

# Herbicides and Metabolites

## Urinary Atrazine (2007 - 2008)‡

CAS Number 1912-24-9

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	07-08	*	<LOD	<LOD	<LOD	<LOD	2588
Age 6-11 years	07-08	*	<LOD	<LOD	<LOD	<LOD	384
Age 12-19 years	07-08	*	<LOD	<LOD	<LOD	<LOD	390
Age 20-59 years	07-08	*	<LOD	<LOD	<LOD	<LOD	1179
Age 60+ years	07-08	*	<LOD	<LOD	<LOD	<LOD	635
Males	07-08	*	<LOD	<LOD	<LOD	<LOD	1294
Females	07-08	*	<LOD	<LOD	<LOD	<LOD	1294
Mexican Americans	07-08	*	<LOD	<LOD	<LOD	<LOD	501
Non-Hispanic Blacks	07-08	*	<LOD	<LOD	<LOD	<LOD	573
Non-Hispanic Whites	07-08	*	<LOD	<LOD	<LOD	<LOD	1085

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

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

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

‡Only measured in Survey years 2007-2008.

Biomonitoring Summary: [https://www.cdc.gov/biomonitoring/Atrazine\\_BiomonitoringSummary.html](https://www.cdc.gov/biomonitoring/Atrazine_BiomonitoringSummary.html)

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

CAS Number 1912-24-9

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	07-08	*	<LOD	<LOD	<LOD	<LOD	2586
Age 6-11 years	07-08	*	<LOD	<LOD	<LOD	<LOD	384
Age 12-19 years	07-08	*	<LOD	<LOD	<LOD	<LOD	388
Age 20-59 years	07-08	*	<LOD	<LOD	<LOD	<LOD	1179
Age 60+ years	07-08	*	<LOD	<LOD	<LOD	<LOD	635
Males	07-08	*	<LOD	<LOD	<LOD	<LOD	1293
Females	07-08	*	<LOD	<LOD	<LOD	<LOD	1293
Mexican Americans	07-08	*	<LOD	<LOD	<LOD	<LOD	500
Non-Hispanic Blacks	07-08	*	<LOD	<LOD	<LOD	<LOD	572
Non-Hispanic Whites	07-08	*	<LOD	<LOD	<LOD	<LOD	1085

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

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

‡Only measured in Survey years 2007-2008.

Biomonitoring Summary: [https://www.cdc.gov/biomonitoring/Atrazine\\_BiomonitoringSummary.html](https://www.cdc.gov/biomonitoring/Atrazine_BiomonitoringSummary.html)

## Urinary Atrazine mercapturate (2007 - 2008)‡

CAS Number 138722-96-0

*Metabolite of Atrazine*

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

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	07-08	*	<LOD	<LOD	<LOD	<LOD	2588
Age 6-11 years	07-08	*	<LOD	<LOD	<LOD	<LOD	384
Age 12-19 years	07-08	*	<LOD	<LOD	<LOD	<LOD	390
Age 20-59 years	07-08	*	<LOD	<LOD	<LOD	<LOD	1179
Age 60+ years	07-08	*	<LOD	<LOD	<LOD	<LOD	635
Males	07-08	*	<LOD	<LOD	<LOD	<LOD	1294
Females	07-08	*	<LOD	<LOD	<LOD	<LOD	1294
Mexican Americans	07-08	*	<LOD	<LOD	<LOD	<LOD	501
Non-Hispanic Blacks	07-08	*	<LOD	<LOD	<LOD	<LOD	573
Non-Hispanic Whites	07-08	*	<LOD	<LOD	<LOD	<LOD	1085

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

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

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

‡Only measured in Survey years 2007-2008.

Biomonitoring Summary: [https://www.cdc.gov/biomonitoring/Atrazine\\_BiomonitoringSummary.html](https://www.cdc.gov/biomonitoring/Atrazine_BiomonitoringSummary.html)

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

CAS Number 138722-96-0

*Metabolite of Atrazine*

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

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	07-08	*	<LOD	<LOD	<LOD	<LOD	2586
Age 6-11 years	07-08	*	<LOD	<LOD	<LOD	<LOD	384
Age 12-19 years	07-08	*	<LOD	<LOD	<LOD	<LOD	388
Age 20-59 years	07-08	*	<LOD	<LOD	<LOD	<LOD	1179
Age 60+ years	07-08	*	<LOD	<LOD	<LOD	<LOD	635
Males	07-08	*	<LOD	<LOD	<LOD	<LOD	1293
Females	07-08	*	<LOD	<LOD	<LOD	<LOD	1293
Mexican Americans	07-08	*	<LOD	<LOD	<LOD	<LOD	500
Non-Hispanic Blacks	07-08	*	<LOD	<LOD	<LOD	<LOD	572
Non-Hispanic Whites	07-08	*	<LOD	<LOD	<LOD	<LOD	1085

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

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

‡Only measured in Survey years 2007-2008.

Biomonitoring Summary: [https://www.cdc.gov/biomonitoring/Atrazine\\_BiomonitoringSummary.html](https://www.cdc.gov/biomonitoring/Atrazine_BiomonitoringSummary.html)

## Urinary Desethyl atrazine (2007 - 2008)‡

CAS Number 6190-65-4

*Metabolite of Atrazine*

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

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	07-08	*	<LOD	<LOD	<LOD	<LOD	2482
Age 6-11 years	07-08	*	<LOD	<LOD	<LOD	<LOD	360
Age 12-19 years	07-08	*	<LOD	<LOD	<LOD	<LOD	382
Age 20-59 years	07-08	*	<LOD	<LOD	<LOD	<LOD	1129
Age 60+ years	07-08	*	<LOD	<LOD	<LOD	<LOD	611
Males	07-08	*	<LOD	<LOD	<LOD	<LOD	1234
Females	07-08	*	<LOD	<LOD	<LOD	<LOD	1248
Mexican Americans	07-08	*	<LOD	<LOD	<LOD	<LOD	462
Non-Hispanic Blacks	07-08	*	<LOD	<LOD	<LOD	<LOD	563
Non-Hispanic Whites	07-08	*	<LOD	<LOD	<LOD	<LOD	1048

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

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

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

‡Only measured in Survey years 2007-2008.

Biomonitoring Summary: [https://www.cdc.gov/biomonitoring/Atrazine\\_BiomonitoringSummary.html](https://www.cdc.gov/biomonitoring/Atrazine_BiomonitoringSummary.html)

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

CAS Number 6190-65-4

*Metabolite of Atrazine*

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

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	07-08	*	<LOD	<LOD	<LOD	<LOD	2480
Age 6-11 years	07-08	*	<LOD	<LOD	<LOD	<LOD	360
Age 12-19 years	07-08	*	<LOD	<LOD	<LOD	<LOD	380
Age 20-59 years	07-08	*	<LOD	<LOD	<LOD	<LOD	1129
Age 60+ years	07-08	*	<LOD	<LOD	<LOD	<LOD	611
Males	07-08	*	<LOD	<LOD	<LOD	<LOD	1233
Females	07-08	*	<LOD	<LOD	<LOD	<LOD	1247
Mexican Americans	07-08	*	<LOD	<LOD	<LOD	<LOD	461
Non-Hispanic Blacks	07-08	*	<LOD	<LOD	<LOD	<LOD	562
Non-Hispanic Whites	07-08	*	<LOD	<LOD	<LOD	<LOD	1048

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

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

‡Only measured in Survey years 2007-2008.

Biomonitoring Summary: [https://www.cdc.gov/biomonitoring/Atrazine\\_BiomonitoringSummary.html](https://www.cdc.gov/biomonitoring/Atrazine_BiomonitoringSummary.html)

## Urinary Desisopropyl atrazine (2007 - 2008)‡

CAS Number 1007-28-9

*Metabolite of Atrazine*

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

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	07-08	*	<LOD	<LOD	<LOD	<LOD	2445
Age 6-11 years	07-08	*	<LOD	<LOD	<LOD	<LOD	367
Age 12-19 years	07-08	*	<LOD	<LOD	<LOD	<LOD	361
Age 20-59 years	07-08	*	<LOD	<LOD	<LOD	<LOD	1113
Age 60+ years	07-08	*	<LOD	<LOD	<LOD	<LOD	604
Males	07-08	*	<LOD	<LOD	<LOD	<LOD	1224
Females	07-08	*	<LOD	<LOD	<LOD	<LOD	1221
Mexican Americans	07-08	*	<LOD	<LOD	<LOD	<LOD	493
Non-Hispanic Blacks	07-08	*	<LOD	<LOD	<LOD	<LOD	537
Non-Hispanic Whites	07-08	*	<LOD	<LOD	<LOD	<LOD	1010

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

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

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

‡Only measured in Survey years 2007-2008.

Biomonitoring Summary: [https://www.cdc.gov/biomonitoring/Atrazine\\_BiomonitoringSummary.html](https://www.cdc.gov/biomonitoring/Atrazine_BiomonitoringSummary.html)



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

CAS Number 1007-28-9

*Metabolite of Atrazine*

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

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	07-08	*	<LOD	<LOD	<LOD	<LOD	2444
Age 6-11 years	07-08	*	<LOD	<LOD	<LOD	<LOD	367
Age 12-19 years	07-08	*	<LOD	<LOD	<LOD	<LOD	360
Age 20-59 years	07-08	*	<LOD	<LOD	<LOD	<LOD	1113
Age 60+ years	07-08	*	<LOD	<LOD	<LOD	<LOD	604
Males	07-08	*	<LOD	<LOD	<LOD	<LOD	1223
Females	07-08	*	<LOD	<LOD	<LOD	<LOD	1221
Mexican Americans	07-08	*	<LOD	<LOD	<LOD	<LOD	492
Non-Hispanic Blacks	07-08	*	<LOD	<LOD	<LOD	<LOD	537
Non-Hispanic Whites	07-08	*	<LOD	<LOD	<LOD	<LOD	1010

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

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

‡Only measured in Survey years 2007-2008.

Biomonitoring Summary: [https://www.cdc.gov/biomonitoring/Atrazine\\_BiomonitoringSummary.html](https://www.cdc.gov/biomonitoring/Atrazine_BiomonitoringSummary.html)

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

CAS Number 1007-28-9

*Metabolite of Atrazine*

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

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	07-08	*	<LOD	<LOD	<LOD	<LOD	2480
Age 6-11 years	07-08	*	<LOD	<LOD	<LOD	<LOD	366
Age 12-19 years	07-08	*	<LOD	<LOD	<LOD	<LOD	372
Age 20-59 years	07-08	*	<LOD	<LOD	<LOD	<LOD	1135
Age 60+ years	07-08	*	<LOD	<LOD	<LOD	<LOD	607
Males	07-08	*	<LOD	<LOD	<LOD	<LOD	1233
Females	07-08	*	<LOD	<LOD	<LOD	<LOD	1247
Mexican Americans	07-08	*	<LOD	<LOD	<LOD	<LOD	486
Non-Hispanic Blacks	07-08	*	<LOD	<LOD	<LOD	<LOD	531
Non-Hispanic Whites	07-08	*	<LOD	<LOD	<LOD	<LOD	1039

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

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

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

‡Only measured in Survey years 2007-2008.

Biomonitoring Summary: [https://www.cdc.gov/biomonitoring/Atrazine\\_BiomonitoringSummary.html](https://www.cdc.gov/biomonitoring/Atrazine_BiomonitoringSummary.html)

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

CAS Number 1007-28-9

*Metabolite of Atrazine*

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

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	07-08	*	<LOD	<LOD	<LOD	<LOD	2478
Age 6-11 years	07-08	*	<LOD	<LOD	<LOD	<LOD	366
Age 12-19 years	07-08	*	<LOD	<LOD	<LOD	<LOD	370
Age 20-59 years	07-08	*	<LOD	<LOD	<LOD	<LOD	1135
Age 60+ years	07-08	*	<LOD	<LOD	<LOD	<LOD	607
Males	07-08	*	<LOD	<LOD	<LOD	<LOD	1232
Females	07-08	*	<LOD	<LOD	<LOD	<LOD	1246
Mexican Americans	07-08	*	<LOD	<LOD	<LOD	<LOD	485
Non-Hispanic Blacks	07-08	*	<LOD	<LOD	<LOD	<LOD	530
Non-Hispanic Whites	07-08	*	<LOD	<LOD	<LOD	<LOD	1039

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

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

‡Only measured in Survey years 2007-2008.

Biomonitoring Summary: [https://www.cdc.gov/biomonitoring/Atrazine\\_BiomonitoringSummary.html](https://www.cdc.gov/biomonitoring/Atrazine_BiomonitoringSummary.html)

## Urinary Diaminochloroatrazine (2007 - 2008)‡

CAS Number 1007-28-9

*Metabolite of Atrazine*

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

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	07-08	*	<LOD	<LOD	<LOD	<LOD	2588
Age 6-11 years	07-08	*	<LOD	<LOD	<LOD	<LOD	384
Age 12-19 years	07-08	*	<LOD	<LOD	<LOD	<LOD	390
Age 20-59 years	07-08	*	<LOD	<LOD	<LOD	<LOD	1179
Age 60+ years	07-08	*	<LOD	<LOD	<LOD	<LOD	635
Males	07-08	*	<LOD	<LOD	<LOD	<LOD	1294
Females	07-08	*	<LOD	<LOD	<LOD	<LOD	1294
Mexican Americans	07-08	*	<LOD	<LOD	<LOD	<LOD	501
Non-Hispanic Blacks	07-08	*	<LOD	<LOD	<LOD	<LOD	573
Non-Hispanic Whites	07-08	*	<LOD	<LOD	<LOD	<LOD	1085

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

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

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

‡Only measured in Survey years 2007-2008.

Biomonitoring Summary: [https://www.cdc.gov/biomonitoring/Atrazine\\_BiomonitoringSummary.html](https://www.cdc.gov/biomonitoring/Atrazine_BiomonitoringSummary.html)

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

CAS Number 1007-28-9

*Metabolite of Atrazine*

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

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	07-08	*	<LOD	<LOD	<LOD	<LOD	2586
Age 6-11 years	07-08	*	<LOD	<LOD	<LOD	<LOD	384
Age 12-19 years	07-08	*	<LOD	<LOD	<LOD	<LOD	388
Age 20-59 years	07-08	*	<LOD	<LOD	<LOD	<LOD	1179
Age 60+ years	07-08	*	<LOD	<LOD	<LOD	<LOD	635
Males	07-08	*	<LOD	<LOD	<LOD	<LOD	1293
Females	07-08	*	<LOD	<LOD	<LOD	<LOD	1293
Mexican Americans	07-08	*	<LOD	<LOD	<LOD	<LOD	500
Non-Hispanic Blacks	07-08	*	<LOD	<LOD	<LOD	<LOD	572
Non-Hispanic Whites	07-08	*	<LOD	<LOD	<LOD	<LOD	1085

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

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

‡Only measured in Survey years 2007-2008.

Biomonitoring Summary: [https://www.cdc.gov/biomonitoring/Atrazine\\_BiomonitoringSummary.html](https://www.cdc.gov/biomonitoring/Atrazine_BiomonitoringSummary.html)

## Urinary Glyphosate (N-(Phosphonomethyl)glycine) (2013 - 2014)

CAS Number 1071-83-6

Geometric mean and selected percentiles of 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	.411 (.376-.450)	.392 (.359-.436)	.656 (.573-.751)	1.11 (.961-1.32)	1.58 (1.35-1.83)	2310
Age 6-11 years	13-14	.515 (.437-.606)	.526 (.441-.602)	.891 (.620-1.18)	1.38 (1.15-1.78)	1.78 (1.39-2.30)	337
Age 12-19 years	13-14	.481 (.422-.547)	.456 (.387-.506)	.804 (.670-.963)	1.32 (1.02-1.65)	1.70 (1.32-2.06)	348
Age 20+ years	13-14	.392 (.358-.429)	.375 (.350-.410)	.613 (.527-.718)	1.03 (.907-1.25)	1.54 (1.18-1.86)	1625
Males	13-14	.421 (.380-.466)	.409 (.363-.468)	.680 (.595-.788)	1.15 (.974-1.36)	1.62 (1.27-1.97)	1153
Females	13-14	.402 (.364-.445)	.379 (.347-.418)	.622 (.532-.744)	1.07 (.930-1.29)	1.56 (1.28-1.82)	1157
Mexican Americans	13-14	.359 (.329-.391)	.358 (.327-.405)	.545 (.501-.606)	.815 (.742-.929)	1.07 (.916-1.37)	381
Non-Hispanic Blacks	13-14	.461 (.427-.498)	.446 (.389-.514)	.706 (.631-.780)	1.21 (.994-1.50)	1.64 (1.36-2.21)	464
Non-Hispanic Whites	13-14	.417 (.374-.466)	.392 (.356-.449)	.662 (.573-.781)	1.17 (.926-1.54)	1.70 (1.35-1.90)	930
All Hispanics	13-14	.374 (.333-.419)	.364 (.320-.434)	.600 (.499-.703)	.920 (.787-1.08)	1.26 (1.07-1.39)	586
Asians	13-14	.352 (.303-.409)	.349 (.295-.400)	.563 (.479-.707)	1.03 (.880-1.17)	1.34 (.997-2.28)	238

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.2.

## Urinary Glyphosate (N-(Phosphonomethyl)glycine) (creatinine corrected) (2013 - 2014)

CAS Number 1071-83-6

Geometric mean and selected percentiles of 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	.443 (.406-.482)	.450 (.404-.486)	.753 (.689-.829)	1.17 (1.10-1.31)	1.60 (1.46-1.79)	2309
Age 6-11 years	13-14	.653 (.579-.738)	.643 (.533-.775)	1.00 (.860-1.29)	1.70 (1.35-2.07)	2.26 (1.76-2.82)	337
Age 12-19 years	13-14	.414 (.372-.460)	.421 (.373-.472)	.676 (.626-.705)	.946 (.848-1.17)	1.34 (.976-2.09)	348
Age 20+ years	13-14	.429 (.392-.469)	.428 (.391-.470)	.733 (.674-.802)	1.14 (1.10-1.27)	1.54 (1.38-1.69)	1624
Males	13-14	.388 (.357-.421)	.397 (.353-.435)	.670 (.604-.738)	1.04 (.956-1.11)	1.26 (1.12-1.52)	1152
Females	13-14	.502 (.450-.559)	.504 (.447-.576)	.858 (.732-.958)	1.40 (1.24-1.49)	1.81 (1.61-2.00)	1157
Mexican Americans	13-14	.378 (.333-.429)	.373 (.328-.418)	.635 (.571-.683)	1.01 (.849-1.12)	1.24 (1.05-1.60)	380
Non-Hispanic Blacks	13-14	.362 (.309-.423)	.346 (.283-.469)	.610 (.508-.707)	.939 (.791-1.07)	1.24 (1.01-1.60)	464
Non-Hispanic Whites	13-14	.476 (.431-.526)	.480 (.435-.533)	.810 (.722-.910)	1.30 (1.13-1.48)	1.69 (1.49-2.04)	930
All Hispanics	13-14	.391 (.349-.439)	.385 (.327-.444)	.668 (.596-.710)	1.01 (.856-1.14)	1.29 (1.12-1.55)	585
Asians	13-14	.444 (.384-.512)	.446 (.384-.512)	.773 (.633-.929)	1.17 (.974-1.55)	1.55 (1.18-1.97)	238

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

CAS Number 94-75-7

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	<LOD	1977
Total population	01-02	*	<LOD	.220 (<LOD-.310)	.690 (.560-.880)	1.26 (1.01-1.36)	2903
Total population	03-04	.245 (.210-.286)	.230 (.180-.320)	.580 (.490-.660)	1.10 (.910-1.34)	1.71 (1.41-2.37)	2488
Total population	07-08	*	<LOD	.550 (.530-.590)	1.06 (.940-1.19)	1.60 (1.38-1.79)	2587
Total population	09-10	.308 (.275-.345)	.280 (.250-.320)	.530 (.470-.600)	.930 (.810-1.08)	1.43 (1.12-2.02)	2747
Age 6-11 years	99-00	*	<LOD	<LOD	<LOD	1.30 (<LOD-2.40)	477
Age 6-11 years	01-02	*	<LOD	.310 (.210-.400)	.740 (.550-1.13)	1.55 (1.00-2.21)	546
Age 6-11 years	03-04	.266 (.214-.332)	.290 (.200-.390)	.670 (.440-.920)	1.03 (.890-1.40)	1.88 (1.01-2.54)	309
Age 6-11 years	07-08	*	<LOD	.720 (.630-.860)	1.44 (1.15-1.64)	1.93 (1.62-2.84)	385
Age 6-11 years	09-10	.385 (.330-.449)	.350 (.290-.440)	.670 (.510-.780)	1.20 (.860-1.58)	1.59 (1.36-2.77)	386
Age 12-19 years	99-00	*	<LOD	<LOD	<LOD	1.10 (<LOD-1.60)	677
Age 12-19 years	01-02	*	<LOD	.250 (<LOD-.420)	.690 (.440-1.16)	1.24 (.690-1.66)	797
Age 12-19 years	03-04	.256 (.212-.310)	.260 (.180-.380)	.580 (.470-.710)	1.04 (.890-1.31)	1.66 (1.20-2.97)	714
Age 12-19 years	07-08	*	<LOD	.590 (.530-.670)	1.29 (.790-1.97)	2.38 (1.46-2.73)	390
Age 12-19 years	09-10	.301 (.248-.366)	.280 (.240-.330)	.490 (.420-.620)	.900 (.660-1.05)	1.12 (.880-2.88)	401
Age 20-59 years	99-00	*	<LOD	<LOD	<LOD	<LOD	823
Age 20-59 years	01-02	*	<LOD	.210 (<LOD-.310)	.690 (.540-.910)	1.27 (.930-1.49)	1070
Age 20-59 years	03-04	.239 (.205-.279)	.220 (.170-.300)	.570 (.480-.640)	.980 (.840-1.35)	1.55 (1.25-2.50)	937
Age 20-59 years	07-08	*	<LOD	.530 (.490-.570)	.970 (.800-1.17)	1.36 (1.22-1.78)	1179
Age 20-59 years	09-10	.288 (.259-.319)	.270 (.230-.310)	.500 (.440-.560)	.870 (.740-1.04)	1.33 (1.05-1.69)	1309
Age 60+ years	01-02	*	<LOD	<LOD	.560 (.390-.870)	1.26 (.690-1.78)	490
Age 60+ years	03-04	.248 (.205-.301)	.210 (.130-.320)	.560 (.470-.680)	1.36 (1.07-1.90)	2.42 (1.66-3.67)	528
Age 60+ years	07-08	*	<LOD	.560 (.530-.640)	1.02 (.840-1.12)	1.46 (1.10-2.11)	633
Age 60+ years	09-10	.349 (.294-.414)	.300 (.230-.390)	.590 (.510-.720)	1.11 (.810-1.57)	2.08 (1.16-5.40)	651
Males	99-00	*	<LOD	<LOD	<LOD	1.10 (<LOD-1.80)	962
Males	01-02	*	<LOD	.330 (.220-.490)	.890 (.690-1.17)	1.49 (1.26-2.03)	1364
Males	03-04	.276 (.240-.317)	.290 (.210-.370)	.630 (.540-.740)	1.22 (.960-1.42)	2.12 (1.42-2.73)	1218
Males	07-08	*	<LOD	.610 (.580-.650)	1.26 (1.05-1.38)	2.11 (1.68-2.41)	1292
Males	09-10	.347 (.298-.404)	.320 (.270-.370)	.580 (.500-.690)	1.05 (.810-1.47)	1.82 (1.12-4.14)	1343
Females	99-00	*	<LOD	<LOD	<LOD	<LOD	1015
Females	01-02	*	<LOD	<LOD	.470 (.360-.620)	.890 (.670-1.21)	1539
Females	03-04	.219 (.181-.264)	.190 (.110-.280)	.490 (.400-.630)	.980 (.860-1.33)	1.48 (1.31-2.27)	1270
Females	07-08	*	<LOD	.500 (.460-.540)	.870 (.790-1.01)	1.28 (1.12-1.42)	1295
Females	09-10	.275 (.250-.303)	.260 (.220-.300)	.480 (.440-.540)	.860 (.740-.950)	1.14 (.970-1.39)	1404
Mexican Americans	99-00	*	<LOD	<LOD	<LOD	<LOD	695
Mexican Americans	01-02	*	<LOD	.250 (<LOD-.330)	.730 (.610-.890)	1.20 (.960-1.36)	743
Mexican Americans	03-04	.313 (.256-.383)	.340 (.260-.440)	.730 (.610-.840)	1.42 (1.02-1.52)	1.81 (1.23-3.53)	606
Mexican Americans	07-08	*	<LOD	.520 (.470-.590)	.860 (.790-1.00)	1.46 (.950-2.22)	500
Mexican Americans	09-10	.276 (.240-.318)	.250 (.210-.300)	.470 (.410-.570)	.840 (.680-1.08)	1.23 (.830-2.02)	602
Non-Hispanic Blacks	99-00	*	<LOD	<LOD	<LOD	1.20 (<LOD-1.70)	520
Non-Hispanic Blacks	01-02	*	<LOD	<LOD	.560 (.420-.890)	1.06 (.790-1.48)	743
Non-Hispanic Blacks	03-04	*	.190 (<LOD-.290)	.510 (.380-.630)	.910 (.750-1.22)	1.31 (.990-1.98)	648
Non-Hispanic Blacks	07-08	*	<LOD	.580 (.530-.630)	1.05 (.910-1.20)	1.49 (1.23-1.97)	574
Non-Hispanic Blacks	09-10	.284 (.251-.321)	.260 (.240-.290)	.460 (.390-.540)	.790 (.620-1.03)	1.11 (.790-1.81)	504
Non-Hispanic Whites	99-00	*	<LOD	<LOD	<LOD	<LOD	589
Non-Hispanic Whites	01-02	*	<LOD	.240 (<LOD-.360)	.730 (.560-.980)	1.30 (1.01-1.66)	1201
Non-Hispanic Whites	03-04	.254 (.211-.306)	.240 (.180-.360)	.590 (.470-.720)	1.17 (.930-1.41)	2.00 (1.40-2.51)	1076
Non-Hispanic Whites	07-08	*	<LOD	.560 (.540-.600)	1.12 (.940-1.29)	1.61 (1.36-2.16)	1083
Non-Hispanic Whites	09-10	.328 (.281-.382)	.300 (.250-.370)	.570 (.480-.680)	.980 (.830-1.20)	1.57 (1.14-2.77)	1200

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



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

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

‡Not measured in Survey years 2005-2006

Biomonitoring Summary: [https://www.cdc.gov/biomonitoring/24-DichlorophenoxyaceticAcid\\_BiomonitoringSummary.html](https://www.cdc.gov/biomonitoring/24-DichlorophenoxyaceticAcid_BiomonitoringSummary.html)

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

CAS Number 94-75-7

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	<LOD	1977
Total population	01-02	*	<LOD	.378 (<LOD-.412)	.700 (.635-.778)	1.12 (1.03-1.26)	2901
Total population	03-04	.241 (.203-.287)	.253 (.206-.290)	.500 (.423-.610)	1.03 (.855-1.28)	1.85 (1.42-2.50)	2486
Total population	07-08	*	<LOD	.737 (.667-.779)	1.28 (1.17-1.40)	1.84 (1.65-2.12)	2585
Total population	09-10	.321 (.286-.360)	.301 (.272-.329)	.500 (.458-.573)	.983 (.846-1.19)	1.55 (1.30-2.12)	2747
Age 6-11 years	99-00	*	<LOD	<LOD	<LOD	1.32 (<LOD-2.24)	477
Age 6-11 years	01-02	*	<LOD	.485 (.378-.679)	1.13 (.825-1.35)	1.41 (1.27-1.73)	546
Age 6-11 years	03-04	.323 (.249-.421)	.320 (.250-.440)	.744 (.500-1.06)	1.30 (.990-2.55)	2.55 (1.23-5.16)	309
Age 6-11 years	07-08	*	<LOD	.970 (.817-1.24)	1.65 (1.47-1.85)	2.96 (1.65-6.18)	385
Age 6-11 years	09-10	.521 (.444-.610)	.478 (.411-.531)	.792 (.674-1.06)	1.52 (1.21-1.74)	2.20 (1.53-3.02)	386
Age 12-19 years	99-00	*	<LOD	<LOD	<LOD	.593 (<LOD-1.05)	677
Age 12-19 years	01-02	*	<LOD	.275 (<LOD-.376)	.483 (.328-.662)	.662 (.517-.918)	796
Age 12-19 years	03-04	.193 (.160-.232)	.205 (.157-.250)	.419 (.328-.460)	.709 (.540-.925)	1.23 (.837-2.35)	713
Age 12-19 years	07-08	*	<LOD	.555 (.475-.651)	.908 (.778-1.05)	1.56 (.950-2.79)	388
Age 12-19 years	09-10	.258 (.212-.314)	.256 (.200-.299)	.358 (.320-.439)	.706 (.439-1.05)	1.05 (.579-3.27)	401
Age 20-59 years	99-00	*	<LOD	<LOD	<LOD	<LOD	823
Age 20-59 years	01-02	*	<LOD	.378 (<LOD-.412)	.667 (.593-.778)	1.08 (.806-1.29)	1070
Age 20-59 years	03-04	.227 (.188-.274)	.242 (.196-.278)	.452 (.397-.545)	.923 (.708-1.20)	1.48 (1.14-2.43)	936
Age 20-59 years	07-08	*	<LOD	.667 (.588-.769)	1.17 (1.04-1.34)	1.65 (1.43-2.33)	1179
Age 20-59 years	09-10	.288 (.259-.321)	.276 (.250-.309)	.458 (.418-.507)	.860 (.750-.962)	1.36 (1.00-1.88)	1309
Age 60+ years	01-02	*	<LOD	<LOD	.824 (.583-1.10)	1.34 (1.00-2.16)	489
Age 60+ years	03-04	.301 (.248-.366)	.310 (.237-.385)	.657 (.510-.866)	1.54 (1.16-1.95)	3.00 (1.95-6.36)	528
Age 60+ years	07-08	*	<LOD	.860 (.781-.903)	1.53 (1.27-1.72)	1.96 (1.60-2.33)	633
Age 60+ years	09-10	.414 (.356-.480)	.354 (.306-.407)	.667 (.548-.812)	1.41 (.983-1.99)	2.87 (1.49-4.49)	651
Males	99-00	*	<LOD	<LOD	<LOD	.667 (<LOD-1.16)	962
Males	01-02	*	<LOD	.336 (.272-.412)	.652 (.560-.825)	1.14 (.979-1.39)	1364
Males	03-04	.227 (.189-.271)	.238 (.194-.276)	.473 (.412-.564)	.941 (.767-1.23)	1.80 (1.09-2.79)	1217
Males	07-08	*	<LOD	.596 (.538-.670)	1.14 (.980-1.24)	1.63 (1.47-2.15)	1291
Males	09-10	.309 (.266-.359)	.282 (.242-.323)	.481 (.413-.554)	1.01 (.707-1.57)	1.80 (1.06-3.88)	1343
Females	99-00	*	<LOD	<LOD	<LOD	<LOD	1015
Females	01-02	*	<LOD	<LOD	.711 (.631-.809)	1.10 (.933-1.26)	1537
Females	03-04	.256 (.213-.308)	.263 (.212-.311)	.522 (.435-.645)	1.14 (.900-1.42)	1.85 (1.42-2.64)	1269
Females	07-08	*	<LOD	.854 (.757-.903)	1.47 (1.23-1.58)	1.91 (1.65-2.33)	1294
Females	09-10	.334 (.302-.369)	.319 (.288-.355)	.533 (.475-.611)	.953 (.862-1.10)	1.40 (1.21-1.55)	1404
Mexican Americans	99-00	*	<LOD	<LOD	<LOD	<LOD	695
Mexican Americans	01-02	*	<LOD	.350 (<LOD-.386)	.720 (.583-.840)	1.08 (.778-1.56)	743
Mexican Americans	03-04	.287 (.223-.371)	.309 (.194-.459)	.593 (.463-.771)	1.08 (.833-1.36)	1.54 (1.17-3.19)	605
Mexican Americans	07-08	*	<LOD	.622 (.571-.691)	1.15 (.903-1.43)	1.74 (1.37-2.33)	499
Mexican Americans	09-10	.289 (.255-.326)	.282 (.255-.300)	.434 (.392-.495)	.781 (.565-1.11)	1.30 (.733-2.63)	602
Non-Hispanic Blacks	99-00	*	<LOD	<LOD	<LOD	.593 (<LOD-1.19)	520
Non-Hispanic Blacks	01-02	*	<LOD	<LOD	.467 (.349-.583)	.778 (.552-.975)	742
Non-Hispanic Blacks	03-04	*	.140 (<LOD-.194)	.304 (.264-.356)	.629 (.461-.815)	.970 (.719-1.50)	648
Non-Hispanic Blacks	07-08	*	<LOD	.509 (.457-.596)	.966 (.875-1.07)	1.33 (1.12-1.75)	573
Non-Hispanic Blacks	09-10	.215 (.192-.240)	.195 (.180-.218)	.344 (.314-.400)	.628 (.489-.822)	1.06 (.714-1.38)	504
Non-Hispanic Whites	99-00	*	<LOD	<LOD	<LOD	<LOD	589
Non-Hispanic Whites	01-02	*	<LOD	.412 (<LOD-.455)	.769 (.667-.894)	1.25 (1.05-1.40)	1200
Non-Hispanic Whites	03-04	.263 (.213-.326)	.269 (.226-.318)	.539 (.434-.665)	1.13 (.941-1.46)	2.34 (1.54-2.73)	1075
Non-Hispanic Whites	07-08	*	<LOD	.780 (.737-.871)	1.36 (1.17-1.55)	2.00 (1.60-2.49)	1083
Non-Hispanic Whites	09-10	.357 (.308-.414)	.328 (.288-.384)	.547 (.485-.644)	1.10 (.897-1.40)	1.79 (1.35-3.02)	1200

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

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

‡Not measured in Survey years 2005-2006

Biomonitoring Summary: [https://www.cdc.gov/biomonitoring/24-DichlorophenoxyaceticAcid\\_BiomonitoringSummary.html](https://www.cdc.gov/biomonitoring/24-DichlorophenoxyaceticAcid_BiomonitoringSummary.html)

## Urinary 2,4-Dichlorophenoxyacetic acid (2011 - 2014)

CAS Number 94-75-7

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	.326 (.304-.350)	.304 (.278-.323)	.594 (.541-.655)	1.06 (.925-1.27)	1.52 (1.31-1.76)	2365
Total population	13-14	.308 (.280-.339)	.292 (.256-.327)	.514 (.459-.577)	.988 (.797-1.20)	1.44 (1.25-1.68)	2671
Age 6-11 years	11-12	.386 (.347-.429)	.395 (.311-.494)	.665 (.571-.767)	1.25 (.884-1.54)	2.02 (1.49-2.46)	385
Age 6-11 years	13-14	.463 (.368-.583)	.415 (.333-.518)	.849 (.629-1.20)	1.50 (1.02-2.58)	2.16 (1.50-4.13)	421
Age 12-19 years	11-12	.287 (.241-.341)	.262 (.225-.307)	.474 (.321-.751)	1.01 (.643-1.24)	1.20 (1.01-1.42)	380
Age 12-19 years	13-14	.334 (.292-.383)	.324 (.283-.392)	.569 (.507-.673)	.930 (.721-1.28)	1.45 (1.01-1.65)	428
Age 20+ years	11-12	.326 (.298-.357)	.307 (.279-.325)	.596 (.539-.664)	1.11 (.881-1.34)	1.56 (1.34-1.84)	1600
Age 20+ years	13-14	.291 (.265-.318)	.272 (.241-.310)	.478 (.424-.529)	.900 (.740-1.09)	1.32 (1.15-1.54)	1822
Males	11-12	.356 (.317-.399)	.330 (.298-.373)	.637 (.539-.775)	1.24 (.993-1.44)	1.64 (1.40-2.13)	1194
Males	13-14	.343 (.305-.387)	.332 (.295-.372)	.577 (.487-.676)	1.11 (.925-1.31)	1.56 (1.36-1.94)	1345
Females	11-12	.300 (.276-.327)	.271 (.243-.304)	.552 (.482-.635)	.963 (.824-1.16)	1.34 (1.05-1.80)	1171
Females	13-14	.277 (.254-.301)	.257 (.225-.285)	.462 (.412-.522)	.849 (.720-1.04)	1.26 (1.07-1.52)	1326
Mexican Americans	11-12	.311 (.258-.374)	.266 (.216-.348)	.568 (.420-.731)	1.05 (.841-1.43)	1.66 (1.11-2.40)	267
Mexican Americans	13-14	.274 (.241-.311)	.250 (.217-.295)	.427 (.381-.459)	.817 (.564-1.09)	1.16 (.916-1.62)	428
Non-Hispanic Blacks	11-12	.325 (.286-.369)	.306 (.255-.359)	.570 (.473-.680)	1.08 (.835-1.46)	1.72 (1.25-2.05)	657
Non-Hispanic Blacks	13-14	.305 (.278-.335)	.294 (.267-.315)	.539 (.475-.617)	.863 (.719-1.04)	1.20 (.939-1.56)	590
Non-Hispanic Whites	11-12	.344 (.317-.374)	.320 (.296-.358)	.628 (.561-.710)	1.17 (.906-1.34)	1.52 (1.27-1.84)	766
Non-Hispanic Whites	13-14	.320 (.284-.361)	.307 (.255-.350)	.526 (.471-.606)	1.04 (.803-1.29)	1.50 (1.28-1.94)	1017
All Hispanics	11-12	.283 (.244-.328)	.245 (.202-.303)	.489 (.405-.624)	.933 (.710-1.16)	1.42 (1.07-1.66)	529
All Hispanics	13-14	.276 (.244-.312)	.250 (.218-.282)	.424 (.373-.469)	.819 (.555-1.20)	1.32 (.972-1.68)	671
Asians	11-12	.254 (.215-.299)	.194 (.169-.254)	.409 (.320-.569)	.950 (.703-1.27)	1.37 (.890-2.56)	326
Asians	13-14	.239 (.207-.277)	.214 (.165-.268)	.379 (.319-.473)	.756 (.592-.967)	1.12 (.802-1.35)	291

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.150 and 0.150 respectively.

Biomonitoring Summary: [https://www.cdc.gov/biomonitoring/24-DichlorophenoxyaceticAcid\\_BiomonitoringSummary.html](https://www.cdc.gov/biomonitoring/24-DichlorophenoxyaceticAcid_BiomonitoringSummary.html)

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

CAS Number 94-75-7

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	0.342 (.310-.378)	.320 (.289-.359)	.595 (.528-.676)	1.03 (.882-1.25)	1.62 (1.35-1.91)	2365
Total population	13-14	0.328 (.299-.361)	.306 (.280-.333)	.531 (.472-.611)	.956 (.804-1.15)	1.49 (1.19-1.86)	2669
Age 6-11 years	11-12	0.541 (.467-.627)	.514 (.430-.603)	.858 (.750-1.02)	1.62 (1.20-2.32)	2.92 (1.62-5.02)	385
Age 6-11 years	13-14	0.597 (.448-.794)	.500 (.420-.658)	.953 (.686-1.50)	2.17 (1.23-4.09)	4.00 (1.86-11.2)	421
Age 12-19 years	11-12	0.255 (.218-.300)	.263 (.196-.306)	.415 (.326-.568)	.784 (.653-.869)	.899 (.784-1.35)	380
Age 12-19 years	13-14	0.286 (.255-.320)	.274 (.241-.330)	.443 (.392-.523)	.786 (.579-.954)	1.09 (.784-1.25)	428
Age 20+ years	11-12	0.34 (.301-.385)	.315 (.282-.362)	.580 (.509-.676)	1.02 (.849-1.25)	1.62 (1.25-1.93)	1600
Age 20+ years	13-14	0.314 (.288-.342)	.292 (.264-.320)	.523 (.448-.579)	.877 (.733-1.09)	1.37 (1.15-1.64)	1820
Males	11-12	0.325 (.290-.364)	.306 (.268-.336)	.573 (.454-.668)	1.01 (.836-1.35)	1.62 (1.35-2.19)	1194
Males	13-14	0.314 (.276-.357)	.289 (.248-.333)	.500 (.422-.600)	.980 (.761-1.21)	1.50 (1.11-2.19)	1344
Females	11-12	0.359 (.317-.407)	.333 (.297-.397)	.631 (.539-.739)	1.07 (.879-1.30)	1.62 (1.12-2.03)	1171
Females	13-14	0.342 (.315-.372)	.319 (.304-.345)	.566 (.480-.656)	.953 (.799-1.15)	1.49 (1.21-1.76)	1325
Mexican Americans	11-12	0.31 (.262-.365)	.282 (.235-.334)	.451 (.369-.584)	1.02 (.633-1.55)	1.64 (1.22-2.25)	267
Mexican Americans	13-14	0.283 (.245-.327)	.259 (.221-.319)	.465 (.372-.547)	.781 (.611-1.07)	1.17 (.786-2.26)	426
Non-Hispanic Blacks	11-12	0.239 (.210-.272)	.233 (.189-.272)	.406 (.349-.469)	.744 (.610-.822)	1.02 (.783-1.35)	657
Non-Hispanic Blacks	13-14	0.234 (.215-.255)	.232 (.211-.248)	.407 (.343-.451)	.650 (.583-.753)	.988 (.725-1.24)	590
Non-Hispanic Whites	11-12	0.386 (.350-.427)	.359 (.320-.410)	.662 (.578-.758)	1.11 (.931-1.35)	1.76 (1.35-2.46)	766
Non-Hispanic Whites	13-14	0.363 (.327-.402)	.333 (.305-.361)	.579 (.500-.666)	1.08 (.866-1.29)	1.64 (1.28-2.17)	1017
All Hispanics	11-12	0.283 (.245-.328)	.263 (.229-.298)	.440 (.379-.536)	.878 (.688-1.14)	1.44 (1.00-1.83)	529
All Hispanics	13-14	0.287 (.253-.325)	.264 (.229-.305)	.472 (.403-.547)	.845 (.688-1.09)	1.34 (.845-2.84)	669
Asians	11-12	0.336 (.287-.393)	.297 (.251-.344)	.620 (.463-.750)	1.20 (.868-2.11)	2.19 (1.32-3.28)	326
Asians	13-14	0.306 (.274-.342)	.321 (.262-.366)	.528 (.461-.591)	.856 (.740-1.00)	1.14 (.917-1.40)	291

Biomonitoring Summary: [https://www.cdc.gov/biomonitoring/24-DichlorophenoxyaceticAcid\\_BiomonitoringSummary.html](https://www.cdc.gov/biomonitoring/24-DichlorophenoxyaceticAcid_BiomonitoringSummary.html)

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

CAS Number 93-76-5

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	<LOD	1814
Total population	01-02	*	<LOD	<LOD	<LOD	<LOD	3047
Total population	03-04	*	<LOD	<LOD	<LOD	.140 (<LOD-.210)	2416
Total population	07-08	*	<LOD	<LOD	<LOD	<LOD	2588
Total population	09-10	*	<LOD	<LOD	<LOD	<LOD	2747
Age 6-11 years	99-00	*	<LOD	<LOD	<LOD	<LOD	430
Age 6-11 years	01-02	*	<LOD	<LOD	<LOD	<LOD	580
Age 6-11 years	03-04	*	<LOD	<LOD	<LOD	.110 (<LOD-.160)	303
Age 6-11 years	07-08	*	<LOD	<LOD	<LOD	<LOD	385
Age 6-11 years	09-10	*	<LOD	<LOD	<LOD	<LOD	386
Age 12-19 years	99-00	*	<LOD	<LOD	<LOD	<LOD	618
Age 12-19 years	01-02	*	<LOD	<LOD	<LOD	<LOD	831
Age 12-19 years	03-04	*	<LOD	<LOD	<LOD	.140 (<LOD-.190)	701
Age 12-19 years	07-08	*	<LOD	<LOD	<LOD	<LOD	390
Age 12-19 years	09-10	*	<LOD	<LOD	<LOD	<LOD	401
Age 20-59 years	99-00	*	<LOD	<LOD	<LOD	<LOD	766
Age 20-59 years	01-02	*	<LOD	<LOD	<LOD	<LOD	1127
Age 20-59 years	03-04	*	<LOD	<LOD	<LOD	.160 (<LOD-.250)	908
Age 20-59 years	07-08	*	<LOD	<LOD	<LOD	<LOD	1180
Age 20-59 years	09-10	*	<LOD	<LOD	<LOD	<LOD	1309
Age 60+ years	01-02	*	<LOD	<LOD	<LOD	<LOD	509
Age 60+ years	03-04	*	<LOD	<LOD	<LOD	.140 (<LOD-.230)	504
Age 60+ years	07-08	*	<LOD	<LOD	<LOD	<LOD	633
Age 60+ years	09-10	*	<LOD	<LOD	<LOD	<LOD	651
Males	99-00	*	<LOD	<LOD	<LOD	<LOD	891
Males	01-02	*	<LOD	<LOD	<LOD	<LOD	1428
Males	03-04	*	<LOD	<LOD	<LOD	.140 (<LOD-.210)	1184
Males	07-08	*	<LOD	<LOD	<LOD	<LOD	1293
Males	09-10	*	<LOD	<LOD	<LOD	<LOD	1343
Females	99-00	*	<LOD	<LOD	<LOD	<LOD	923
Females	01-02	*	<LOD	<LOD	<LOD	<LOD	1619
Females	03-04	*	<LOD	<LOD	<LOD	.150 (<LOD-.230)	1232
Females	07-08	*	<LOD	<LOD	<LOD	<LOD	1295
Females	09-10	*	<LOD	<LOD	<LOD	<LOD	1404
Mexican Americans	99-00	*	<LOD	<LOD	<LOD	<LOD	652
Mexican Americans	01-02	*	<LOD	<LOD	<LOD	<LOD	766
Mexican Americans	03-04	*	<LOD	<LOD	.120 (<LOD-.340)	.200 (<LOD-.390)	605
Mexican Americans	07-08	*	<LOD	<LOD	<LOD	<LOD	500
Mexican Americans	09-10	*	<LOD	<LOD	<LOD	<LOD	602
Non-Hispanic Blacks	99-00	*	<LOD	<LOD	<LOD	<LOD	483
Non-Hispanic Blacks	01-02	*	<LOD	<LOD	<LOD	<LOD	776
Non-Hispanic Blacks	03-04	*	<LOD	<LOD	<LOD	<LOD	641
Non-Hispanic Blacks	07-08	*	<LOD	<LOD	<LOD	<LOD	574
Non-Hispanic Blacks	09-10	*	<LOD	<LOD	<LOD	<LOD	504
Non-Hispanic Whites	99-00	*	<LOD	<LOD	<LOD	<LOD	531
Non-Hispanic Whites	01-02	*	<LOD	<LOD	<LOD	<LOD	1281
Non-Hispanic Whites	03-04	*	<LOD	<LOD	<LOD	.150 (<LOD-.230)	1013
Non-Hispanic Whites	07-08	*	<LOD	<LOD	<LOD	<LOD	1084
Non-Hispanic Whites	09-10	*	<LOD	<LOD	<LOD	<LOD	1200

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

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

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

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

Biomonitoring Summary: [https://www.cdc.gov/biomonitoring/245-TrichlorophenoxyaceticAcid\\_BiomonitoringSummary.html](https://www.cdc.gov/biomonitoring/245-TrichlorophenoxyaceticAcid_BiomonitoringSummary.html)

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

CAS Number 93-76-5

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	<LOD	1814
Total population	01-02	*	<LOD	<LOD	<LOD	<LOD	3045
Total population	03-04	*	<LOD	<LOD	<LOD	.333 (<LOD-.412)	2414
Total population	07-08	*	<LOD	<LOD	<LOD	<LOD	2586
Total population	09-10	*	<LOD	<LOD	<LOD	<LOD	2747
Age 6-11 years	99-00	*	<LOD	<LOD	<LOD	<LOD	430
Age 6-11 years	01-02	*	<LOD	<LOD	<LOD	<LOD	580
Age 6-11 years	03-04	*	<LOD	<LOD	<LOD	.318 (<LOD-.368)	303
Age 6-11 years	07-08	*	<LOD	<LOD	<LOD	<LOD	385
Age 6-11 years	09-10	*	<LOD	<LOD	<LOD	<LOD	386
Age 12-19 years	99-00	*	<LOD	<LOD	<LOD	<LOD	618
Age 12-19 years	01-02	*	<LOD	<LOD	<LOD	<LOD	830
Age 12-19 years	03-04	*	<LOD	<LOD	<LOD	.226 (<LOD-.269)	700
Age 12-19 years	07-08	*	<LOD	<LOD	<LOD	<LOD	388
Age 12-19 years	09-10	*	<LOD	<LOD	<LOD	<LOD	401
Age 20-59 years	99-00	*	<LOD	<LOD	<LOD	<LOD	766
Age 20-59 years	01-02	*	<LOD	<LOD	<LOD	<LOD	1127
Age 20-59 years	03-04	*	<LOD	<LOD	<LOD	.350 (<LOD-.438)	907
Age 20-59 years	07-08	*	<LOD	<LOD	<LOD	<LOD	1180
Age 20-59 years	09-10	*	<LOD	<LOD	<LOD	<LOD	1309
Age 60+ years	01-02	*	<LOD	<LOD	<LOD	<LOD	508
Age 60+ years	03-04	*	<LOD	<LOD	<LOD	.368 (<LOD-.538)	504
Age 60+ years	07-08	*	<LOD	<LOD	<LOD	<LOD	633
Age 60+ years	09-10	*	<LOD	<LOD	<LOD	<LOD	651
Males	99-00	*	<LOD	<LOD	<LOD	<LOD	891
Males	01-02	*	<LOD	<LOD	<LOD	<LOD	1428
Males	03-04	*	<LOD	<LOD	<LOD	.253 (<LOD-.350)	1183
Males	07-08	*	<LOD	<LOD	<LOD	<LOD	1292
Males	09-10	*	<LOD	<LOD	<LOD	<LOD	1343
Females	99-00	*	<LOD	<LOD	<LOD	<LOD	923
Females	01-02	*	<LOD	<LOD	<LOD	<LOD	1617
Females	03-04	*	<LOD	<LOD	<LOD	.432 (<LOD-.500)	1231
Females	07-08	*	<LOD	<LOD	<LOD	<LOD	1294
Females	09-10	*	<LOD	<LOD	<LOD	<LOD	1404
Mexican Americans	99-00	*	<LOD	<LOD	<LOD	<LOD	652
Mexican Americans	01-02	*	<LOD	<LOD	<LOD	<LOD	766
Mexican Americans	03-04	*	<LOD	<LOD	.200 (<LOD-.333)	.333 (<LOD-.467)	604
Mexican Americans	07-08	*	<LOD	<LOD	<LOD	<LOD	499
Mexican Americans	09-10	*	<LOD	<LOD	<LOD	<LOD	602
Non-Hispanic Blacks	99-00	*	<LOD	<LOD	<LOD	<LOD	483
Non-Hispanic Blacks	01-02	*	<LOD	<LOD	<LOD	<LOD	775
Non-Hispanic Blacks	03-04	*	<LOD	<LOD	<LOD	<LOD	641
Non-Hispanic Blacks	07-08	*	<LOD	<LOD	<LOD	<LOD	573
Non-Hispanic Blacks	09-10	*	<LOD	<LOD	<LOD	<LOD	504
Non-Hispanic Whites	99-00	*	<LOD	<LOD	<LOD	<LOD	531
Non-Hispanic Whites	01-02	*	<LOD	<LOD	<LOD	<LOD	1280
Non-Hispanic Whites	03-04	*	<LOD	<LOD	<LOD	.350 (<LOD-.438)	1012
Non-Hispanic Whites	07-08	*	<LOD	<LOD	<LOD	<LOD	1084
Non-Hispanic Whites	09-10	*	<LOD	<LOD	<LOD	<LOD	1200

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

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



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

Biomonitoring Summary: [https://www.cdc.gov/biomonitoring/245-TrichlorophenoxyaceticAcid\\_BiomonitoringSummary.html](https://www.cdc.gov/biomonitoring/245-TrichlorophenoxyaceticAcid_BiomonitoringSummary.html)