

## Appendix 1 Chemicals Studied by the Centers for Disease Control and Prevention's (CDC's) Biomonitoring Program

CDC measured levels of the chemicals listed below in selected participants for NHANES 2003-2004. Results for italicized chemicals were not reported in CDC's *Third National Report on Human Exposure to Environmental Chemicals*.

<p><b>Metals</b>            Antimony            Barium            Beryllium            Cadmium            Cesium            Cobalt            Lead            Mercury            Molybdenum            Platinum            Thallium            Tungsten            Uranium  <i>Arsenic</i>  <i>Arsenous (III) acid</i>  <i>Arsenic (V) acid</i>  <i>Monomethylarsonic acid</i>  <i>Dimethylarsinic acid</i>  <i>Arsenobetaine</i>  <i>Arsenocholine</i>  <i>Trimethylarsine oxide</i></p> <p><b>Phthalates</b>            Mono-methyl phthalate            Mono-ethyl phthalate            Mono-n-butyl phthalate            Mono-isobutyl phthalate            Mono-benzyl phthalate            Mono-cyclohexyl phthalate            Mono-2-ethylhexyl phthalate            Mono-(2-ethyl-5-oxohexyl) phthalate            Mono-(2-ethyl-5-hydroxyhexyl) phthalate            Mono-n-octyl phthalate            Mono-(3-carboxypropyl) phthalate            Mono-isononyl phthalate  <i>Mono-(2-ethyl-5-carboxypentyl) phthalate</i></p> <p><b>Polycyclic Aromatic Hydrocarbons</b>            1-Hydroxybenz[a]anthracene            3- and 9-Hydroxybenz[a]anthracene            1-Hydroxybenzo[c]phenanthrene            2-Hydroxybenzo[c]phenanthrene            3-Hydroxybenzo[c]phenanthrene            1-Hydroxychrysene            2-Hydroxychrysene            3-Hydroxychrysene            4-Hydroxychrysene            6-Hydroxychrysene            3-Hydroxyfluoranthene*            2-Hydroxyfluorene            3-Hydroxyfluorene            9-Hydroxyfluorene            1-Hydroxyphenanthrene            2-Hydroxyphenanthrene            3-Hydroxyphenanthrene            4-Hydroxyphenanthrene            9-Hydroxyphenanthrene            1-Hydroxypyrene            3-Hydroxybenzo[a]pyrene            1-Hydroxynaphthalene            2-Hydroxynaphthalene</p>	<p><b>Tobacco Smoke</b>            Cotine</p> <p><b>Phytoestrogens</b>            Daidzein            Enterodiol            Enterolactone            Equol            Genistein            O-Desmethylangolensin</p> <p><b>Organochlorine Pesticides</b>            Hexachlorobenzene            Beta-hexachlorocyclohexane            Gamma-hexachlorocyclohexane            Pentachlorophenol            2,4,5-Trichlorophenol            2,4,6-Trichlorophenol  <i>p,p'</i>-DDT  <i>p,p'</i>-DDE  <i>o,p'</i>-DDT            Oxychlorane  <i>trans</i>-Nonachlor            Heptachlor epoxide            Mirex            Aldrin            Dieldrin            Endrin  <i>Monohydroxy methoxychlor</i>  <i>Dihydroxy methoxychlor</i>  <i>Endosulfan-ether</i>  <i>Endosulfan-lactone</i>  <i>Endosulfan-sulfate</i></p> <p><b>Organophosphate Insecticides:</b>  <b>Dialkyl Phosphate Metabolites</b>            Malathion dicarboxylic acid†            3,5,6-Trichloro-2-pyridinol            2-Isopropyl-4-methyl-6-hydroxypyrimidine  <i>para</i>-Nitrophenol            2-(Diethylamino)-6-methylpyrimidin-4-ol/one            3-Chloro-7-hydroxy-4-methyl-2H-chromen-2-one/ol  <i>5-Chloro-1,2-dihydro-1-isopropyl-[3H]-1,2,4-triazol-3-one</i>  <i>Acephate</i>  <i>Methamidaphos</i></p> <p><b>Pyrethroid Pesticides</b>  <i>cis</i>-3-(2,2-Dichlorovinyl)-2,2-dimethylcyclopropane carboxylic acid  <i>trans</i>-3-(2,2-Dichlorovinyl)-2,2-dimethylcyclopropane carboxylic acid            3-Phenoxybenzoic acid            4-Fluoro-3-phenoxybenzoic acid  <i>cis/trans</i>-Dimethylvinylcyclopropane carboxylic diacid  <i>cis</i>-3-(2,2-Dibromovinyl)-2,2-dimethylcyclopropane carboxylic acid</p>	<p><b>Other Pesticides</b>            2-Isopropoxyphenol            Carbofuranphenol            N,N-Diethyl-3-methylbenzamide (DEET)            2,5-Dichlorophenol            Fungicides  <i>ortho</i>-Phenylphenol  <i>Chlorothalonil</i>  <i>Metalaxyl</i>  <i>Dichloran</i>  <i>Ethylenethio urea (ETU)</i>  <i>Propylenethio urea (PTU)</i>  <i>Phthalimide</i>  <i>Tetrahydrophthalimide</i></p> <p><b>Herbicides: Substituted Ureas</b>  <i>Diuron</i>  <i>Linuron</i>  <i>Dimethoxy pyrimidine</i>  <i>Dimethyl pyrimidine</i>  <i>Methyl methoxytriazine</i>  <i>Bensulfuron-methyl</i>‡  <i>Chlorimuron ethyl</i>‡  <i>Foramsulfuron</i>‡  <i>Halosulfuron</i>‡  <i>Nicosulfuron</i>‡  <i>Primisulfuron-methyl</i>‡  <i>Iodosulfuron</i>‡  <i>Rimsulfuron</i>‡  <i>Sulfometuron-methyl</i>‡  <i>Sulfosulfuron</i>‡  <i>Chlorsulfuron</i>‡  <i>Ethametsulfuron-methyl</i>‡  <i>Metsulfuron-methyl</i>‡  <i>Prosulfuron</i>‡  <i>Thifensulfuron-methyl</i>‡  <i>Triasulfuron</i>‡  <i>Triflurosulfuron-methyl</i>‡</p> <p><b>Other Herbicides</b>            2,4,5-Trichlorophenoxyacetic acid            2,4-Dichlorophenoxyacetic acid            2,4-Dichlorophenol  <i>Acetochlor</i>  <i>Acetochlor mercapturate</i>  <i>Alachlor</i>  <i>Alachlor mercapturate</i>†  <i>Atrazine</i>  <i>Atrazine mercapturate</i>  <i>Diaminochlorotriazine</i>  <i>Desethylatrazine</i>  <i>Desisopropylatrazine</i>  <i>Hydroxyatrazine</i>  <i>Metolachlor</i>  <i>Metolachlor mercapturate</i>  <i>Dacthal</i>  <i>Trifluralin</i></p> <p><b>Environmental Phenols</b>  <i>Bisphenol A</i>  <i>2-Hydroxy-4-methoxybenzophenone (Benzophenone-3)</i>  <i>4-tert-Octyl phenol</i>  <i>2,4,4'-Trichloro-2'-hydroxyphenyl ether (Triclosan)</i></p>
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<p><b>Polychlorinated Dibenzo-p-dioxins, Dibenzofurans, Coplanar and Mono-Ortho-Substituted Biphenyls</b></p> <p>1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)            1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)            1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)            1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)            1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)            1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)            2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)            1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)            1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)            1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)            1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)            1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)            1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)            1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)            2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)            2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)            2,3,7,8-Tetrachlorodibenzofuran (TCDF)            2,4,4'-Trichlorobiphenyl (PCB 28)†            2,3',4,4'-Tetrachlorobiphenyl (PCB 66)            2,4,4',5-Tetrachlorobiphenyl (PCB 74)            3,4,4',5-Tetrachlorobiphenyl (PCB 81)            2,3,3',4,4'-Pentachlorobiphenyl (PCB 105)            2,3,3',4',6-Pentachlorobiphenyl (PCB 110)            2,3',4,4',5-Pentachlorobiphenyl (PCB 118)            3,3',4,4',5-Pentachlorobiphenyl (PCB 126)            2,3,3',4,4',5-Hexachlorobiphenyl (PCB 156)            2,3,3',4,4',5'-Hexachlorobiphenyl (PCB 157)            2,3',4,4',5,5'-Hexachlorobiphenyl (PCB 167)            3,3',4,4',5,5'-Hexachlorobiphenyl (PCB 169)            2,3,3',4,4',5,5'-Heptachlorobiphenyl (PCB 189)</p> <p><b>Non-dioxin-like Polychlorinated Biphenyls</b></p> <p>2,2',5'-Trichloro biphenyl (PCB 18)            2,2',3,5'-Tetrachloro biphenyl (PCB 44)            2,2',4,5'-Tetrachloro biphenyl (PCB 49)            2,2',5,5'-Tetrachlorobiphenyl (PCB 52)            2,2',3,4,5'-Pentachlorobiphenyl (PCB 87)            2,2',4,4',5-Pentachlorobiphenyl (PCB 99)            2,2',4,5,5'-Pentachlorobiphenyl (PCB 101)            2,2',3,3',4,4'-Hexachlorobiphenyl (PCB 128)            2,2',3,4,4',5' and 2,3,3',4,4',6-Hexachlorobiphenyl (PCB 138 &amp; 158)            2,2',3,4',5,5'-Hexachlorobiphenyl (PCB 146)            2,2',3,4',5',6'-Hexachlorobiphenyl (PCB 149)            2,2',3,5,5',6-Hexachlorobiphenyl (PCB 151)            2,2',4,4',5,5'-Hexachlorobiphenyl (PCB 153)            2,2',3,3',4,4',5-Heptachlorobiphenyl (PCB 170)            2,2',3,3',4,5,5'-Heptachlorobiphenyl (PCB 172)            2,2',3,3',4,5',6'-Heptachlorobiphenyl (PCB 177)            2,2',3,3',5,5',6-Heptachlorobiphenyl (PCB 178)            2,2',3,4,4',5,5'-Heptachlorobiphenyl (PCB 180)            2,2',3,4,4',5',6-Heptachlorobiphenyl (PCB 183)            2,2',3,4',5,5',6-Heptachlorobiphenyl (PCB 187)            2,2',3,3',4,4',5,5'-Octachlorobiphenyl (PCB 194)            2,2',3,3',4,4',5,6-Octachlorobiphenyl (PCB 195)            2,2',3,3',4,4',5,6' and 2,2',3,4,4',5,5',6-Octachlorobiphenyl (PCB 196 &amp; 203)            2,2',3,3',4,5,5',6-Octachlorobiphenyl (PCB 199)            2,2',3,3',4,4',5,5',6'-Nonachlorobiphenyl (PCB 206)            2,2',3,3',4,4',5,5',6,6'-Decachloro biphenyl (PCB 209)</p>	<p><b>Polybrominated Diphenyl Ethers</b></p> <p>2,2',4'-Tribromodiphenyl ether (BDE 17)            2,4,4'-Tribromodiphenyl ether (BDE 28)            2,2',4,4'-Tetrabromodiphenyl ether (BDE 47)            2,3',4,4'-Tetrabromodiphenyl ether (BDE 66)            2,2',3,4,4'-Pentabromodiphenyl ether (BDE 85)            2,2',4,4',5-Pentabromodiphenyl ether (BDE 99)            2,2',4,4',6-Pentabromodiphenyl ether (BDE 100)            2,2',4,4',5,5'-Hexabromodiphenyl ether (BDE 153)            2,2',4,4',5,6'-Hexabromodiphenyl ether (BDE 154)            2,2',3,4,4',5',6-Heptabromodiphenyl ether (BDE 183)            2,2',4,4',5,5'-Hexabromobiphenyl (BB 153)</p> <p><b>Perfluorinated Compounds</b></p> <p>Perfluorooctanoic acid            Perfluorooctane sulfonic acid            Perfluorohexane sulfonic acid            2-(N-Ethyl-perfluorooctane sulfonamido) acetic acid            2-(N-Methyl-perfluorooctane sulfonamido) acetic acid            Perfluorodecanoic acid            Perfluorobutane sulfonic acid            Perfluoroheptanoic acid            Perfluorononanoic acid            Perfluorooctane sulfonamide            Perfluoroundecanoic acid            Perfluorododecanoic acid</p> <p><b>Volatile Organic Compounds</b></p> <p>1,1,1-Trichloroethane            1,1,2,2-Tetrachloroethane            1,1,2-Trichloroethane            1,1-Dichloroethane            1,1-Dichloroethene            1,2-dibromo-3-chloropropane            1,2-Dichlorobenzene            1,2-Dichloroethane            1,2-Dichloropropane            1,3-Dichlorobenzene            1,4-Dichlorobenzene            2,5-Dimethylfuran            Benzene            Bromodichloromethane            Bromoform            Carbon tetrachloride            Chlorobenzene            Chloroform            cis-1,2-Dichloroethene            Dibromochloromethane            Dibromomethane            Ethylbenzene            Hexachloroethane            m-/p-Xylene            Methylene chloride            Methyl-tert-butyl ether (MTBE)            Nitrobenzene            o-Xylene            Styrene            Tetrachloroethene            Toluene            trans-1,2-Dichloroethene            Trichloroethene</p> <p><b>Other Chemicals</b></p> <p>Perchlorate            Acrylamide            Glycidamide</p>
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