

Attachment 12

Attachment 12 – NHANES Laboratory Component
Attachment 12a - Laboratory Analytes by Age Group

Test Name	Sample	Matrix
Ages 1-2		
Complete Blood Count	Full	whole blood
Erythrocyte Folate	Full	whole blood
Ferritin	Full	serum
Folate	Full	serum
Hepatitis B Surface Antibody (Anti-HBs)	Full	serum
Transferrin Receptor	Full	serum
Vitamin B ₆	Full	serum
Vitamin D ¹	Full	serum
Ages 3-5		
Complete Blood Count	Full	whole blood
Cotinine	Full	serum
Erythrocyte Folate	Full	whole blood
Ferritin	Full	serum
Folate	Full	serum
Hepatitis B Surface Antibody (Anti-HBs)	Full	serum
Polyunsaturated Fatty Acids	Full	plasma
Trans Fatty Acids	Full	plasma
Transferrin Receptor	Full	serum
Vitamin B ₆	Full	plasma
Vitamin D ¹	Full	serum
Ages 6-11		
Albumin	Full	urine
Complete Blood Count	Full	whole blood
Cotinine	Full	serum
Creatinine	Full	urine
Erythrocyte Folate	Full	whole blood
Folate	Full	serum
Hepatitis A antibody	Full	serum
Hepatitis B core antibody (Anti-HBc)	Full	serum
Hepatitis B Surface Antibody (Anti-HBs)	Full	serum
Hepatitis B Surface Antigen (HbsAg)	Full	serum
Hepatitis C Antibody (Anti-HCV)	Full	serum
Hepatitis C Ribonucleic Acid (HCV-RNA)	Full	serum
Hepatitis C supplement	Full	serum
Hepatitis D antibody (anti-HDV)	Full	serum
High Density Lipoprotein Cholesterol	Full	serum
Parathyroid Hormone ¹	Full	serum
Polyunsaturated Fatty Acids	Full	plasma
Total Cholesterol	Full	serum
Trans Fatty Acids	Full	plasma

Vitamin B ₆	Full	serum
Vitamin D ¹	Full	serum

Ages 12-19

Albumin	Full	urine
Apolipoprotein (B)	One-Half Fasting	serum
Biochemistry Profile*	Full	serum
Chlamydia trachomatis(14-19 years)	Full	urine
Complete Blood Count	Full	whole blood
Cotinine	Full	serum
Creatinine	Full	urine
Erythrocyte Folate	Full	whole blood
Ferritin (Females 12-19 years))	Full	serum
Folate	Full	serum
Glucose (Oral Glucose Tolerance Test)	One-Half Fasting	plasma
Glucose, fasting	One-Half Fasting	plasma
Glycohemoglobin	Full	whole blood
Hepatitis A antibody	Full	serum
Hepatitis B core antibody (Anti-HBc)	Full	serum
Hepatitis B Surface Antibody (Anti-HBs)	Full	serum
Hepatitis B Surface Antigen (HbsAg)	Full	serum
Hepatitis C Antibody (Anti-HCV)	Full	serum
Hepatitis C Ribonucleic Acid (HCV-RNA)	Full	serum
Hepatitis C supplement	Full	serum
Hepatitis D antibody (anti-HDV)	Full	serum
Herpes Simplex Virus (HSV) (14-19 years)	Full	serum
High Density Lipoprotein Cholesterol	Full	serum
Human Immunodeficiency Virus (18-19 years)	Full	serum
Human Papilloma Virus (14-19 years)	Full	serum
Human Papilloma Virus (Females 14-19 years)	Full	swab
Insulin	One-Half Fasting	serum
Low Density Lipoprotein Cholesterol	One-Half Fasting	serum
Neisseria gonorrhoeae (14-19 years)	Full	urine
Parathyroid Hormone ¹	Full	serum
Polyunsaturated Fatty Acids	Full	plasma
Thyroid function**	One-Third	serum
Total Cholesterol	Full	serum
Trans Fatty Acids	Full	plasma
Transferrin Receptor (Females 12-19 years))	Full	serum
Triglycerides	One-Half Fasting	serum
Vitamin B ₆	Full	serum
Vitamin D ¹	Full	serum

Ages 20 and older

Albumin	Full	urine
Apolipoprotein (B)	One-Half Fasting	serum
Biochemistry Profile*	Full	serum
Chlamydia trachomatis(20-39 years)	Full	urine

Complete Blood Count	Full	whole blood
Cotinine	Full	serum
C-reactive Protein	Full	serum
Creatinine	Full	urine
Erythrocyte Folate	Full	whole blood
Ferritin (Females 20-49 years)	Full	serum
Folate	Full	serum
Glucose (Oral Glucose Tolerance Test)	One-Half Fasting	plasma
Glucose, fasting	One-Half Fasting	plasma
Glycohemoglobin	Full	whole blood
Hepatitis A antibody	Full	serum
Hepatitis B core antibody (Anti-HBc)	Full	serum
Hepatitis B Surface Antibody (Anti-HBs)	Full	serum
Hepatitis B Surface Antigen (HbsAg)	Full	serum
Hepatitis C Antibody (Anti-HCV)	Full	serum
Hepatitis C Ribonucleic Acid (HCV-RNA)	Full	serum
Hepatitis C supplement	Full	serum
Hepatitis D antibody (anti-HDV)	Full	serum
Herpes Simples Virus (HSV) (20-49 years)	Full	serum
High Density Lipoprotein Cholesterol	Full	serum
Human Immunodeficiency Virus (20-49 years)	Full	serum
Human Papilloma Virus (20-59 years)	Full	serum
Human Pappilloma Virus (Females 20-59 years)	Full	swab
Insulin	One-Half Fasting	serum
Low Density Lipoprotein Cholesterol	One-Half Fasting	serum
Neisseria gonorrhoeae (20-39 years)	Full	urine
Parathyroid Hormone ¹	Full	serum
Polyunsaturated Fatty Acids	Full	plasma
Prostate Specific Antigen (Males 40+ years)	Full	serum
Thyroid function**	One-Third	serum
Total Cholesterol	Full	serum
Trans Fatty Acids	Full	plasma
Transferrin Receptor (Females 20-49 years)	Full	serum
Triglycerides	One-Half Fasting	serum
Vitamin B ₆	Full	serum
Vitamin D ¹	Full	serum

¹Vitamin D and Parathyroid hormone. A specimen is being stored for each of these analytes until a the new Standard Reference Material is available from NIST for Vitamin D.

***Biochemistry Profile**

- Albumin
- Alkaline phosphatase
- Aspartate aminotransferase (AST)
- Alanine aminotransferase (ALT)
- Blood urea nitrogen (BUN)
- Bicarbonate (HCO₃)
- Total calcium
- Total cholesterol

Chloride
Creatinine
Globulin
Glucose
v-glutamyltransferase (GGT)
Iron
Potassium
Lactate dehydrogenase (LDH)
Sodium
Osmolality
Phosphorus
Total Bilirubin
Total protein
Triglycerides
Uric acid 7

****Thyroid function**

Free T4
Total T4
TSH
Thyroid peroxidase antibody
Free T3
Total T3
Thyroglobulin
Antibody to Thyroglobulin

**Attachment 12 – NHANES Laboratory Component
Attachment 12B - Environmental Analytes by survey year**

Chemical / Metabolite Name	Matrix	4th 03- 04	5th 05- 06	6th 07-08
Tobacco Smoke				
Cotinine	serum	●	●	●
4-(Methylnitrosamino)-1-(3-pyridyl)-1-Butanol				●
Metals				
Lead	whole blood	●	●	●
Lead	urine	●	●	●
Cadmium	whole blood	●	●	●
Cadmium	urine	●	●	●
Mercury (total)	whole blood	●	●	●
Mercury (total)	urine	●	●	●
Cobalt	urine	●	●	●
Uranium	urine	●	●	●
Antimony	urine	●	●	●
Barium	urine	●	●	●
Beryllium	urine	●	●	●
Cesium	urine	●	●	●
Molybdenum	urine	●	●	●
Platinum	urine	●	●	●
Thallium	urine	●	●	●
Tungsten	urine	●	●	●
Arsenic (total)	urine	●	●	●
Arsenous (III) acid	urine	●	●	●
Arsenic (V) acid	urine	●	●	●
Monomethylarsonic acid	urine	●	●	●
Dimethylarsinic acid	urine	●	●	●
Arsenobetaine	urine	●	●	●
Arsenocholine	urine	●	●	●
Trimethylarsine oxide	urine	●	●	●
Inorganic Mercury	whole blood	●	●	●
Methyl Mercury	whole blood			●
Ethyl Mercury	whole blood			●
Iodine	urine	●	●	●
Phthalates				
Mono-methyl phthalate	urine	●	●	●
Mono-ethyl phthalate	urine	●	●	●
Mono-n-butyl phthalate	urine	●	●	●
Mono-iso-butyl phthalate	urine	●	●	●
Mono-benzyl phthalate	urine	●	●	●

Mono-cyclohexyl phthalate	urine	●	●	●
Mono-2-ethylhexyl phthalate	urine	●	●	●
Mono-(2-ethyl-5-oxohexyl) phthalate	urine	●	●	●
Mono-(2-ethyl-5-hydroxyhexyl) phthalate	urine	●	●	●
Mono-(3-carboxypropyl) phthalate	urine	●	●	●
Mono-n-octyl phthalate	urine	●	●	●
Mono-isononyl phthalate	urine	●	●	●
Mono-(2-ethyl-5-carboxypentyl) phthalate	urine	●	●	●
Mono-(7-carboxy-n-heptyl) phthalate	urine		●	●
Mono-(4-methyl-7-hydroxyoctyl) phthalate	urine		●	●
Mono-(4-methyl-7-oxooctyl) phthalate	urine		●	●
Mono-(2,6-dimethyl-6-carboxyhexyl) phthalate	urine		●	●
Mono-(2,7-dimethyl-7-carboxyheptyl) phthalate	urine		●	●
Phytoestrogens				
Daidzein	urine	●	●	●
Enterodiol	urine	●	●	●
Enterolactone	urine	●	●	●
Equol	urine	●	●	●
Genistein	urine	●	●	●

Chemical / Metabolite Name	Matrix	4th 03- 04	5th 05- 06	6th 07-08
O-Desmethylangolensin	urine	●	●	●
Polycyclic Aromatic Hydrocarbons				
1-Hydroxybenz[a]anthracene	urine	●	●	●
3-Hydroxybenz[a]anthracene and 9-Hydroxybenz[a]anthracene	urine	●	●	●
1-Hydroxybenzo[c]phenanthrene	urine	●	●	●
2-Hydroxybenzo[c]phenanthrene	urine	●	●	●
3-Hydroxybenzo[c]phenanthrene	urine	●	●	●
1-Hydroxychrysene	urine	●	●	●
2-Hydroxychrysene	urine	●	●	●
3-Hydroxychrysene	urine	●	●	●
4-Hydroxychrysene	urine	●	●	●
6-Hydroxychrysene	urine	●	●	●
3-Hydroxyfluoranthene	urine		●	●
2-Hydroxyfluorene	urine	●	●	●
3-Hydroxyfluorene	urine	●	●	●
9-Hydroxyfluorene	urine	●	●	●
1-Hydroxyphenanthrene	urine	●	●	●
2-Hydroxyphenanthrene	urine	●	●	●
3-Hydroxyphenanthrene	urine	●	●	●
4-Hydroxyphenanthrene	urine	●	●	●
9-Hydroxyphenanthrene	urine	●	●	●
1-Hydroxypyrene	urine	●	●	●

3-Hydroxybenzo[a]pyrene	urine	●	●	●
1-Hydroxynaphthalene (1-Naphthol)	urine	●	●	●
2-Hydroxynaphthalene (2-Naphthol)	urine	●	●	●
1-Aminonaphthalene	urine		●	●
2-Aminobiphenyl	urine		●	●
2-Aminonaphthalene	urine		●	●
4-Aminobiphenyl	urine		●	●
1-Aminofluorene	urine		●	●
2-Aminofluorene	urine		●	●
9-Aminophenanthrene	urine		●	●
1-Aminoanthracene	urine		●	●
2-Aminoanthracene	urine		●	●
3-Aminofluoranthene	urine		●	●
1-Aminopyrene	urine		●	●
6-Aminochrysene	urine		●	●
3-Aminobenzanthrone	urine		●	●
8-Hydroxybenzo(b)fluoranthene	urine		●	●
7-Hydroxybenzo(b)fluoranthene	urine		●	●
1-Hydroxybenzo(b)fluoranthene	urine		●	●
9-Hydroxybenzo(b)fluoranthene	urine		●	●
2-Hydroxybenzo(b)fluoranthene	urine		●	●
12-Hydroxybenzo(b)fluoranthene	urine		●	●
8-Hydroxybenzo(b)fluoranthene	urine		●	●
9-Hydroxybenzo(e)pyrene	urine		●	●
3-Hydroxybenzo(b)fluoranthene	urine		●	●
12-Hydroxybenzo(a)pyrene	urine		●	●
5-Hydroxybenzo(a)pyrene	urine		●	●
11-Hydroxybenzo(b)fluoranthene	urine		●	●
6-Hydroxybenzo(b)fluoranthene	urine		●	●
3-Hydroxybenzo(k)fluoranthene	urine		●	●
4-Hydroxybenzo(e)pyrene	urine		●	●
10-Hydroxybenzo(b)fluoranthene	urine		●	●
9-Hydroxybenzo(k)fluoranthene	urine		●	●
7-Hydroxybenzo(a)pyrene	urine		●	●

Chemical / Metabolite Name	Matrix	4th 03- 04	5th 05- 06	6th 07-08
10-Hydroxybenzo(e)pyrene	urine		●	●
3-Hydroxybenzo(e)pyrene	urine		●	●
2-Hydroxybenzo(e)pyrene	urine		●	●
1-Hydroxyindeno-[1,2,3-c,d]-pyrene	urine		●	●
2-Hydroxyindeno-[1,2,3-c,d]-pyrene	urine		●	●
6-Hydroxyindeno-[1,2,3-c,d]-pyrene	urine		●	●

8-Hydroxyindeno-[1,2,3-c,d]-pyrene	urine		●	●
3-Hydroxydibenzo[a,h]anthracene	urine		●	●
Organophosphate Insecticides: Dialkyl Phosphate Metabolites				
Dimethylphosphate	urine	●	●	●
Dimethylthiophosphate	urine	●	●	●
Dimethyldithiophosphate	urine	●	●	●
Diethylphosphate	urine	●	●	●
Diethylthiophosphate	urine	●	●	●
Diethyldithiophosphate	urine	●	●	●
Organophosphate Insecticides: Specific Pesticides and Metabolites				
Malathion	plasma			●
Malathion dicarboxylic acid	urine	●	●	●
Chlorpyrifos	plasma			●
3,5,6-Trichloro-2-pyridinol	urine	●	●	●
Diazinon	plasma			●
2-Isopropyl-4-methyl-6-hydroxypyrimidine	urine	●	●	●
Methyl parathion	plasma			●
Parathion	plasma			●
<i>para</i> -Nitrophenol	urine	●	●	●
2-(diethylamino)-6-methylpyrimidin-4-ol/one	urine	●	●	●
3-Chloro-7-hydroxy-4-methyl-2H-chromen-2-one/ol	urine	●	●	●
5-Chloro-1,2-dihydro-1-isopropyl-[3H]-1,2,4-triazol-3-one	urine	●	●	●
Dichlorovos	plasma			●
Fonophos	plasma			●
Phorate	plasma			●
Terbufos	plasma			●
Acephate	urine	●	●	●
Methamidaphos	urine	●	●	●
Pyrethroid Pesticides				
<i>trans</i> -Permethrin	plasma			●
<i>cis</i> -Permethrin	plasma			●
<i>cis</i> -3-(2,2-Dichlorovinyl)-2,2-dimethylcyclopropane carboxylic acid	urine	●	●	●
<i>trans</i> -3-(2,2-Dichlorovinyl)-2,2-dimethylcyclopropane carboxylic acid	urine	●	●	●
3-Phenoxybenzoic acid	urine	●	●	●
4-Fluoro-3-phenoxybenzoic acid	urine	●	●	●
<i>cis/trans</i> -Dimethylvinylcyclopropane carboxylic diacid	urine	●	●	●
<i>cis</i> -3-(2,2-Dibromovinyl)-2,2-dimethylcyclopropane carboxylic acid	urine	●	●	●
Allethrin	plasma			●
Cyfluthrin	plasma			●
Cyhalothrin	plasma			●
Cypermethrin	plasma			●
Deltamethrin	plasma			●
Fenoxycarb	plasma			●

Fenvalerate	plasma			●
Imidacloprid	plasma			●
Imiprothrin	plasma			●
Prallethrin	plasma			●
Resmethrin	plasma			●
Sumithrin	plasma			●
Tetramethrin	plasma			●

Chemical / Metabolite Name	Matrix	4th 03- 04	5th 05- 06	6th 07-08
Tralomethrin	plasma			●
Pyrethrin I	plasma			●

Organochlorine Pesticides

Hexachlorobenzene	serum	●	●	●
Beta-hexachlorocyclohexane	serum	●	●	●
Gamma-hexachlorocyclohexane	serum	●	●	●
<i>p,p'</i> -DDT	serum	●	●	●
<i>p,p'</i> -DDE	serum	●	●	●
<i>o,p'</i> -DDT	serum	●	●	●
Oxychlordane	serum	●	●	●
<i>trans</i> -Nonachlor	serum	●	●	●
Heptachlor Epoxide	serum	●	●	●
Mirex	serum	●	●	●
Aldrin	serum	●	●	●
Dieldrin	serum	●	●	●
Endrin	serum	●	●	●
alpha-Hexachlorocyclohexane (HCCH)	serum		●	●
<i>cis</i> -Chlordane (or alpha)	serum		●	●
<i>trans</i> -Chlordane (or gamma)	serum		●	●
<i>cis</i> -Nonachlor	serum		●	●
<i>o,p'</i> -DDE	serum		●	●
<i>p,p'</i> -Methoxychlor	serum		●	●
Isodrin	serum		●	●
Octachlorosytrene	serum		●	●
Pentachloroanisole	serum		●	●
Monohydroxy methoxychlor	urine	●	●	●
Dihydroxy methoxychlor	urine	●	●	●
Endosulfan-ether	urine	●	●	●
Endosulfan-lactone	urine	●	●	●
Endosulfan-sulfate	urine	●	●	●

Other Pesticides

Propoxur	plasma			●
2-Isopropoxyphenol	serum	●	●	●
2-Isopropoxyphenol	urine	●	●	●

Carbofuran	plasma			●
Carbofuranphenol	serum	●	●	●
Carbofuranphenol	urine	●	●	●
N,N-diethyl-3-methylbenzamide (DEET)	serum	●	●	●
N,N-diethyl-3-methylbenzamide (DEET)	urine	●	●	●
DEET acid	urine		●	●
Desethyl DEET	urine		●	●
Desethyl DEET acid	urine		●	●
Desethyl hydroxy DEET	urine		●	●
2,5-Dichlorophenol	urine	●	●	●
Aldicarb-SO	urine			●
Aldicarb-SO ₂	urine			●
Aldicarb	plasma			●
Bendiocarb	plasma			●
Piperonyl butoxide	plasma			●
Fungicides				
<i>ortho</i> -Phenylphenol	urine	●	●	●
Chlorothalonil	serum	●	●	●
Metalaxyl	serum	●	●	●
Dichloran	serum	●	●	●
Ethylenethio urea (ETU)	urine	●	●	●
Propylenethio urea (PTU)	urine	●	●	●

Chemical / Metabolite Name	Matrix	4th 03- 04	5th 05- 06	6th 07-08
Phthalimide	serum	●	●	●
Tetrahydrophthalimide	serum	●	●	●
Herbicides: Substituted Ureas				
Diuron	urine	●	●	●
Linuron	urine	●	●	●
Amidosulfuron	urine	●	●	●
Azimsulfuron	urine	●	●	●
Bensulfuron-methyl	urine	●	●	●
Chloroimuron ethyl	urine	●	●	●
Flazasulfuron	urine	●	●	●
Flupyrsulfuron methyl	urine	●	●	●
Foramsulfuron	urine	●	●	●
Halosulfuron	urine	●	●	●
Halosulfuron-methyl	urine	●	●	●
Imazosulfuron	urine	●	●	●
Nicosulfuron	urine	●	●	●
Primisulfuron-methyl	urine	●	●	●
Pyrazosulfuron ethyl	urine	●	●	●
Rimsulfuron	urine	●	●	●

Sulfometuron-methyl	urine	●	●	●
Sulfosulfuron	urine	●	●	●
Chlorsulfuron	urine	●	●	●
Cinosulfuron	urine	●	●	●
Ethametsulfuron	urine	●	●	●
Metsulfuron-methyl	urine	●	●	●
Prosulfuron	urine	●	●	●
Thifensulfuron-methyl	urine	●	●	●
Thiofensulfuron	urine	●	●	●
Triasulfuron	urine	●	●	●
Tribenuron	urine	●	●	●
Tribenuron-methyl	urine	●	●	●
Triflusulfuron-methyl	urine	●	●	●
Dimethoxy pyrimidine	urine	●	●	●
Dimethyl pyrimidine	urine	●	●	●
Dichlorophenyl methyl urea	urine		●	●
Dichlorophenyl urea	urine		●	●

Other Herbicides

2,4,5-Trichlorophenoxyacetic acid	urine	●	●	●
2,4-Dichlorophenoxyacetic acid	urine	●	●	●
2,4-Dichlorophenol	urine	●	●	●
Acetochlor	serum	●	●	●
Acetochlor mercapturate	urine	●	●	●
Alachlor	serum	●	●	●
Alachlor mercapturate	urine	●	●	●
Atrazine	serum	●	●	●
Atrazine mercapturate	urine	●	●	●
Methyl methoxytriazine	urine	●	●	●
Diaminochlorotriazine	urine	●	●	●
Desethylatrazine	urine	●	●	●
Desisopropylatrazine	urine	●	●	●
Hydroxyatrazine	urine	●	●	●
Metolachlor	serum	●	●	●
Metolachlor mercapturate	urine	●	●	●
Glyphosate	urine		●	●
Dacthal	serum	●	●	●
Trifluralin	serum	●	●	●

Chemical / Metabolite Name	Matrix	4th 03- 04	5th 05- 06	6th 07-08
Aminomethyl phosphonic acid	urine		●	●
Halogenated Phenolic Compounds				
2,4,5-Trichlorophenol	urine	●	●	●
2,4,6-Trichlorophenol	urine	●	●	●

2,4,6-Tribromophenol	serum		●	●
2,6-Dibromophenol	serum		●	●
2,4-Dibromophenol	serum		●	●
Pentachlorophenol	serum		●	●
Pentachlorophenol	urine	●	●	●
Pentachloroanisole	serum		●	●
5-Chloro-2-(2,4-dichlorophenoxy)-phenol	serum		●	●
Hexachlorophene	serum		●	●
Pentabromophenol	serum		●	●
Tetrachlorobisphenol A	serum		●	●
Tetrabromobisphenol A	serum		●	●
Perfluorinated Compounds				
Perfluorooctanoic acid	serum	●	●	●
Perfluorooctane sulfonic acid	serum	●	●	●
Perfluorohexane sulfonic acid	serum	●	●	●
2-(N-Ethyl- Perfluorooctane sulfonamido) acetic acid	serum	●	●	●
2-(N-Methyl-perfluorooctane sulfonamido) acetic acid	serum	●	●	●
Pefluorodecanoic acid	serum	●	●	●
Perfluorobutane sulfonic acid	urine		●	●
Perfluorobutane sulfonic acid	serum	●		
Perfluoroheptanoic acid	serum	●	●	●
Perfluorononanoic acid	serum	●	●	●
Perfluorooctane sulfonamide	serum	●	●	●
Perfluoroundecanoic acid	serum	●	●	●
Perfluorododecanoic acid	serum	●	●	●
Environmental Phenols				
Bisphenol A	urine	●	●	●
2-Hydroxy-4-metoxybenzophenone (Benzophenone-3)	urine	●	●	●
4-tert-Octyl phenol	urine	●	●	●
2,4,4'-Trichloro-2'-hydroxyphenyl ether (Triclosan)	urine	●	●	●
n-nonyl phenol	urine		●	●
n-octyl phenol	urine		●	●
Methyl paraben	urine		●	●
Ethyl paraben	urine		●	●
Propyl paraben	urine		●	●
Butyl paraben	urine		●	●
Polychlorinated and Polybrominated Dibenzo-p-dioxins and Dibenzofurans, Coplanar and Mono-Ortho				
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	serum	●	●	●
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	serum	●	●	●
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	serum	●	●	●
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	serum	●	●	●
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	serum	●	●	●
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	serum	●	●	●

2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	serum	●	●	●
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	serum	●	●	●
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	serum	●	●	●
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	serum	●	●	●
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	serum	●	●	●
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	serum	●	●	●
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	serum	●	●	●
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	serum	●	●	●
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	serum	●	●	●
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	serum	●	●	●

Chemical / Metabolite Name	Matrix	4th 03- 04	5th 05- 06	6th 07-08
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	serum	●	●	●
2,3,7,8-Tetrabromodibenzo-p-dioxin (TBDD)	serum		●	●
1,2,3,7,8-Pentabromodibenzo-p-dioxin (PeDD)	serum		●	●
1,2,3,4,7,8-Hexabromodibenzo-p-dioxin (HxBDD)	serum		●	●
1,2,3,6,7,8-Hexabromodibenzo-p-dioxin (HxBDD)	serum		●	●
1,2,3,7,8,9-Hexabromodibenzo-p-dioxin (HxBDD)	serum		●	●
1,2,3,4,6,7,8-Heptabromodibenzo-p-dioxin (HpBDD)	serum		●	●
1,2,3,4,6,7,8,9-Octabromodibenzo-p-dioxin (OBDD)	serum		●	●
2,3,7,8,-Tetrabromodibenzofuran (TBDF)	serum		●	●
1,2,3,7,8-Pentabromodibenzofuran (PeBDF)	serum		●	●
2,3,4,7,8-Pentabromodibenzofuran (PeBDF)	serum		●	●
1,2,3,4,7,8-Hexabromodibenzofuran (HxBDF)	serum		●	●
1,2,3,6,7,8-Hexabromodibenzofuran (HxBDF)	serum		●	●
1,2,3,7,8,9-Hexabromodibenzofuran (HxBDF)	serum		●	●
2,3,4,6,7,8,-Hexabromodibenzofuran (HxBDF)	serum		●	●
1,2,3,4,6,7,8-Heptabromodibenzofuran (HpBDF)	serum		●	●
1,2,3,4,7,8,9-Heptabromodibenzofuran (HpBDF)	serum		●	●
1,2,3,4,6,7,8,9-Octabromodibenzofuran (OBDF)	serum		●	●
2-Bromo-3,7,8-Trichlorodibenzo-p-Dioxin	serum		●	●
2,3-Dibromo-7,8-Dichlorodibenzo-p-Dioxin	serum		●	●
1-Bromo-2,3,7,8-Tetrachlorodibenzo-p-Dioxin	serum		●	●
2-Bromo-3,6,7,8,9-Pentachlorodibenzo-p-Dioxin	serum		●	●
1-Bromo-2,3,6,7,8,9-Hexachlorodibenzo-p-Dioxin	serum		●	●
1-Bromo-2,3,4,6,7,8,9-Hepatachlorodibenzo-p-Dioxin	serum		●	●
3-Bromo-2,7,8-Trichlorodibenzofuran	serum		●	●
1-Bromo-2,3,7,8-Tetrachlorodibenozofuran	serum		●	●
2,4,4'-Trichlorobiphenyl (PCB 28)	serum	●	●	●
2,3',4,4'-Tetrachlorobiphenyl (PCB 66)	serum	●	●	●
2,4,4',5-Tetrachlorobiphenyl (PCB 74)	serum	●	●	●
3,3',4,4'-Tetrachlorobiphenyl (PCB 77)	serum		●	●

3,4,4',5-Tetrachlorobiphenyl (PCB 81)	serum	●	●	●
2,3,3',4,4'-Pentachlorobiphenyl (PCB 105)	serum	●	●	●
2,3,3',4',6-Pentachlorobiphenyl (PCB 110)	serum	●	●	●
2,3,3',4,4'-Pentachlorobiphenyl (PCB 114)	serum		●	●
2,3',4,4',5-Pentachlorobiphenyl (PCB 118)	serum	●	●	●
2',3,4,4',5-Pentachlorobiphenyl (PCB 123)	serum		●	●
3,3',4,4',5-Pentachlorobiphenyl (PCB 126)	serum	●	●	●
2,3,3',4,4',5-Hexachlorobiphenyl (PCB 156)	serum	●	●	●
2,3,3',4,4',5'-Hexachlorobiphenyl (PCB 157)	serum	●	●	●
2,3',4,4',5,5'-Hexachlorobiphenyl (PCB 167)	serum	●	●	●
3,3',4,4',5,5'-Hexachlorobiphenyl (PCB 169)	serum	●	●	●
2,3,3',4,4',5,5'-Heptachlorobiphenyl (PCB 189)	serum	●	●	●

Non-dioxin-like Polychlorinated Biphenyls

2,2',5-Trichloro biphenyl (PCB 18)	serum	●	●	●
2,2',3,5'-Tetrachloro biphenyl (PCB 44)	serum	●	●	●
2,2',4,5'-Tetrachloro biphenyl (PCB 49)	serum	●	●	●
2,2',5,5'-Tetrachlorobiphenyl (PCB 52)	serum	●	●	●
2,2',3,4,5'-Pentachlorobiphenyl (PCB 87)	serum	●	●	●
2,2',4,4',5-Pentachlorobiphenyl (PCB 99)	serum	●	●	●
2,2',4,5,5'-Pentachlorobiphenyl (PCB 101)	serum	●	●	●
2,2',3,3',4,4'-Hexachlorobiphenyl (PCB 128)	serum	●	●	●
2,2',3,4,4',5' and 2,3,3',4,4',6-Hexachlorobiphenyl (PCB 138 & 158)	serum	●	●	●
2,2',3,4',5,5'-Hexachlorobiphenyl (PCB 146)	serum	●	●	●
2,2',3,4',5',6-Hexachlorobiphenyl (PCB 149)	serum	●	●	●
2,2',3,5,5',6-Hexachlorobiphenyl (PCB 151)	serum	●	●	●
2,2',4,4',5,5'-Hexachlorobiphenyl (PCB 153)	serum	●	●	●

Chemical / Metabolite Name	Matrix	4th 03- 04	5th 05- 06	6th 07-08
2,2',3,3',4,4',5-Heptachlorobiphenyl (PCB 170)	serum	●	●	●
2,2',3,3',4,5,5'-Heptachlorobiphenyl (PCB 172)	serum	●	●	●
2,2',3,3',4,5',6'-Heptachlorobiphenyl (PCB 177)	serum	●	●	●
2,2',3,3',5,5',6-Heptachlorobiphenyl (PCB 178)	serum	●	●	●
2,2',3,4,4',5,5'-Heptachlorobiphenyl (PCB 180)	serum	●	●	●
2,2',3,4,4',5',6-Heptachlorobiphenyl (PCB 183)	serum	●	●	●
2,2',3,4',5,5',6-Heptachlorobiphenyl (PCB 187)	serum	●	●	●
2,2',3,3',4,4',5,5'-Octachlorobiphenyl (PCB 194)	serum	●	●	●
2,2',3,3',4,4',5,6-Octachlorobiphenyl (PCB 195)	serum	●	●	●
2,2',3,3',4,4',5,6' and 2,2',3,4,4',5,5',6-Octachlorobiphenyl (PCB 196 & 203)	serum	●	●	●
2,2',3,3',4,5,5',6-Octachlorobiphenyl (PCB 199)	serum	●	●	●
2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl (PCB 206)	serum	●	●	●
2,2',3,3',4,4',5,5',6,6'-Decachloro biphenyl (PCB 209)	serum	●	●	●

Hydroxylated Polychlorinated Biphenyls

2,3,3',4',5-pentachloro-4-biphenylol (4-HO-CB107)	serum		●	●
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2,2',4,4',5,5'-hexachloro-3-biphenylol (3-HO-CB153)	serum		●	●
2,2',3,4',5,5'-hexachloro-4-biphenylol (4-HO-CB146)	serum		●	●
2,2',3,4',5,5,6'-heptachloro-4-biphenylol (4-HO-CB187)	serum		●	●

Polybrominated Diphenyl Ethers

2,2',4'-Tribromodiphenyl ether (BDE 17)	serum	●	●	●
2,4,4'-Tribromodiphenyl ether (BDE 28)	serum	●	●	●
2,2',4,4'-Tetrabromodiphenyl ether (BDE 47)	serum	●	●	●
2,3',4,4'-Tetrabromodiphenyl ether (BDE 66)	serum	●	●	●
2,2',3,4,4'-Pentabromodiphenyl ether (BDE 85)	serum	●	●	●
2,2',4,4',5-Pentabromodiphenyl ether (BDE 99)	serum	●	●	●
2,2',4,4',6-Pentabromodiphenyl ether (BDE 100)	serum	●	●	●
2,2',4,4',5,5'-Hexabromobiphenyl (BB 153)	serum	●	●	●
2,2',4,4',5,6'-Hexabromodiphenyl ether (BDE 154)	serum	●	●	●
2,2',4,4',5,5'-Hexabromodiphenyl ether (BDE 153)	serum	●	●	●
Hexabromocyclododecane (HBCDD)	serum		●	●
2,2',3,4,4',5',6-Heptabromodiphenyl ether (BDE 183)	serum	●	●	●
2,2',3,3',4,4',5,6'-Octabromodiphenyl ether (BDE 196)	serum		●	●
2,2',3,3',4,4',6,6'-Octabromodiphenyl ether (BDE 197)	serum		●	●
2,2',3,4,4',5,5',6-Octabromodiphenyl ether (BDE 203)	serum		●	●
2,2',3,3',4,4',5,5',6-Nonabromodiphenyl ether (BDE 206)	serum		●	●
2,2',3,3',4,4',5,6,6'-Nonabromodiphenyl ether (BDE 207)	serum		●	●
2,2',3,3',4,5,5',6,6'-Nonabromodiphenyl ether (BDE 208)	serum		●	●
Decabromodiphenyl ether (BDE 209)	serum		●	●
1,2-bis(2,4,6-tribromophenoxy) ethane (BTBPE)	serum		●	●
Hexabromobenzene (HBB)	serum		●	●
Decabromodiphenyl ethane (DBDEthane)	serum		●	●
2,3-Dibromopropanol	urine		●	●

Polychlorinated Naphthalenes

1,2,3,4-Tetrachlorinated naphthalene (PCN 27)	serum			●
1,2,3,5,7- and 1,2,4,6,7-Pentachlorinated naphthalene (PNC 52 & 60)	serum			●
1,2,3,4,5,7- and 1,2,3,5,6,8-Hexachlorinated naphthalene (PNC 64 & 68)	serum			●
1,2,3,4,6,7- and 1,2,3,5,6,7-Hexachlorinated naphthalene (PNC 66 & 67)	serum			●
1,2,3,5,7,8-Hexachlorinated naphthalene (PCN 69)	serum			●
1,2,3,4,5,6,7-Heptachlorinated naphthalene (PCN 73)	serum			●

Toxaphenes

Parlar 26 2-Endo,3-exo,5-endo,6-exo,8b,8c,10a,10c-octachlorobornane	serum		●	●
Parlar 50 2-Endo,3-exo,5-endo,6-exo,8b,8c,9c,10a,10c-nonachlorobornane	serum		●	●
Parlar 62 2,2,5,5,8c,9b,9c,10a,10b-nonachlorobornane	serum		●	●
Parlar 40 2-Endo,3-exo,5-endo,6-exo,8b,9c,10a,10c-octachlorobornane	serum		●	●

Chemical / Metabolite Name	Matrix	4th 03-	5th 05-	6th 07-08
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		04	06	
Parlar 41 2-Exo,3-endo,5-exo,8c,9b,9c,10a,10b-octachlorobornane	serum		●	●
Parlar 44 2-Exo,5,5,8c,9b,9c,10a,10b-octachlorobornane	serum		●	●
Volatile Organic Compounds (VOCs)				
1,1,1-Trichloroethane	whole blood	●	●	●
1,1,2,2-Tetrachloroethane	whole blood	●	●	●
1,1,2-Trichloroethane	whole blood	●	●	●
1,1-Dichloroethane	whole blood	●	●	●
1,1-Dichloroethene	whole blood	●	●	●
1,2-dibromo-3-chloropropane	whole blood	●	●	●
1,2-Dichlorobenzene	whole blood	●	●	●
1,2-Dichloroethane	whole blood	●	●	●
1,2-Dichloropropane	whole blood	●	●	●
1,3-Dichlorobenzene	whole blood	●	●	●
1,4-Dichlorobenzene	whole blood	●	●	●
2,5-Dimethylfuran	whole blood	●	●	●
Acrylonitrile	whole blood			●
Benzene	whole blood	●	●	●
Bromodichloromethane	whole blood	●	●	●
Bromoform	whole blood	●	●	●
Carbon Tetrachloride	whole blood	●	●	●
Chlorobenzene	whole blood	●	●	●
Chloroform	whole blood	●	●	●
<i>cis</i> -1,2-Dichloroethene	whole blood	●	●	●
Dibromochloromethane	whole blood	●	●	●
Dibromomethane	whole blood	●	●	●
Ethylbenzene	whole blood	●	●	●
Furan	whole blood			●
Hexachloroethane	whole blood	●	●	●
m-/p-Xylene	whole blood	●	●	●
Methylene Chloride	whole blood	●	●	●
Methyl-tert-Butyl Ether (MTBE)	whole blood	●	●	●
Nitrobenzene	whole blood	●	●	●
o-Xylene	whole blood	●	●	●
Styrene	whole blood	●	●	●
Tetrachloroethene	whole blood	●	●	●
Toluene	whole blood	●	●	●

<i>trans</i> -1,2-Dichloroethene	whole blood	●	●	●
Trichloroethene	whole blood	●	●	●
1,2-Dibromoethane	whole blood			●
Hexane	whole blood			●
Nitromethane	whole blood			●
1,1,1,2-Tetrachloroethane	whole blood			●
Cumene	whole blood			●
1,2,3-Trichloropropane	whole blood			●
Bromochloriodomethane	whole blood			●
Dichloriodomethane	whole blood			●

Trans Fatty Acids

Hexadecanoic acid	serum		●	●
<i>cis</i> -9-Hexadecenoic acid	serum		●	●
<i>trans</i> -9-Hexadecenoic acid	serum		●	●
Octadecanoic acid	serum		●	●
<i>cis</i> -9-Octadecenoic acid	serum		●	●
<i>trans</i> -9-Octadecenoic acid	serum		●	●
<i>cis,cis</i> -9,12-Octadecadienoic acid	serum		●	●

Chemical / Metabolite Name	Matrix	4th 03- 04	5th 05- 06	6th 07-08
<i>trans,trans</i> -9,12-Octadecadienoic acid	serum		●	●
<i>trans</i> -6-Octadecanoic acid	serum			●
<i>trans</i> -11-Octadecanoic acid	serum			●
Other				
Perchlorate	urine	S	●	●
Thiocyanate	urine	S	S	●
Nitrates	urine	S	S	●
Acrylamide	whole blood	●	●	●
Glycidamide	whole blood	●	●	●

S Testing done using the NHANES surplus specimens process.