 (5.56-7.93)	10.3 (7.95-13.1)	1038
Non-Hispanic White	07-08	2.96 (2.72-3.23)	2.70 (2.50-2.93)	5.06 (4.35-5.77)	10.3 (8.61-11.5)	15.1 (12.3-19.3)	1077
Non-Hispanic White	09-10	3.57 (3.12-4.07)	3.28 (2.81-3.73)	6.33 (5.25-7.39)	13.2 (11.1-14.9)	21.6 (16.6-26.2)	1206

Urinary Mono-(3-carboxypropyl) phthalate (MCPP) (2011 - 2018)†

CAS Number 66851-46-5

Metabolite of Di-n-octyl phthalate (DOP), dibutyl phthalate (DBP), 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.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	11-12	3.01 (2.59-3.50)	2.70 (2.40-3.10)	6.60 (5.60-7.90)	16.9 (13.1-23.1)	34.4 (21.3-51.8)	2489
Total population	13-14	2.14 (1.97-2.32)	2.00 (1.80-2.20)	4.90 (4.40-5.30)	11.2 (9.60-13.0)	19.5 (16.5-22.3)	2685
Total population	15-16	1.15 (.977-1.35)	1.10 (.900-1.30)	2.30 (1.80-2.80)	5.10 (3.70-7.50)	8.60 (6.70-12.2)	2975
Total population	17-18	1.08 (1.01-1.16)	1.10 (1.00-1.10)	2.00 (1.90-2.30)	3.70 (3.20-4.40)	5.70 (4.70-7.00)	2762
Age 3-5 years	15-16	1.72 (1.48-2.00)	1.70 (1.40-1.90)	3.30 (2.80-4.20)	6.10 (5.00-7.70)	8.80 (7.50-11.0)	465
Age 3-5 years	17-18	1.47 (1.29-1.68)	1.50 (1.30-1.80)	2.80 (2.40-3.10)	5.10 (3.60-7.50)	8.60 (6.50-12.1)	379
Age 6-11 years	11-12	3.38 (2.87-3.97)	3.20 (2.70-4.10)	6.80 (5.50-8.50)	11.0 (9.40-14.1)	20.7 (13.7-34.2)	396
Age 6-11 years	13-14	3.11 (2.60-3.70)	3.10 (2.60-3.70)	5.60 (4.70-8.10)	13.0 (9.00-17.6)	21.2 (15.8-29.3)	409
Age 6-11 years	15-16	1.79 (1.57-2.03)	1.80 (1.50-2.00)	3.10 (2.70-3.60)	6.80 (4.70-7.90)	9.80 (7.50-12.7)	415
Age 6-11 years	17-18	1.62 (1.40-1.89)	1.50 (1.40-1.80)	3.20 (2.30-4.30)	5.20 (4.30-8.00)	8.70 (5.00-16.0)	330
Age 12-19 years	11-12	3.26 (2.59-4.12)	3.00 (2.20-4.10)	6.80 (5.80-9.90)	22.2 (13.1-38.4)	45.0 (24.6-58.9)	388
Age 12-19 years	13-14	2.53 (2.13-3.02)	2.30 (1.90-3.10)	5.60 (4.30-7.10)	11.8 (7.40-22.5)	25.5 (11.8-58.6)	462
Age 12-19 years	15-16	1.31 (1.03-1.68)	1.30 (1.10-1.60)	2.40 (1.90-3.10)	4.80 (3.20-8.20)	8.40 (4.40-16.0)	405
Age 12-19 years	17-18	1.09 (.982-1.22)	1.10 (.900-1.30)	2.20 (1.70-2.50)	3.80 (2.70-4.70)	4.70 (3.20-6.80)	353
Age 20+ years	11-12	2.94 (2.46-3.50)	2.60 (2.30-3.00)	6.50 (5.40-7.70)	16.9 (12.8-23.5)	34.4 (19.8-56.3)	1705
Age 20+ years	13-14	2.00 (1.83-2.20)	1.80 (1.70-2.00)	4.70 (4.00-5.20)	10.9 (9.30-12.7)	18.4 (15.8-21.3)	1814
Age 20+ years	15-16	1.06 (.897-1.24)	.900 (.800-1.10)	2.00 (1.60-2.70)	5.10 (3.30-7.50)	8.60 (6.10-12.4)	1690
Age 20+ years	17-18	1.02 (.943-1.11)	1.00 (.900-1.10)	1.90 (1.70-2.20)	3.60 (3.00-4.30)	5.20 (4.30-7.50)	1700
Male	11-12	3.52 (2.94-4.22)	2.80 (2.50-3.50)	7.30 (5.90-10.0)	18.7 (13.0-33.2)	48.0 (22.1-106)	1259
Male	13-14	2.37 (2.10-2.68)	2.20 (2.00-2.50)	5.10 (4.50-5.80)	11.9 (9.10-16.0)	20.8 (17.3-26.4)	1285
Male	15-16	1.27 (1.06-1.53)	1.20 (1.00-1.50)	2.40 (1.90-3.10)	5.50 (4.00-8.30)	10.4 (6.40-15.4)	1474
Male	17-18	1.12 (1.03-1.22)	1.10 (.900-1.20)	2.10 (1.90-2.40)	3.80 (3.30-4.60)	5.70 (4.70-6.80)	1363
Female	11-12	2.58 (2.24-2.97)	2.50 (2.20-2.80)	6.00 (4.80-7.00)	15.5 (11.2-19.8)	27.8 (17.7-40.2)	1230
Female	13-14	1.94 (1.74-2.16)	1.80 (1.60-2.00)	4.70 (4.00-5.30)	10.4 (8.70-12.9)	17.5 (14.2-25.4)	1400
Female	15-16	1.04 (.888-1.22)	1.00 (.800-1.20)	2.10 (1.70-2.60)	4.50 (3.50-6.90)	8.40 (5.50-9.90)	1501
Female	17-18	1.05 (.958-1.15)	1.00 (.900-1.20)	1.90 (1.80-2.20)	3.70 (2.80-4.60)	5.50 (4.30-7.90)	1399
Mexican American	11-12	2.58 (2.12-3.13)	2.40 (2.10-2.80)	4.50 (3.60-6.00)	12.2 (6.60-22.2)	22.2 (12.2-50.7)	316
Mexican American	13-14	1.75 (1.53-2.01)	1.90 (1.40-2.20)	3.70 (3.10-4.50)	7.60 (6.10-9.10)	14.6 (9.10-19.9)	438
Mexican American	15-16	1.15 (1.02-1.30)	1.00 (.900-1.20)	2.10 (1.80-2.60)	5.80 (4.00-7.60)	11.4 (7.20-13.4)	595
Mexican American	17-18	.969 (.838-1.12)	1.00 (.700-1.20)	1.80 (1.50-2.10)	3.10 (2.60-4.20)	4.50 (3.80-5.00)	417
Non-Hispanic Black	11-12	3.55 (3.13-4.02)	3.00 (2.70-3.30)	6.80 (5.60-8.10)	19.7 (13.4-25.0)	30.9 (25.0-39.8)	665
Non-Hispanic Black	13-14	2.19 (1.88-2.54)	2.00 (1.80-2.50)	4.20 (3.60-5.10)	9.60 (6.40-16.4)	18.3 (11.0-30.0)	609
Non-Hispanic Black	15-16	1.30 (.987-1.72)	1.20 (.900-1.60)	2.60 (1.80-3.60)	6.10 (3.50-9.40)	10.6 (7.40-15.2)	698
Non-Hispanic Black	17-18	1.25 (1.13-1.38)	1.30 (1.00-1.50)	2.30 (2.00-2.60)	4.00 (3.50-4.70)	6.00 (4.40-8.00)	645
Non-Hispanic White	11-12	3.03 (2.54-3.62)	2.80 (2.30-3.30)	6.70 (5.50-8.80)	16.9 (12.8-24.4)	37.2 (18.3-51.8)	813
Non-Hispanic White	13-14	2.23 (2.03-2.43)	2.00 (1.90-2.30)	5.20 (4.80-5.80)	11.7 (10.3-14.5)	19.5 (16.1-25.4)	987
Non-Hispanic White	15-16	1.15 (.968-1.36)	1.10 (.900-1.30)	2.30 (1.80-2.80)	5.10 (3.50-8.30)	8.60 (6.00-12.6)	862
Non-Hispanic White	17-18	1.12 (1.01-1.24)	1.10 (1.00-1.20)	2.20 (1.90-2.50)	3.90 (3.20-5.00)	5.80 (4.70-7.90)	906
All Hispanic	11-12	2.79 (2.19-3.56)	2.40 (2.10-2.70)	5.70 (4.20-7.80)	16.3 (9.00-33.7)	35.1 (14.9-115)	571
All Hispanic	13-14	1.95 (1.68-2.27)	2.00 (1.60-2.30)	4.30 (3.70-4.80)	9.10 (6.70-14.6)	17.5 (9.50-27.4)	690
All Hispanic	15-16	1.18 (1.02-1.35)	1.10 (.900-1.20)	2.20 (1.90-2.70)	5.60 (3.80-7.40)	9.90 (7.10-12.3)	971
All Hispanic	17-18	1.00 (.897-1.12)	1.00 (.900-1.20)	1.80 (1.60-2.00)	3.30 (2.70-3.80)	4.50 (3.90-5.00)	663
Non-Hispanic Asian	11-12	2.24 (1.66-3.01)	2.00 (1.50-2.60)	4.60 (3.60-6.90)	11.5 (7.70-25.7)	33.2 (11.5-74.3)	352
Non-Hispanic Asian	13-14	1.40 (1.14-1.73)	1.30 (1.00-1.80)	2.90 (2.50-3.20)	5.80 (4.50-8.30)	13.5 (7.00-28.4)	289
Non-Hispanic Asian	15-16	.891 (.705-1.13)	.700 (.500-1.00)	1.70 (1.40-2.30)	4.50 (2.70-6.80)	6.80 (3.80-38.4)	301
Non-Hispanic Asian	17-18	.779 (.690-.878)	.700 (.600-.900)	1.40 (1.20-1.60)	2.60 (2.00-3.50)	4.00 (2.80-6.10)	366

Limit of detection (LOD, see Data Analysis section) for Survey years 11-12, 13-14, 15-16, and 17-18 are 0.2, 0.4, 0.4, and 0.4, respectively.

† Participants are age 6+ years in Surveys 11-12 and 13-14; beginning with Survey 15-16, participants include those age 3+ years.

Urinary Mono-(3-carboxypropyl) phthalate (MCPP) (creatinine corrected) (2011 - 2018)†

CAS Number 66851-46-5

Metabolite of Di-n-octyl phthalate (DOP), dibutyl phthalate (DBP), 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.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	11-12	3.42 (2.93-3.99)	2.86 (2.44-3.33)	6.00 (4.95-7.75)	15.8 (10.8-23.6)	36.6 (18.8-65.9)	2487
Total population	13-14	2.14 (1.95-2.35)	1.88 (1.72-2.14)	3.91 (3.37-4.60)	9.12 (7.96-11.4)	16.7 (14.1-19.1)	2684
Total population	15-16	1.19 (1.04-1.36)	1.05 (.903-1.20)	2.07 (1.72-2.46)	4.38 (3.56-5.83)	7.48 (5.40-9.49)	2974
Total population	17-18	1.13 (1.07-1.19)	1.06 (.984-1.14)	1.72 (1.61-1.87)	2.98 (2.78-3.25)	4.75 (4.04-5.52)	2762
Age 3-5 years	15-16	4.11 (3.60-4.69)	4.09 (3.43-4.74)	6.67 (5.81-7.35)	10.5 (8.60-13.3)	14.2 (12.4-17.6)	464
Age 3-5 years	17-18	3.20 (2.78-3.68)	3.04 (2.68-3.44)	4.64 (4.00-5.83)	8.51 (6.17-12.0)	12.0 (7.78-15.6)	379
Age 6-11 years	11-12	4.79 (4.18-5.49)	4.19 (3.60-4.67)	7.26 (5.81-8.61)	15.7 (8.97-26.7)	28.2 (16.4-39.8)	395
Age 6-11 years	13-14	3.92 (3.36-4.58)	3.44 (2.97-4.11)	6.92 (5.22-8.53)	17.2 (9.57-25.3)	27.8 (13.0-36.6)	409
Age 6-11 years	15-16	2.30 (2.06-2.56)	2.24 (1.79-2.55)	3.64 (3.03-4.05)	6.73 (5.50-7.08)	9.32 (7.08-11.5)	415
Age 6-11 years	17-18	1.89 (1.64-2.18)	1.75 (1.46-1.99)	2.92 (2.31-3.97)	5.87 (4.03-7.66)	7.90 (4.94-17.4)	330
Age 12-19 years	11-12	3.18 (2.50-4.04)	2.44 (1.82-3.31)	5.59 (3.85-8.33)	26.6 (8.44-45.7)	45.7 (17.4-80.0)	388
Age 12-19 years	13-14	2.06 (1.72-2.45)	1.76 (1.55-2.29)	3.43 (2.99-4.39)	9.52 (5.96-14.5)	18.6 (10.1-30.0)	462
Age 12-19 years	15-16	1.02 (.837-1.24)	.964 (.757-1.14)	1.71 (1.36-2.13)	3.10 (2.31-4.16)	5.68 (2.93-10.6)	405
Age 12-19 years	17-18	.944 (.843-1.06)	.933 (.794-1.06)	1.45 (1.17-1.75)	2.33 (1.75-2.86)	2.86 (2.33-3.45)	353
Age 20+ years	11-12	3.33 (2.83-3.93)	2.69 (2.34-3.16)	5.97 (4.78-7.89)	15.7 (10.7-22.1)	32.2 (17.1-69.6)	1704
Age 20+ years	13-14	2.02 (1.82-2.24)	1.79 (1.59-2.01)	3.62 (3.07-4.47)	8.54 (7.33-10.7)	16.0 (13.1-18.9)	1813
Age 20+ years	15-16	1.08 (.943-1.23)	.943 (.820-1.08)	1.74 (1.40-2.15)	3.88 (2.81-4.91)	6.74 (4.27-9.49)	1690
Age 20+ years	17-18	1.05 (.989-1.11)	1.00 (.926-1.08)	1.56 (1.44-1.65)	2.61 (2.34-2.81)	3.85 (3.14-4.87)	1700
Male	11-12	3.29 (2.80-3.86)	2.67 (2.35-3.07)	6.00 (4.86-7.58)	15.7 (10.1-25.0)	41.5 (17.2-89.9)	1258
Male	13-14	1.99 (1.80-2.21)	1.79 (1.57-1.98)	3.67 (3.07-4.55)	8.54 (7.12-10.5)	15.3 (10.7-19.8)	1284
Male	15-16	1.13 (.968-1.33)	.986 (.818-1.18)	2.07 (1.67-2.50)	4.80 (3.40-6.69)	8.09 (5.68-10.0)	1474
Male	17-18	.994 (.936-1.06)	.957 (.857-1.04)	1.56 (1.41-1.67)	2.65 (2.45-2.94)	4.07 (3.44-4.90)	1363
Female	11-12	3.55 (2.95-4.27)	3.00 (2.44-3.65)	6.05 (4.80-8.45)	15.8 (9.78-25.7)	33.7 (16.2-65.9)	1229
Female	13-14	2.30 (1.99-2.66)	2.06 (1.74-2.42)	4.21 (3.42-5.20)	10.0 (7.54-14.0)	17.4 (14.0-22.3)	1400
Female	15-16	1.24 (1.09-1.42)	1.10 (.971-1.27)	2.09 (1.71-2.51)	4.08 (3.39-5.32)	6.62 (4.80-9.32)	1500
Female	17-18	1.28 (1.17-1.40)	1.17 (1.06-1.30)	1.92 (1.69-2.13)	3.33 (2.83-3.85)	5.42 (4.12-6.36)	1399
Mexican American	11-12	2.91 (2.34-3.61)	2.50 (2.14-2.92)	4.88 (3.49-6.11)	11.5 (6.42-24.4)	24.4 (9.94-78.7)	316
Mexican American	13-14	1.79 (1.62-1.98)	1.64 (1.40-2.03)	3.17 (2.70-3.56)	6.56 (5.36-9.09)	10.7 (6.92-17.8)	438
Mexican American	15-16	1.25 (1.10-1.42)	1.12 (.947-1.27)	2.15 (1.92-2.54)	5.04 (4.03-6.19)	8.19 (6.67-10.7)	595
Mexican American	17-18	1.05 (.932-1.18)	.986 (.845-1.12)	1.61 (1.42-1.84)	3.28 (2.55-3.85)	4.94 (3.78-5.77)	417
Non-Hispanic Black	11-12	2.76 (2.42-3.15)	2.27 (1.96-2.65)	4.82 (3.77-6.23)	11.8 (8.36-15.1)	22.9 (15.3-31.9)	665
Non-Hispanic Black	13-14	1.62 (1.44-1.81)	1.39 (1.18-1.74)	2.96 (2.48-3.40)	7.78 (5.25-10.0)	11.9 (8.28-19.8)	609
Non-Hispanic Black	15-16	1.04 (.834-1.29)	.896 (.730-1.13)	2.03 (1.47-2.66)	4.29 (3.33-5.85)	7.63 (5.40-10.5)	697
Non-Hispanic Black	17-18	.940 (.865-1.02)	.820 (.742-.913)	1.52 (1.33-1.75)	2.94 (2.54-3.33)	4.42 (3.19-6.23)	645
Non-Hispanic White	11-12	3.67 (3.06-4.42)	3.08 (2.58-3.93)	6.92 (5.14-9.10)	16.3 (11.2-27.0)	36.8 (17.6-69.6)	811
Non-Hispanic White	13-14	2.34 (2.09-2.63)	2.05 (1.76-2.39)	4.39 (3.49-5.41)	10.0 (8.11-13.8)	17.1 (14.7-20.3)	987
Non-Hispanic White	15-16	1.23 (1.09-1.40)	1.08 (.966-1.23)	2.14 (1.71-2.59)	4.26 (3.45-5.97)	7.44 (4.51-9.49)	862
Non-Hispanic White	17-18	1.20 (1.12-1.28)	1.12 (1.04-1.26)	1.77 (1.59-1.97)	2.91 (2.65-3.46)	4.87 (3.66-6.03)	906
All Hispanic	11-12	3.13 (2.50-3.92)	2.45 (2.14-2.73)	5.31 (4.04-6.73)	15.1 (7.09-36.6)	34.6 (11.9-128)	571
All Hispanic	13-14	1.94 (1.70-2.20)	1.76 (1.53-2.07)	3.39 (3.05-4.00)	8.19 (5.70-11.7)	14.7 (8.92-25.7)	690
All Hispanic	15-16	1.24 (1.08-1.43)	1.11 (.946-1.25)	2.07 (1.75-2.48)	5.04 (4.02-6.67)	9.18 (6.79-11.0)	971
All Hispanic	17-18	1.08 (.966-1.20)	1.03 (.888-1.14)	1.67 (1.54-1.87)	3.13 (2.68-3.50)	4.52 (3.63-5.22)	663
Non-Hispanic Asian	11-12	3.00 (2.29-3.92)	2.54 (2.08-3.14)	4.64 (3.56-7.40)	14.7 (6.97-38.8)	38.8 (21.3-65.7)	352
Non-Hispanic Asian	13-14	1.78 (1.51-2.10)	1.55 (1.19-1.93)	2.95 (2.32-4.05)	7.94 (5.88-9.62)	13.8 (8.00-34.1)	288
Non-Hispanic Asian	15-16	1.10 (.931-1.31)	.966 (.800-1.10)	1.96 (1.42-2.50)	3.88 (2.73-5.31)	6.44 (3.88-23.6)	301
Non-Hispanic Asian	17-18	1.15 (.999-1.33)	1.02 (.877-1.24)	1.82 (1.48-2.13)	3.18 (2.55-3.81)	4.64 (3.42-6.36)	366

† Participants are age 6+ years in Surveys 11-12 and 13-14; beginning with Survey 15-16, participants include those age 3+ years.

Urinary Mono-n-octyl phthalate (MOP) (1999 - 2010)‡

CAS Number 5393-19-1

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.**

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	99-00	*	<LOD	<LOD	2.69 (2.02-3.36)	4.87 (3.86-5.71)	2541
Total population	01-02	*	<LOD	<LOD	<LOD	<LOD	2782
Total population	03-04	*	<LOD	<LOD	<LOD	<LOD	2605
Total population	05-06	*	<LOD	<LOD	<LOD	<LOD	2548
Total population	07-08	*	<LOD	<LOD	<LOD	<LOD	2604
Total population	09-10	*	<LOD	<LOD	<LOD	<LOD	2749
Age 6-11 years	99-00	*	<LOD	<LOD	3.70 (<LOD-5.88)	5.38 (2.86-8.40)	328
Age 6-11 years	01-02	*	<LOD	<LOD	<LOD	<LOD	393
Age 6-11 years	03-04	*	<LOD	<LOD	<LOD	<LOD	342
Age 6-11 years	05-06	*	<LOD	<LOD	<LOD	<LOD	356
Age 6-11 years	07-08	*	<LOD	<LOD	<LOD	<LOD	389
Age 6-11 years	09-10	*	<LOD	<LOD	<LOD	<LOD	415
Age 12-19 years	99-00	*	<LOD	<LOD	2.86 (<LOD-4.20)	4.70 (3.36-7.06)	752
Age 12-19 years	01-02	*	<LOD	<LOD	<LOD	<LOD	742
Age 12-19 years	03-04	*	<LOD	<LOD	<LOD	<LOD	729
Age 12-19 years	05-06	*	<LOD	<LOD	<LOD	<LOD	702
Age 12-19 years	07-08	*	<LOD	<LOD	<LOD	<LOD	401
Age 12-19 years	09-10	*	<LOD	<LOD	<LOD	<LOD	420
Age 20+ years	99-00	*	<LOD	<LOD	2.52 (1.85-3.19)	4.87 (3.53-5.88)	1461
Age 20+ years	01-02	*	<LOD	<LOD	<LOD	<LOD	1647
Age 20+ years	03-04	*	<LOD	<LOD	<LOD	<LOD	1534
Age 20+ years	05-06	*	<LOD	<LOD	<LOD	<LOD	1490
Age 20+ years	07-08	*	<LOD	<LOD	<LOD	<LOD	1814
Age 20+ years	09-10	*	<LOD	<LOD	<LOD	<LOD	1914
Male	99-00	*	<LOD	<LOD	2.69 (1.85-3.70)	4.70 (3.36-5.88)	1215
Male	01-02	*	<LOD	<LOD	<LOD	<LOD	1371
Male	03-04	*	<LOD	<LOD	<LOD	<LOD	1250
Male	05-06	*	<LOD	<LOD	<LOD	<LOD	1270
Male	07-08	*	<LOD	<LOD	<LOD	<LOD	1294
Male	09-10	*	<LOD	<LOD	<LOD	<LOD	1399
Female	99-00	*	<LOD	<LOD	2.52 (2.02-3.53)	5.21 (3.70-6.38)	1326
Female	01-02	*	<LOD	<LOD	<LOD	<LOD	1411
Female	03-04	*	<LOD	<LOD	<LOD	<LOD	1355
Female	05-06	*	<LOD	<LOD	<LOD	<LOD	1278
Female	07-08	*	<LOD	<LOD	<LOD	<LOD	1310
Female	09-10	*	<LOD	<LOD	<LOD	<LOD	1350
Mexican American	99-00	*	<LOD	<LOD	1.85 (<LOD-2.35)	2.69 (2.35-4.37)	814
Mexican American	01-02	*	<LOD	<LOD	<LOD	<LOD	677
Mexican American	03-04	*	<LOD	<LOD	<LOD	<LOD	652
Mexican American	05-06	*	<LOD	<LOD	<LOD	<LOD	637
Mexican American	07-08	*	<LOD	<LOD	<LOD	<LOD	531
Mexican American	09-10	*	<LOD	<LOD	<LOD	<LOD	566
Non-Hispanic Black	99-00	*	<LOD	<LOD	3.19 (<LOD-5.04)	5.04 (3.70-6.89)	603
Non-Hispanic Black	01-02	*	<LOD	<LOD	<LOD	<LOD	703
Non-Hispanic Black	03-04	*	<LOD	<LOD	<LOD	<LOD	699
Non-Hispanic Black	05-06	*	<LOD	<LOD	<LOD	<LOD	678
Non-Hispanic Black	07-08	*	<LOD	<LOD	<LOD	<LOD	597
Non-Hispanic Black	09-10	*	<LOD	<LOD	<LOD	<LOD	516
Non-Hispanic White	99-00	*	<LOD	<LOD	2.69 (2.02-3.53)	5.04 (3.86-5.88)	912

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Non-Hispanic White	01-02	*	<LOD	<LOD	<LOD	<LOD	1216
Non-Hispanic White	03-04	*	<LOD	<LOD	<LOD	<LOD	1088
Non-Hispanic White	05-06	*	<LOD	<LOD	<LOD	<LOD	1038
Non-Hispanic White	07-08	*	<LOD	<LOD	<LOD	<LOD	1077
Non-Hispanic White	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

Urinary Mono-n-octyl phthalate (MOP) (creatinine corrected) (1999 - 2010)‡

CAS Number 5393-19-1

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.**

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	99-00	*	<LOD	<LOD	4.03 (3.48-4.38)	5.93 (4.96-7.21)	2541
Total population	01-02	*	<LOD	<LOD	<LOD	<LOD	2782
Total population	03-04	*	<LOD	<LOD	<LOD	<LOD	2605
Total population	05-06	*	<LOD	<LOD	<LOD	<LOD	2548
Total population	07-08	*	<LOD	<LOD	<LOD	<LOD	2604
Total population	09-10	*	<LOD	<LOD	<LOD	<LOD	2749
Age 6-11 years	99-00	*	<LOD	<LOD	3.73 (<LOD-6.30)	6.30 (3.31-17.2)	328
Age 6-11 years	01-02	*	<LOD	<LOD	<LOD	<LOD	393
Age 6-11 years	03-04	*	<LOD	<LOD	<LOD	<LOD	342
Age 6-11 years	05-06	*	<LOD	<LOD	<LOD	<LOD	356
Age 6-11 years	07-08	*	<LOD	<LOD	<LOD	<LOD	389
Age 6-11 years	09-10	*	<LOD	<LOD	<LOD	<LOD	415
Age 12-19 years	99-00	*	<LOD	<LOD	2.50 (<LOD-2.87)	3.16 (2.59-5.59)	752
Age 12-19 years	01-02	*	<LOD	<LOD	<LOD	<LOD	742
Age 12-19 years	03-04	*	<LOD	<LOD	<LOD	<LOD	729
Age 12-19 years	05-06	*	<LOD	<LOD	<LOD	<LOD	702
Age 12-19 years	07-08	*	<LOD	<LOD	<LOD	<LOD	401
Age 12-19 years	09-10	*	<LOD	<LOD	<LOD	<LOD	420
Age 20+ years	99-00	*	<LOD	<LOD	4.37 (3.48-4.89)	5.93 (5.04-7.76)	1461
Age 20+ years	01-02	*	<LOD	<LOD	<LOD	<LOD	1647
Age 20+ years	03-04	*	<LOD	<LOD	<LOD	<LOD	1534
Age 20+ years	05-06	*	<LOD	<LOD	<LOD	<LOD	1490
Age 20+ years	07-08	*	<LOD	<LOD	<LOD	<LOD	1814
Age 20+ years	09-10	*	<LOD	<LOD	<LOD	<LOD	1914
Male	99-00	*	<LOD	<LOD	3.06 (2.59-3.48)	4.30 (3.26-5.80)	1215
Male	01-02	*	<LOD	<LOD	<LOD	<LOD	1371
Male	03-04	*	<LOD	<LOD	<LOD	<LOD	1250
Male	05-06	*	<LOD	<LOD	<LOD	<LOD	1270
Male	07-08	*	<LOD	<LOD	<LOD	<LOD	1294
Male	09-10	*	<LOD	<LOD	<LOD	<LOD	1399
Female	99-00	*	<LOD	<LOD	5.04 (4.20-5.96)	7.21 (5.59-10.5)	1326
Female	01-02	*	<LOD	<LOD	<LOD	<LOD	1411
Female	03-04	*	<LOD	<LOD	<LOD	<LOD	1355
Female	05-06	*	<LOD	<LOD	<LOD	<LOD	1278
Female	07-08	*	<LOD	<LOD	<LOD	<LOD	1310
Female	09-10	*	<LOD	<LOD	<LOD	<LOD	1350
Mexican American	99-00	*	<LOD	<LOD	3.06 (<LOD-4.70)	5.59 (4.37-6.72)	814
Mexican American	01-02	*	<LOD	<LOD	<LOD	<LOD	677
Mexican American	03-04	*	<LOD	<LOD	<LOD	<LOD	652
Mexican American	05-06	*	<LOD	<LOD	<LOD	<LOD	637
Mexican American	07-08	*	<LOD	<LOD	<LOD	<LOD	531
Mexican American	09-10	*	<LOD	<LOD	<LOD	<LOD	566
Non-Hispanic Black	99-00	*	<LOD	<LOD	2.28 (<LOD-3.26)	3.73 (2.52-5.49)	603
Non-Hispanic Black	01-02	*	<LOD	<LOD	<LOD	<LOD	703
Non-Hispanic Black	03-04	*	<LOD	<LOD	<LOD	<LOD	699
Non-Hispanic Black	05-06	*	<LOD	<LOD	<LOD	<LOD	678
Non-Hispanic Black	07-08	*	<LOD	<LOD	<LOD	<LOD	597
Non-Hispanic Black	09-10	*	<LOD	<LOD	<LOD	<LOD	516
Non-Hispanic White	99-00	*	<LOD	<LOD	4.38 (3.60-5.17)	6.12 (5.29-8.40)	912

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Non-Hispanic White	01-02	*	<LOD	<LOD	<LOD	<LOD	1216
Non-Hispanic White	03-04	*	<LOD	<LOD	<LOD	<LOD	1088
Non-Hispanic White	05-06	*	<LOD	<LOD	<LOD	<LOD	1038
Non-Hispanic White	07-08	*	<LOD	<LOD	<LOD	<LOD	1077
Non-Hispanic White	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

Urinary Cyclohexane-1,2-dicarboxylic acid mono hydroxyisononyl ester (MHNCH) (2011 - 2018)†

CAS Number 1637562-52-7 (refers to one of the potential isomers of MHNCH)

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.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	11-12	*	<LOD	<LOD	.600 (.500-.800)	1.10 (.900-1.20)	2489
Total population	13-14	*	<LOD	<LOD	.900 (.800-1.00)	1.50 (1.30-1.90)	2685
Total population	15-16	.758 (.680-.846)	.600 (.500-.700)	1.40 (1.20-1.70)	3.60 (2.90-4.80)	7.40 (5.30-10.3)	2975
Total population	17-18	.812 (.740-.891)	.600 (.600-.700)	1.40 (1.30-1.70)	3.90 (3.20-5.00)	9.80 (6.70-13.5)	2762
Age 3-5 years	15-16	1.36 (1.19-1.55)	1.30 (1.10-1.50)	2.70 (2.00-3.30)	4.70 (3.70-6.10)	7.80 (5.20-12.9)	465
Age 3-5 years	17-18	1.68 (1.36-2.07)	1.50 (1.10-2.10)	3.80 (2.90-4.80)	7.90 (5.70-10.7)	12.3 (7.90-19.2)	379
Age 6-11 years	11-12	*	<LOD	.800 (.600-1.10)	1.90 (1.20-2.70)	4.10 (1.90-6.00)	396
Age 6-11 years	13-14	.684 (.585-.799)	.600 (.500-.800)	1.10 (1.00-1.60)	2.40 (2.10-3.10)	3.90 (2.80-4.60)	409
Age 6-11 years	15-16	1.15 (.962-1.38)	1.10 (.800-1.30)	2.40 (1.90-2.90)	4.20 (3.10-7.80)	8.70 (4.20-13.2)	415
Age 6-11 years	17-18	1.49 (1.17-1.90)	1.30 (1.00-1.60)	2.80 (2.00-4.30)	7.20 (4.30-12.5)	13.1 (7.00-40.4)	330
Age 12-19 years	11-12	*	<LOD	.400 (<LOD-.600)	.900 (.600-1.30)	1.30 (.900-2.50)	388
Age 12-19 years	13-14	*	<LOD	.600 (.500-.700)	1.10 (.800-1.70)	1.70 (1.20-2.50)	462
Age 12-19 years	15-16	.966 (.817-1.14)	.800 (.600-1.00)	1.80 (1.30-2.40)	4.20 (2.90-6.00)	11.3 (5.70-17.1)	405
Age 12-19 years	17-18	.874 (.723-1.06)	.700 (.500-1.00)	1.70 (1.20-2.10)	3.80 (2.30-9.80)	10.9 (3.30-13.5)	353
Age 20+ years	11-12	*	<LOD	<LOD	.500 (.400-.600)	.800 (.700-.900)	1705
Age 20+ years	13-14	*	<LOD	<LOD	.700 (.600-.800)	1.10 (.900-1.40)	1814
Age 20+ years	15-16	*	.500 (.400-.600)	1.20 (1.00-1.50)	3.40 (2.50-4.40)	7.20 (5.00-10.7)	1690
Age 20+ years	17-18	.730 (.659-.809)	.600 (.500-.600)	1.20 (1.10-1.40)	3.20 (2.50-4.00)	8.50 (5.70-13.8)	1700
Male	11-12	*	<LOD	<LOD	.700 (.600-1.00)	1.10 (.800-1.70)	1259
Male	13-14	*	<LOD	<LOD	.800 (.700-1.00)	1.40 (1.20-1.70)	1285
Male	15-16	.786 (.702-.879)	.600 (.500-.700)	1.50 (1.20-1.70)	3.90 (2.90-5.30)	7.80 (5.00-11.3)	1474
Male	17-18	.900 (.753-1.07)	.700 (.600-.800)	1.60 (1.30-2.10)	4.90 (3.20-10.5)	13.8 (7.60-25.4)	1363
Female	11-12	*	<LOD	<LOD	.600 (.500-.700)	.900 (.800-1.10)	1230
Female	13-14	*	<LOD	<LOD	.900 (.800-1.10)	1.60 (1.30-1.90)	1400
Female	15-16	*	.500 (.400-.700)	1.30 (1.10-1.70)	3.30 (2.60-4.40)	6.90 (5.30-11.2)	1501
Female	17-18	.736 (.653-.831)	.600 (.500-.700)	1.30 (1.10-1.60)	3.10 (2.20-4.30)	6.70 (4.30-8.60)	1399
Mexican American	11-12	*	<LOD	.400 (<LOD-.500)	.800 (.600-1.10)	1.30 (.800-2.70)	316
Mexican American	13-14	*	<LOD	.500 (<LOD-.600)	.900 (.800-1.10)	1.60 (.900-2.50)	438
Mexican American	15-16	.861 (.715-1.04)	.700 (.500-.900)	1.50 (1.20-2.00)	4.10 (3.00-5.70)	9.10 (5.40-14.5)	595
Mexican American	17-18	.756 (.672-.851)	.600 (.500-.800)	1.30 (1.00-1.60)	2.50 (1.90-3.90)	5.80 (3.30-10.1)	417
Non-Hispanic Black	11-12	*	<LOD	.500 (<LOD-.500)	.900 (.700-1.10)	1.20 (1.10-1.50)	665
Non-Hispanic Black	13-14	*	<LOD	.500 (<LOD-.700)	1.10 (.900-1.40)	1.80 (1.40-2.20)	609
Non-Hispanic Black	15-16	.941 (.803-1.10)	.800 (.600-1.00)	1.70 (1.40-2.30)	4.70 (3.60-6.70)	10.1 (7.80-13.0)	698
Non-Hispanic Black	17-18	.980 (.880-1.09)	.800 (.700-.900)	2.00 (1.60-2.30)	4.60 (3.30-7.20)	8.90 (7.20-13.2)	645
Non-Hispanic White	11-12	*	<LOD	<LOD	.600 (.500-.700)	.900 (.700-1.10)	813
Non-Hispanic White	13-14	*	<LOD	<LOD	.800 (.600-.900)	1.30 (1.00-1.70)	987
Non-Hispanic White	15-16	*	.500 (.400-.600)	1.30 (1.00-1.80)	3.40 (2.50-5.00)	7.00 (4.20-11.3)	862
Non-Hispanic White	17-18	.810 (.705-.931)	.600 (.500-.800)	1.50 (1.20-1.80)	4.00 (2.90-6.50)	10.9 (6.50-13.9)	906
All Hispanic	11-12	*	<LOD	<LOD	.700 (.600-.900)	1.10 (.800-1.60)	571
All Hispanic	13-14	*	<LOD	.500 (<LOD-.600)	.900 (.800-1.10)	1.60 (1.10-2.30)	690
All Hispanic	15-16	.793 (.670-.938)	.600 (.500-.800)	1.40 (1.20-1.70)	3.90 (2.70-5.70)	7.50 (5.80-10.9)	971
All Hispanic	17-18	.815 (.704-.943)	.700 (.500-.800)	1.40 (1.10-1.80)	3.50 (2.50-4.30)	6.90 (4.50-13.1)	663
Non-Hispanic Asian	11-12	*	<LOD	<LOD	1.00 (.700-1.50)	2.00 (1.20-5.50)	352
Non-Hispanic Asian	13-14	*	<LOD	<LOD	1.00 (.600-2.10)	2.90 (1.10-7.80)	289
Non-Hispanic Asian	15-16	*	.500 (<LOD-.600)	1.10 (.900-1.30)	3.10 (1.70-4.00)	5.10 (3.50-7.60)	301
Non-Hispanic Asian	17-18	*	.400 (<LOD-.600)	1.00 (.800-1.10)	2.20 (1.50-3.90)	4.70 (2.30-8.80)	366

Limit of detection (LOD, see Data Analysis section) for Survey years 11-12, 13-14, 15-16, and 17-18 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.

† Participants are age 6+ years in Surveys 11-12 and 13-14; beginning with Survey 15-16, participants include those age 3+ years.

Urinary Cyclohexane-1,2-dicarboxylic acid mono hydroxyisononyl ester (MHNCH) (creatinine corrected) (2011 - 2018)†

CAS Number 1637562-52-7 (refers to one of the potential isomers of MHNCH)

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.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	11-12	*	<LOD	<LOD	1.12 (1.01-1.22)	1.57 (1.39-1.87)	2487
Total population	13-14	*	<LOD	<LOD	1.17 (1.08-1.26)	1.67 (1.54-1.87)	2684
Total population	15-16	.785 (.705-.874)	.658 (.571-.755)	1.38 (1.25-1.63)	3.64 (2.87-4.39)	6.67 (5.36-7.53)	2974
Total population	17-18	.848 (.786-.914)	.700 (.647-.746)	1.54 (1.34-1.71)	3.79 (3.13-4.71)	8.08 (6.39-9.36)	2762
Age 3-5 years	15-16	3.22 (2.81-3.69)	2.82 (2.50-3.17)	5.46 (4.55-6.92)	12.1 (8.85-14.9)	21.3 (13.9-23.6)	464
Age 3-5 years	17-18	3.65 (3.16-4.20)	3.51 (2.68-4.44)	6.67 (5.50-8.13)	13.8 (11.1-15.3)	22.1 (15.0-31.0)	379
Age 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
Age 6-11 years	13-14	.864 (.750-.995)	.811 (.755-.896)	1.47 (1.25-1.78)	2.82 (2.27-3.21)	4.17 (3.21-5.80)	409
Age 6-11 years	15-16	1.48 (1.29-1.71)	1.37 (1.15-1.60)	2.54 (2.02-3.13)	5.19 (3.81-6.74)	9.29 (6.08-17.1)	415
Age 6-11 years	17-18	1.73 (1.46-2.06)	1.53 (1.22-1.79)	3.12 (2.25-3.72)	6.44 (3.73-8.43)	12.6 (6.44-38.5)	330
Age 12-19 years	11-12	*	<LOD	.581 (<LOD-.700)	1.00 (.778-1.33)	1.57 (1.04-2.86)	388
Age 12-19 years	13-14	*	<LOD	.571 (.476-.667)	.966 (.751-1.17)	1.21 (1.04-1.75)	462
Age 12-19 years	15-16	.751 (.635-.887)	.611 (.491-.757)	1.25 (1.04-1.67)	3.59 (2.14-5.75)	6.94 (4.55-10.1)	405
Age 12-19 years	17-18	.755 (.644-.884)	.667 (.533-.781)	1.32 (1.08-1.68)	2.98 (1.96-5.69)	6.16 (2.86-11.2)	353
Age 20+ years	11-12	*	<LOD	<LOD	1.03 (.933-1.12)	1.39 (1.17-1.65)	1704
Age 20+ years	13-14	*	<LOD	<LOD	1.04 (.933-1.17)	1.46 (1.22-1.74)	1813
Age 20+ years	15-16	*	.571 (.500-.682)	1.21 (.973-1.38)	2.86 (2.16-4.20)	5.40 (4.50-6.67)	1690
Age 20+ years	17-18	.748 (.684-.818)	.612 (.563-.672)	1.29 (1.18-1.33)	3.04 (2.59-3.55)	6.21 (4.42-9.48)	1700
Male	11-12	*	<LOD	<LOD	.916 (.778-1.08)	1.39 (1.08-1.59)	1258
Male	13-14	*	<LOD	<LOD	.930 (.800-1.08)	1.40 (1.08-1.67)	1284
Male	15-16	.701 (.624-.788)	.566 (.488-.664)	1.29 (1.08-1.56)	3.11 (2.34-4.39)	5.75 (5.00-6.61)	1474
Male	17-18	.799 (.686-.931)	.633 (.560-.746)	1.46 (1.20-1.87)	4.08 (3.00-6.18)	9.25 (6.18-13.7)	1363
Female	11-12	*	<LOD	<LOD	1.22 (1.12-1.40)	1.91 (1.47-2.55)	1229
Female	13-14	*	<LOD	<LOD	1.31 (1.17-1.56)	1.96 (1.58-2.50)	1400
Female	15-16	*	.759 (.667-.824)	1.47 (1.33-1.86)	4.04 (3.11-4.67)	7.32 (5.75-9.44)	1500
Female	17-18	.897 (.793-1.02)	.757 (.672-.870)	1.58 (1.38-1.87)	3.58 (2.78-5.33)	6.72 (5.33-8.86)	1399
Mexican American	11-12	*	<LOD	.667 (<LOD-.755)	1.22 (.903-1.47)	1.61 (1.27-2.76)	316
Mexican American	13-14	*	<LOD	.636 (<LOD-.800)	1.22 (.941-1.61)	1.80 (1.33-2.37)	438
Mexican American	15-16	.937 (.799-1.10)	.778 (.622-.930)	1.82 (1.38-2.36)	4.84 (3.65-6.55)	8.48 (6.49-14.0)	595
Mexican American	17-18	.820 (.694-.968)	.702 (.569-.914)	1.48 (1.21-1.75)	3.46 (2.55-4.22)	5.53 (3.98-9.01)	417
Non-Hispanic Black	11-12	*	<LOD	.449 (<LOD-.528)	.848 (.757-.952)	1.23 (1.02-1.57)	665
Non-Hispanic Black	13-14	*	<LOD	.517 (<LOD-.596)	.927 (.820-1.02)	1.27 (1.04-1.47)	609
Non-Hispanic Black	15-16	.748 (.645-.868)	.646 (.526-.743)	1.46 (1.19-1.82)	3.64 (2.81-4.44)	7.58 (5.29-10.4)	697
Non-Hispanic Black	17-18	.739 (.657-.830)	.612 (.522-.718)	1.40 (1.23-1.61)	3.10 (2.71-4.31)	6.15 (4.42-7.84)	645
Non-Hispanic White	11-12	*	<LOD	<LOD	1.12 (1.00-1.22)	1.56 (1.22-2.00)	811
Non-Hispanic White	13-14	*	<LOD	<LOD	1.17 (1.04-1.27)	1.65 (1.40-1.98)	987
Non-Hispanic White	15-16	*	.651 (.542-.778)	1.37 (1.16-1.75)	3.46 (2.50-4.75)	6.41 (4.62-7.54)	862
Non-Hispanic White	17-18	.864 (.778-.959)	.700 (.625-.800)	1.56 (1.33-1.87)	4.05 (3.13-6.13)	8.32 (6.18-11.2)	906
All Hispanic	11-12	*	<LOD	<LOD	1.12 (.824-1.47)	1.54 (1.27-1.87)	571
All Hispanic	13-14	*	<LOD	.609 (<LOD-.757)	1.22 (1.02-1.54)	1.87 (1.61-2.31)	690
All Hispanic	15-16	.835 (.731-.954)	.683 (.596-.783)	1.56 (1.22-2.00)	4.33 (3.21-5.47)	7.18 (5.36-11.3)	971
All Hispanic	17-18	.875 (.750-1.02)	.734 (.602-.862)	1.56 (1.28-1.83)	3.50 (2.89-4.32)	7.27 (4.65-15.0)	663
Non-Hispanic Asian	11-12	*	<LOD	<LOD	1.89 (1.33-2.22)	3.57 (2.00-7.00)	352
Non-Hispanic Asian	13-14	*	<LOD	<LOD	1.47 (1.04-2.84)	3.93 (1.47-8.84)	288
Non-Hispanic Asian	15-16	*	.778 (<LOD-.932)	1.39 (1.16-1.75)	3.56 (2.32-4.55)	6.09 (3.81-7.14)	301
Non-Hispanic Asian	17-18	*	.824 (<LOD-.917)	1.49 (1.22-1.81)	4.03 (2.19-5.71)	8.05 (4.26-10.5)	366

<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.

† Participants are age 6+ years in Surveys 11-12 and 13-14; beginning with Survey 15-16, participants include those age 3+ years.

Urinary Cyclohexane-1,2-dicarboxylic acid mono carboxyisooctyl ester (MCOCH) (2015 - 2018)

CAS Number 1637562-51-6 (refers to one of the potential isomers of MCOCH)

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.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	15-16	*	.500 (.500-.600)	1.00 (.800-1.10)	2.10 (1.80-2.70)	4.00 (3.20-5.00)	2975
Total population	17-18	*	<LOD	.900 (.700-1.00)	2.40 (2.00-3.10)	5.70 (4.10-7.20)	2762
Age 3-5 years	15-16	1.02 (.928-1.12)	.900 (.800-1.00)	1.70 (1.40-2.00)	3.40 (2.40-4.00)	4.90 (3.90-6.00)	465
Age 3-5 years	17-18	1.13 (.959-1.32)	1.00 (.800-1.30)	2.20 (1.80-2.60)	4.10 (3.10-5.10)	6.70 (4.50-11.9)	379
Age 6-11 years	15-16	.894 (.776-1.03)	.800 (.700-.900)	1.40 (1.10-1.60)	3.60 (1.90-5.10)	5.10 (3.70-7.40)	415
Age 6-11 years	17-18	1.01 (.772-1.31)	.800 (.600-1.00)	1.90 (1.10-3.30)	4.80 (2.30-8.20)	8.20 (3.90-30.6)	330
Age 12-19 years	15-16	.742 (.656-.838)	.600 (.500-.600)	1.00 (.900-1.20)	2.20 (1.70-3.10)	4.50 (2.60-9.90)	405
Age 12-19 years	17-18	*	<LOD	1.00 (.700-1.30)	2.70 (1.40-4.30)	6.50 (2.30-8.90)	353
Age 20+ years	15-16	*	.500 (<LOD-.600)	.800 (.700-1.00)	2.00 (1.70-2.70)	3.40 (2.80-4.90)	1690
Age 20+ years	17-18	*	<LOD	.700 (.600-.800)	2.00 (1.40-3.00)	5.50 (3.20-7.00)	1700
Male	15-16	*	.600 (.500-.600)	1.00 (.900-1.20)	2.30 (1.80-3.00)	3.80 (3.20-4.50)	1474
Male	17-18	*	<LOD	.900 (.700-1.20)	3.40 (2.00-5.70)	7.80 (5.50-11.1)	1363
Female	15-16	*	.500 (.500-.600)	.900 (.800-1.00)	2.00 (1.50-2.70)	4.30 (2.80-5.70)	1501
Female	17-18	*	<LOD	.800 (.700-1.00)	1.90 (1.50-2.80)	3.80 (2.80-6.00)	1399
Mexican American	15-16	*	.600 (<LOD-.800)	1.10 (.900-1.30)	2.70 (1.90-3.60)	4.90 (3.50-7.00)	595
Mexican American	17-18	*	<LOD	.800 (.600-1.00)	1.80 (1.30-2.30)	4.00 (2.20-6.00)	417
Non-Hispanic Black	15-16	.749 (.663-.847)	.600 (.500-.700)	1.10 (.900-1.40)	3.00 (2.20-3.70)	5.10 (4.30-7.00)	698
Non-Hispanic Black	17-18	*	<LOD	1.20 (.800-1.50)	2.80 (1.80-4.20)	5.90 (3.30-9.20)	645
Non-Hispanic White	15-16	*	.500 (.500-.600)	.900 (.800-1.10)	2.00 (1.70-2.70)	3.40 (2.60-5.10)	862
Non-Hispanic White	17-18	*	<LOD	.900 (.700-1.10)	2.30 (1.90-3.70)	5.70 (3.70-7.90)	906
All Hispanic	15-16	*	.600 (<LOD-.700)	1.00 (.800-1.30)	2.10 (1.70-3.10)	4.30 (3.10-5.70)	971
All Hispanic	17-18	*	<LOD	.900 (.700-1.10)	2.50 (1.50-3.80)	5.70 (3.40-8.60)	663
Non-Hispanic Asian	15-16	*	<LOD	.700 (.600-1.00)	1.60 (1.00-2.50)	2.70 (1.80-5.80)	301
Non-Hispanic Asian	17-18	*	<LOD	.500 (<LOD-.600)	1.30 (.800-3.10)	3.20 (1.40-7.10)	366

Limit of detection (LOD, see Data Analysis section) for Survey years 15-16 and 17-18 are 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.

Urinary Cyclohexane-1,2-dicarboxylic acid mono carboxyisooctyl ester (MCOCH) (creatinine corrected) (2015 - 2018)

CAS Number 1637562-51-6 (refers to one of the potential isomers of MCOCH)

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.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	15-16	*	.620 (.559-.686)	1.22 (1.07-1.35)	2.40 (2.05-2.87)	3.94 (3.49-4.58)	2974
Total population	17-18	*	<LOD	1.24 (1.13-1.35)	2.73 (2.32-3.22)	4.32 (3.85-5.86)	2762
Age 3-5 years	15-16	2.43 (2.15-2.75)	2.08 (1.85-2.39)	4.06 (3.59-4.71)	7.78 (5.83-9.23)	11.7 (8.75-17.1)	464
Age 3-5 years	17-18	2.44 (2.18-2.75)	2.37 (1.96-2.86)	4.11 (3.80-4.85)	8.06 (6.78-10.7)	12.6 (10.0-14.2)	379
Age 6-11 years	15-16	1.15 (1.02-1.30)	1.03 (.928-1.20)	1.88 (1.53-2.19)	3.42 (2.90-4.58)	5.83 (3.54-9.02)	415
Age 6-11 years	17-18	1.17 (.959-1.43)	1.03 (.814-1.38)	1.98 (1.47-3.08)	3.50 (2.97-7.38)	8.46 (3.37-16.1)	330
Age 12-19 years	15-16	.576 (.507-.655)	.500 (.467-.556)	.872 (.682-1.21)	1.94 (1.49-3.19)	3.66 (2.38-5.00)	405
Age 12-19 years	17-18	*	<LOD	1.03 (.837-1.28)	2.14 (1.33-3.47)	4.06 (1.84-6.10)	353
Age 20+ years	15-16	*	.583 (<LOD-.648)	1.08 (.948-1.29)	2.06 (1.72-2.48)	3.32 (2.65-4.08)	1690
Age 20+ years	17-18	*	<LOD	1.04 (.946-1.18)	2.19 (1.86-2.69)	3.78 (3.18-5.07)	1700
Male	15-16	*	.538 (.493-.602)	1.07 (.867-1.29)	1.96 (1.67-2.50)	3.18 (2.86-3.92)	1474
Male	17-18	*	<LOD	1.11 (.896-1.30)	2.72 (1.80-3.66)	5.00 (3.55-7.19)	1363
Female	15-16	*	.696 (.625-.778)	1.37 (1.20-1.53)	2.86 (2.33-3.37)	4.46 (3.91-5.00)	1500
Female	17-18	*	<LOD	1.40 (1.18-1.52)	2.81 (2.17-3.32)	4.21 (3.33-5.44)	1399
Mexican American	15-16	*	.686 (<LOD-.814)	1.40 (1.24-1.59)	3.18 (2.59-3.84)	5.83 (3.59-8.66)	595
Mexican American	17-18	*	<LOD	1.13 (.917-1.43)	2.27 (1.78-2.97)	3.46 (2.92-4.54)	417
Non-Hispanic Black	15-16	.597 (.518-.688)	.505 (.452-.574)	1.06 (.849-1.31)	2.44 (1.82-3.33)	4.58 (3.51-5.35)	697
Non-Hispanic Black	17-18	*	<LOD	.946 (.735-1.30)	2.19 (1.68-2.94)	3.50 (2.73-4.87)	645
Non-Hispanic White	15-16	*	.648 (.565-.735)	1.22 (1.03-1.38)	2.25 (1.91-2.90)	3.72 (2.92-5.00)	862
Non-Hispanic White	17-18	*	<LOD	1.30 (1.13-1.46)	2.72 (2.00-3.43)	4.41 (3.55-7.19)	906
All Hispanic	15-16	*	.619 (<LOD-.700)	1.30 (1.05-1.50)	2.86 (2.10-3.75)	5.26 (3.59-6.36)	971
All Hispanic	17-18	*	<LOD	1.18 (1.00-1.49)	2.89 (2.06-3.50)	4.19 (3.46-6.78)	663
Non-Hispanic Asian	15-16	*	<LOD	1.32 (1.06-1.46)	2.19 (1.76-3.00)	3.33 (2.50-4.57)	301
Non-Hispanic Asian	17-18	*	<LOD	1.21 (<LOD-1.59)	2.83 (1.94-4.12)	4.51 (3.25-7.27)	366

<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 Mono-2-ethyl-5-carboxypentyl terephthalate (MECPTP) (2015 - 2018)

CAS Number 1684398-42-2

Metabolite of Di-2-ethylhexyl terephthalate (DEHTP)

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

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	15-16	19.3 (16.5-22.5)	16.3 (14.0-19.5)	58.2 (48.5-70.0)	190 (153-226)	369 (273-523)	2393
Total population	17-18	26.0 (22.3-30.3)	24.0 (20.6-28.8)	74.1 (61.0-91.5)	224 (187-301)	462 (359-583)	2762
Age 3-5 years	15-16	41.4 (34.7-49.4)	38.6 (30.3-45.0)	72.1 (58.5-108)	218 (120-282)	331 (242-586)	328
Age 3-5 years	17-18	52.4 (44.4-61.8)	45.3 (39.2-57.5)	93.7 (74.1-123)	238 (157-398)	542 (360-827)	379
Age 6-11 years	15-16	41.0 (32.0-52.5)	38.1 (28.7-51.3)	93.8 (70.5-136)	228 (122-401)	401 (212-708)	323
Age 6-11 years	17-18	58.9 (47.0-73.7)	54.6 (44.1-77.1)	135 (93.5-185)	327 (192-565)	565 (265-961)	330
Age 12-19 years	15-16	39.2 (29.5-51.9)	32.5 (23.5-47.4)	131 (86.9-214)	373 (214-547)	535 (294-787)	307
Age 12-19 years	17-18	40.0 (29.7-54.0)	37.3 (29.5-50.3)	95.8 (66.4-155)	325 (177-504)	693 (404-1370)	353
Age 20+ years	15-16	15.5 (13.0-18.5)	12.5 (10.4-14.5)	47.0 (34.3-57.9)	155 (116-218)	338 (224-523)	1435
Age 20+ years	17-18	21.7 (18.0-26.3)	19.5 (16.4-22.8)	60.6 (48.1-79.2)	200 (146-293)	431 (278-673)	1700
Male	15-16	20.3 (17.1-24.1)	16.7 (14.4-22.3)	62.5 (46.6-78.4)	190 (137-263)	378 (263-566)	1189
Male	17-18	29.6 (24.2-36.3)	27.5 (22.1-33.5)	89.1 (68.8-113)	322 (223-448)	583 (429-746)	1363
Female	15-16	18.3 (15.3-21.9)	15.6 (12.5-19.6)	57.5 (43.4-68.8)	191 (148-224)	360 (242-528)	1204
Female	17-18	22.9 (19.0-27.7)	21.0 (17.0-26.7)	64.7 (47.2-85.3)	175 (145-203)	304 (212-404)	1399
Mexican American	15-16	20.4 (15.3-27.2)	19.3 (14.4-25.7)	59.4 (38.8-80.7)	163 (122-243)	364 (243-532)	485
Mexican American	17-18	27.0 (20.6-35.5)	24.6 (20.4-30.1)	73.5 (47.0-89.1)	178 (100-374)	473 (164-1250)	417
Non-Hispanic Black	15-16	22.6 (16.8-30.4)	21.6 (15.4-29.5)	60.3 (36.7-94.0)	187 (111-278)	343 (231-526)	518
Non-Hispanic Black	17-18	35.1 (28.8-42.9)	34.0 (25.0-45.1)	99.8 (72.7-136)	315 (230-405)	504 (402-835)	645
Non-Hispanic White	15-16	19.4 (16.0-23.5)	15.5 (12.4-19.6)	60.1 (47.8-83.3)	218 (142-282)	378 (255-613)	742
Non-Hispanic White	17-18	24.5 (19.6-30.5)	23.1 (17.3-29.5)	68.9 (52.1-92.4)	200 (162-258)	457 (304-737)	906
All Hispanic	15-16	19.1 (14.5-25.2)	17.9 (13.9-23.3)	58.9 (41.5-77.5)	161 (122-234)	301 (210-431)	795
All Hispanic	17-18	29.1 (22.3-38.0)	25.6 (20.7-32.0)	86.4 (64.5-119)	293 (180-431)	500 (348-848)	663
Non-Hispanic Asian	15-16	16.1 (9.64-27.1)	14.8 (11.5-20.1)	41.7 (26.8-77.7)	124 (57.5-506)	425 (108-662)	219
Non-Hispanic Asian	17-18	19.8 (16.5-23.8)	19.3 (13.9-24.0)	48.1 (38.4-62.6)	124 (93.6-191)	269 (161-420)	366

Limit of detection (LOD, see Data Analysis section) for Survey years 15-16 and 17-18 are 0.2 and 0.2, respectively.

Urinary Mono-2-ethyl-5-carboxypentyl terephthalate (MECPTP) (creatinine corrected) (2015 - 2018)

CAS Number 1684398-42-2

Metabolite of Di-2-ethylhexyl terephthalate (DEHTP)

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.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	15-16	20.4 (17.4-23.8)	17.9 (14.0-21.8)	58.8 (50.2-68.6)	168 (148-198)	347 (253-430)	2392
Total population	17-18	27.1 (23.5-31.4)	25.8 (21.7-29.8)	71.2 (59.3-89.2)	200 (163-268)	387 (296-482)	2762
Age 3-5 years	15-16	99.4 (79.5-124)	93.6 (70.0-113)	184 (143-229)	413 (304-580)	781 (342-1080)	327
Age 3-5 years	17-18	114 (101-129)	93.5 (81.6-107)	204 (146-244)	423 (337-544)	962 (498-1380)	379
Age 6-11 years	15-16	51.6 (42.4-62.7)	48.1 (40.1-58.8)	95.1 (82.4-137)	246 (161-347)	364 (259-653)	323
Age 6-11 years	17-18	68.5 (56.9-82.5)	60.3 (49.4-75.7)	154 (111-192)	358 (243-430)	519 (335-975)	330
Age 12-19 years	15-16	30.5 (23.7-39.2)	24.5 (16.8-37.6)	96.5 (58.0-144)	253 (205-336)	395 (304-455)	307
Age 12-19 years	17-18	34.6 (26.2-45.7)	29.2 (25.0-34.6)	76.3 (45.0-105)	231 (131-465)	479 (234-846)	353
Age 20+ years	15-16	16.2 (13.5-19.4)	13.3 (11.3-16.3)	44.4 (34.1-57.0)	141 (110-154)	277 (198-384)	1435
Age 20+ years	17-18	22.3 (18.6-26.6)	20.0 (15.6-25.4)	57.8 (43.5-76.7)	168 (133-229)	343 (194-600)	1700
Male	15-16	18.5 (15.5-22.0)	14.7 (12.3-19.2)	54.9 (42.4-74.7)	154 (126-204)	331 (205-452)	1189
Male	17-18	26.3 (22.2-31.3)	24.2 (20.0-28.9)	72.8 (56.4-94.9)	240 (176-343)	421 (359-519)	1363
Female	15-16	22.4 (18.8-26.6)	20.5 (15.6-24.3)	60.9 (55.7-74.0)	178 (152-217)	380 (250-487)	1203
Female	17-18	27.9 (23.2-33.7)	27.5 (20.3-34.9)	70.8 (58.2-85.9)	173 (141-238)	324 (251-473)	1399
Mexican American	15-16	22.8 (16.6-31.3)	22.9 (14.0-37.4)	65.0 (52.0-90.4)	172 (117-236)	302 (206-395)	485
Mexican American	17-18	29.3 (22.7-37.8)	29.4 (23.1-36.7)	66.5 (46.6-99.2)	206 (102-323)	323 (196-1010)	417
Non-Hispanic Black	15-16	19.0 (14.5-24.7)	16.2 (12.2-24.2)	55.0 (39.3-76.0)	134 (102-188)	290 (164-364)	517
Non-Hispanic Black	17-18	26.5 (22.1-31.6)	24.6 (20.6-30.0)	68.3 (59.9-83.0)	185 (146-260)	376 (233-736)	645
Non-Hispanic White	15-16	21.2 (17.5-25.8)	18.6 (14.0-23.8)	60.4 (47.8-77.3)	197 (152-246)	439 (253-533)	742
Non-Hispanic White	17-18	26.1 (21.6-31.4)	24.3 (18.9-30.0)	70.8 (56.4-93.8)	190 (135-269)	374 (247-498)	906
All Hispanic	15-16	20.5 (15.6-26.9)	19.8 (13.5-26.6)	60.2 (44.7-80.7)	158 (123-218)	302 (209-380)	795
All Hispanic	17-18	31.3 (24.7-39.6)	30.4 (23.3-37.3)	85.2 (59.6-122)	243 (159-365)	479 (268-820)	663
Non-Hispanic Asian	15-16	20.4 (13.9-30.1)	17.9 (11.3-27.6)	53.0 (27.6-100)	139 (74.7-222)	228 (126-602)	219
Non-Hispanic Asian	17-18	29.3 (23.6-36.3)	26.7 (21.3-33.6)	66.6 (48.4-96.1)	190 (140-282)	347 (216-512)	366

Urinary Mono-2-ethyl-5-hydroxyhexyl terephthalate (MEHHTP) (2015 - 2018)

CAS Number 1684398-38-6

Metabolite of Di-2-ethylhexyl terephthalate (DEHTP)

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

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	15-16	5.02 (4.33-5.81)	4.50 (3.80-5.00)	13.6 (11.7-16.7)	40.3 (28.5-54.5)	84.4 (56.1-124)	2393
Total population	17-18	6.87 (5.96-7.92)	6.60 (5.70-7.70)	17.5 (15.2-20.3)	53.1 (41.7-65.6)	101 (78.4-144)	2762
Age 3-5 years	15-16	5.96 (5.09-6.98)	5.50 (4.40-6.40)	10.8 (8.90-14.8)	28.1 (17.7-37.5)	45.2 (30.4-59.2)	328
Age 3-5 years	17-18	7.82 (6.41-9.55)	7.10 (5.20-9.10)	15.8 (11.4-20.6)	40.0 (33.2-60.0)	78.4 (50.7-129)	379
Age 6-11 years	15-16	7.51 (5.83-9.67)	7.30 (5.30-10.2)	16.6 (11.9-24.9)	34.6 (20.6-74.7)	74.7 (31.6-207)	323
Age 6-11 years	17-18	10.5 (8.50-12.9)	10.8 (7.80-14.0)	20.5 (17.5-27.1)	50.2 (29.7-98.1)	106 (43.8-157)	330
Age 12-19 years	15-16	8.38 (6.27-11.2)	8.30 (5.60-11.7)	24.9 (14.8-35.6)	54.5 (31.0-126)	110 (41.6-234)	307
Age 12-19 years	17-18	8.55 (6.64-11.0)	8.70 (6.70-9.90)	22.3 (14.9-36.9)	60.4 (38.0-112)	112 (78.4-226)	353
Age 20+ years	15-16	4.43 (3.75-5.23)	3.70 (3.00-4.50)	12.2 (10.0-15.6)	36.0 (24.0-55.1)	78.5 (56.9-126)	1435
Age 20+ years	17-18	6.34 (5.31-7.56)	6.00 (5.10-6.90)	16.6 (12.6-21.3)	51.8 (39.2-75.4)	101 (75.4-170)	1700
Male	15-16	5.71 (4.78-6.81)	5.00 (4.10-6.10)	15.7 (11.6-20.3)	44.3 (28.2-68.6)	101 (63.4-156)	1189
Male	17-18	8.21 (6.76-9.99)	7.40 (6.00-9.30)	20.7 (15.8-28.7)	72.9 (47.5-101)	144 (89.8-259)	1363
Female	15-16	4.43 (3.79-5.18)	3.80 (3.10-4.50)	12.4 (10.6-15.0)	36.5 (26.6-51.3)	77.4 (47.6-113)	1204
Female	17-18	5.79 (4.86-6.91)	5.90 (4.60-7.10)	15.8 (11.6-19.4)	40.5 (28.5-52.4)	76.0 (46.0-89.0)	1399
Mexican American	15-16	4.75 (3.55-6.36)	4.40 (3.10-5.70)	12.3 (8.00-19.4)	40.7 (23.2-58.1)	63.4 (46.8-104)	485
Mexican American	17-18	6.14 (4.67-8.08)	5.60 (4.40-8.00)	14.2 (10.6-20.4)	38.6 (21.5-71.6)	88.9 (29.8-226)	417
Non-Hispanic Black	15-16	5.30 (4.02-6.98)	5.20 (3.70-7.30)	12.8 (9.50-19.3)	32.6 (22.2-51.3)	64.7 (41.4-88.6)	518
Non-Hispanic Black	17-18	7.66 (6.41-9.17)	7.00 (5.60-8.50)	19.0 (13.4-28.7)	54.3 (37.4-82.7)	95.3 (75.9-133)	645
Non-Hispanic White	15-16	5.28 (4.46-6.26)	4.50 (3.60-5.30)	16.4 (12.5-20.0)	45.9 (30.0-76.2)	110 (61.4-156)	742
Non-Hispanic White	17-18	7.13 (5.85-8.70)	6.80 (5.70-8.40)	18.9 (15.1-24.0)	51.8 (40.1-76.0)	104 (64.6-259)	906
All Hispanic	15-16	4.50 (3.45-5.86)	4.10 (3.10-5.30)	11.7 (8.50-15.7)	32.6 (23.9-49.3)	63.1 (46.8-105)	795
All Hispanic	17-18	6.60 (5.05-8.64)	6.00 (4.50-8.10)	16.7 (12.1-24.7)	65.2 (40.7-89.8)	104 (70.9-155)	663
Non-Hispanic Asian	15-16	4.07 (2.55-6.48)	3.80 (2.50-5.70)	9.40 (6.30-13.1)	26.4 (12.5-108)	87.9 (23.5-215)	219
Non-Hispanic Asian	17-18	4.63 (3.72-5.77)	4.30 (3.50-5.90)	11.5 (9.30-13.2)	26.6 (20.1-43.0)	59.6 (29.0-79.4)	366

Limit of detection (LOD, see Data Analysis section) for Survey years 15-16 and 17-18 are 0.4 and 0.4, respectively.

Urinary Mono-2-ethyl-5-hydroxyhexyl terephthalate (MEHHTP) (creatinine corrected) (2015 - 2018)

CAS Number 1684398-38-6

Metabolite of Di-2-ethylhexyl terephthalate (DEHTP)

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.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	15-16	5.31 (4.59-6.13)	4.47 (3.75-5.32)	12.6 (10.4-15.5)	33.2 (26.7-46.1)	70.1 (53.7-84.1)	2392
Total population	17-18	7.17 (6.27-8.21)	6.24 (5.66-6.92)	15.4 (12.9-18.4)	44.9 (35.1-54.2)	73.2 (59.1-104)	2762
Age 3-5 years	15-16	14.3 (11.6-17.6)	13.3 (10.9-15.6)	24.9 (19.5-31.8)	62.7 (34.9-86.7)	86.7 (46.1-121)	327
Age 3-5 years	17-18	17.0 (14.3-20.2)	14.5 (11.6-17.5)	29.2 (22.2-40.8)	62.3 (51.9-90.4)	134 (70.8-180)	379
Age 6-11 years	15-16	9.44 (7.68-11.6)	8.95 (7.27-11.3)	16.9 (13.2-21.7)	36.9 (24.6-59.4)	63.3 (30.5-142)	323
Age 6-11 years	17-18	12.2 (10.3-14.5)	10.8 (8.05-14.2)	23.0 (20.5-30.9)	54.0 (34.3-71.5)	79.3 (54.2-131)	330
Age 12-19 years	15-16	6.53 (5.12-8.33)	6.01 (3.46-8.67)	18.0 (11.7-26.9)	44.3 (27.6-59.5)	59.5 (44.3-71.8)	307
Age 12-19 years	17-18	7.39 (5.92-9.22)	6.47 (5.68-7.62)	15.7 (11.3-21.4)	42.0 (24.5-72.4)	84.9 (46.1-119)	353
Age 20+ years	15-16	4.63 (3.89-5.50)	3.70 (3.18-4.47)	10.4 (8.00-14.1)	30.0 (23.5-44.8)	70.1 (52.0-84.1)	1435
Age 20+ years	17-18	6.50 (5.53-7.64)	5.68 (4.80-6.42)	12.9 (10.7-17.3)	42.9 (33.0-51.5)	70.9 (51.5-115)	1700
Male	15-16	5.20 (4.37-6.18)	4.52 (3.54-5.54)	12.1 (9.34-17.1)	33.1 (24.9-47.3)	67.5 (47.3-84.1)	1189
Male	17-18	7.30 (6.18-8.61)	6.25 (5.44-7.44)	16.3 (13.2-20.4)	52.7 (35.4-66.3)	79.1 (62.2-129)	1363
Female	15-16	5.41 (4.65-6.30)	4.44 (3.67-5.58)	13.3 (10.5-15.7)	34.8 (26.0-46.6)	73.4 (49.1-92.3)	1203
Female	17-18	7.06 (5.97-8.34)	6.20 (5.24-7.41)	15.2 (11.4-19.9)	38.7 (31.0-48.5)	66.8 (51.4-86.4)	1399
Mexican American	15-16	5.30 (3.89-7.22)	4.53 (3.14-8.10)	13.9 (9.85-18.4)	27.7 (23.3-39.6)	52.8 (27.7-134)	485
Mexican American	17-18	6.66 (5.16-8.58)	6.08 (4.71-7.38)	14.5 (10.5-19.4)	35.0 (21.1-53.9)	54.2 (33.8-187)	417
Non-Hispanic Black	15-16	4.45 (3.59-5.51)	3.98 (3.08-5.28)	10.2 (7.75-13.5)	25.9 (19.4-32.9)	45.9 (30.1-66.2)	517
Non-Hispanic Black	17-18	5.78 (5.01-6.66)	4.83 (4.04-6.05)	13.2 (10.3-16.4)	31.6 (24.6-48.5)	65.9 (37.0-91.4)	645
Non-Hispanic White	15-16	5.79 (4.90-6.84)	5.00 (4.07-5.91)	14.5 (10.3-19.0)	44.6 (32.2-56.3)	79.8 (57.8-105)	742
Non-Hispanic White	17-18	7.60 (6.44-8.97)	6.55 (5.81-7.45)	16.2 (12.9-22.1)	46.1 (34.8-58.0)	75.5 (51.5-118)	906
All Hispanic	15-16	4.82 (3.75-6.20)	4.30 (3.05-6.10)	11.8 (8.49-16.5)	27.6 (22.3-38.3)	51.5 (32.0-108)	795
All Hispanic	17-18	7.09 (5.60-8.98)	6.22 (4.62-7.73)	16.0 (11.5-24.6)	51.5 (33.0-66.8)	72.4 (54.2-122)	663
Non-Hispanic Asian	15-16	5.15 (3.69-7.19)	3.81 (2.75-6.16)	11.0 (7.24-17.7)	31.8 (17.5-61.6)	61.6 (30.5-118)	219
Non-Hispanic Asian	17-18	6.85 (5.31-8.83)	6.47 (4.82-8.16)	14.3 (10.3-18.6)	36.8 (25.0-50.8)	75.2 (45.9-118)	366