

National Health and Nutrition Examination Survey

2013-2014 Data Documentation, Codebook, and Frequencies

Phthalates and Plasticizers Metabolites - Urine (Surplus) (SSPHT_H)

Data File: SSPHT_H.xpt

First Published: December 2016

Last Revised: April 2022

Note: The NHANES Biospecimen Program processes were reevaluated in 2021 and 2022 to monitor quality control after a procedural error was identified. This error did not pose any risk of participant disclosure. Addressing this error resulted in the removal of some records from various stored biospecimen data files between 1999 and 2018 that did not meet program standards. After a comprehensive review of all stored specimen datasets, this data file was modified to remove records (10- <15% of records) that were initially included in error. No data values were altered. However, survey weights were adjusted. For each analyte included in this data file, it was determined that overall and for stratified sex, age, and race/Hispanic origin groups, the updated file using the new sample weights resulted in an estimate within the 95% confidence limit calculated using the original file and sample weights. However, not all possible analyses were performed. For any queries related to this dataset please email the Biospecimen Program at serumplasmaurine@cdc.gov.

Component Description

Dibutyl phthalates, including di-n-butyl phthalate (DBP) and di-isobutyl phthalate (DiBP), are used as plasticizers for polymers contained in consumer products, such as adhesives and cosmetics (Hubinger 2010;Hubinger and Havery 2006). Since 2001, at CDC, we have measured mono-n-butyl phthalate (MBP) and mono-isobutyl phthalate (MiBP) to assess exposure to DBP and DiBP, respectively. We recently modified the original analytical method used at CDC for measuring phthalate metabolites, so we could include two oxidative metabolites of DBP and DiBP, mono-3-hydroxy-n-butyl phthalate (MHBP) and mono-2-hydroxy-iso-butyl phthalate (MHIBP), from NHANES 2013-2014.

Eligible Sample

Examined participants aged 6 years and older from a one-third sample were eligible.

Description of Laboratory Methodology

MHBP and MHIBP were measured with on-line solid phase extraction coupled to isotope dilution-high performance liquid chromatography tandem mass spectrometry (Silva et al. 2013).

Laboratory Method Files

[Phthalates and Phthalate Alternative Metabolites](#) (October 2018)

Laboratory Quality Assurance and Monitoring

The analytical measurements were conducted following strict quality control/quality assurance CLIA guidelines. Along with the study samples, each analytical run included high- and low-concentration quality control materials (QCs) and reagent blanks to assure the accuracy and reliability of the data. The concentrations of the high-concentration QCs and the low-concentration QCs, averaged to obtain one measurement of high-concentration QC and low-concentration QC for each run, were evaluated using standard statistical probability rules (Caudill et al. 2008).

Data Processing and Editing

Data were received after all analyses were complete. The data were not edited.

Data Access: All data are publicly available.

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•	• SSURHIBP - Mono-2-hydroxy-iso-butyl phthlte (ng/mL)
•	• SDUHIBPL - Mono-2-hydroxy-iso-butyl phthlte cmt

Analytic Notes

Detection Limits

The detection limits were constant for all of the analytes in the data set. Two variables are provided for each analyte. The variable name ending in "L" (ex., SDUMHBPL) indicates whether the result was below the limit of detection: the value "0" means that the result was at or above the limit of detection, "1" indicates that the result was below the limit of detection. For analytes with analytic results below the lower limit of detection (ex., SDUMHBPL=1), an imputed fill value was placed in the analyte results field. This value is the lower limit of detection divided by square root of 2 (LLOD/sqrt). The other variable prefixed SS (ex., SSURMHBP) provides the analytic result for that analyte.

The lower limit of detection (LLOD, in ng/mL) for MHBP and MHBP is:

VARIABLE	SAS LABEL	LLOD
SSURMHBP	Mono-3-hydroxy-n-butyl phthalate (ng/mL)	0.4
SSURHIBP	Mono-2-hydroxy-iso-butyl phthalate (ng/mL)	0.4

Subsample Weights

Sample weights are required to analyze these data properly. Specific sample weights for this subsample are included in this data file and should be used when analyzing these data. Previous versions of this data file included a sample weight variable (WTSSB2YR) but when observations were removed from this data file, a new sample weight was created, and a new sample weight variable was added to this data file (WTSSBH2Y). Please refer to the NHANES [Analytic Guidelines](#) and the on-line [NHANES Tutorial](#) for further details on the use of sample weights and other analytic issues.

References

Caudill SP, Schleicher RL, Pirkle JL. 2008. Multi-rule quality control for the age-related eye disease study. *Statist Med* 27: 4094-4106.

Hubinger JC, Havery DC. 2006. Analysis of consumer cosmetic products for phthalate esters. *J Cosmet Sci* 57: 127-137.

Hubinger JC. 2010. A survey of phthalate esters in consumer cosmetic products. *J Cosmet Sci* 61: 457-465.

Silva MJ, Jia T, Samandar E, Preau JL, Calafat AM. 2013. Environmental exposure to the plasticizer 1,2-cyclohexane dicarboxylic acid, diisononyl ester (DINCH) in US adults (2000-2012). *Environ Res* 126: 159-163.

Codebook and Frequencies

SEQN - Respondent sequence number

Variable Name: SEQN

SAS Label: Respondent sequence number

English Text: Respondent sequence number.

Target: Both males and females 6 YEARS - 150 YEARS

WTSSBH2Y - Surplus specimen B 13-14 2 year weights

Variable Name: WTSSBH2Y

SAS Label: Surplus specimen B 13-14 2 year weights

English Text: Surplus specimen 2 year weights B for 2013-2014

Target: Both males and females 6 YEARS - 150 YEARS

Code or Value	Value Description	Count	Cumulative	Skip to Item
18617.10368 to 503724.60594	Range of Values	2328	2328	
0	No lab specimen	0	2328	
.	Missing	0	2328	

URXUCR - Creatinine, urine (mg/dL)

Variable Name: URXUCR

SAS Label: Creatinine, urine (mg/dL)

English Text: Creatinine, urine (mg/dL)

Target: Both males and females 6 YEARS - 150 YEARS

Code or Value	Value Description	Count	Cumulative	Skip to Item
8 to 659	Range of Values	2326	2326	
.	Missing	2	2328	

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 - SDUHIBPL - Mono-2-hydroxy-iso-butyl phthlte cmt

SSURMHBP - Mono-3-hydroxy-n-butyl phthalate (ng/mL)

Variable Name: SSURMHBP
SAS Label: Mono-3-hydroxy-n-butyl phthalate (ng/mL)
English Text: Mono-3-hydroxy-n-butyl phthalate (ng/mL)
Target: Both males and females 6 YEARS - 150 YEARS

Code or Value	Value Description	Count	Cumulative	Skip to Item
0.28 to 96.2	Range of Values	2327	2327	
.	Missing	1	2328	

SDUMHBPL - Mono-3-hydroxy-n-butyl phthalate cmt

Variable Name: SDUMHBPL
SAS Label: Mono-3-hydroxy-n-butyl phthalate cmt
English Text: Mono-3-hydroxy-n-butyl phthalate comment code
Target: Both males and females 6 YEARS - 150 YEARS

Code or Value	Value Description	Count	Cumulative	Skip to Item
0	At or above the detection limit	1696	1696	
1	Below lower detection limit	631	2327	
.	Missing	1	2328	

SSURHIBP - Mono-2-hydroxy-iso-butyl phthalate (ng/mL)

Variable Name: SSURHIBP
SAS Label: Mono-2-hydroxy-iso-butyl phthalate (ng/mL)
English Text: Mono-2-hydroxy-iso-butyl phthalate (ng/mL)
Target: Both males and females 6 YEARS - 150 YEARS

Code or Value	Value Description	Count	Cumulative	Skip to Item
0.28 to 143.3	Range of Values	2327	2327	
.	Missing	1	2328	

SDUHIBPL - Mono-2-hydroxy-iso-butyl phthalate cmt

Variable Name: SDUHIBPL
SAS Label: Mono-2-hydroxy-iso-butyl phthalate cmt
English Text: Mono-2-hydroxy-iso-butyl phthalate comment code
Target: Both males and females 6 YEARS - 150 YEARS

Code or Value	Value Description	Count	Cumulative	Skip to Item
0	At or above the detection limit	2187	2187	
1	Below lower detection limit	140	2327	
.	Missing	1	2328	