



Toxic Environmental Test

Physician:
Patient:
Accession #: 800604

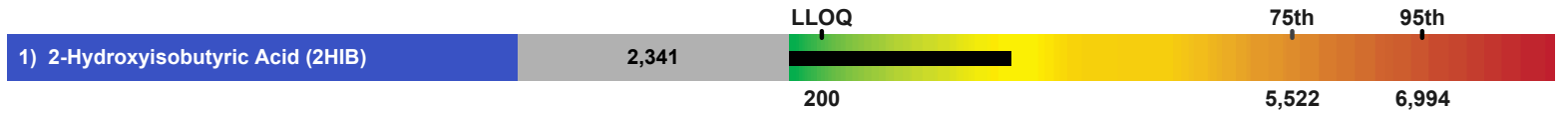
Sex:
Age:

Collected:
Received:
Print Date: 7/22/2015

Toxic Compounds

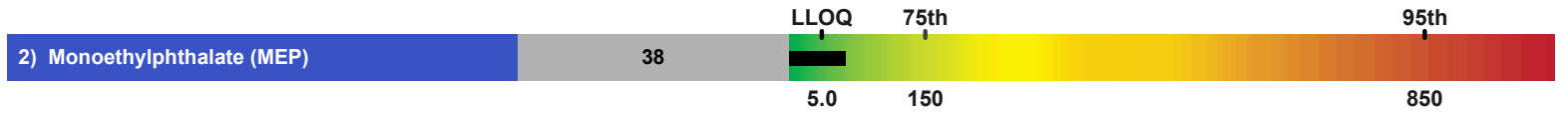
Table with 3 columns: Metabolite, Result mg/g creatinine, Percentile

Industrial Toxicants



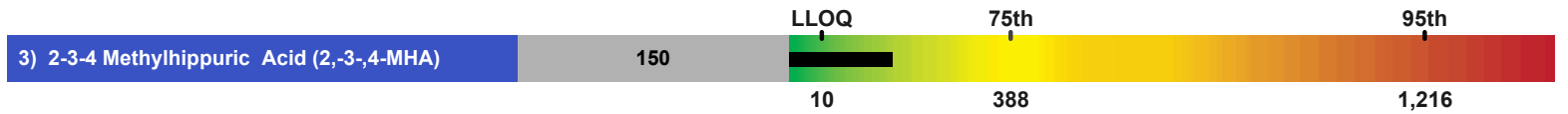
Parent: MTBE/ETBE

MTBE and ETBE are gasoline additives used to improve octane ratings. Exposure to these compounds is most likely due to groundwater contamination, and inhalation or skin exposure to gasoline or its vapors and exhaust fumes.



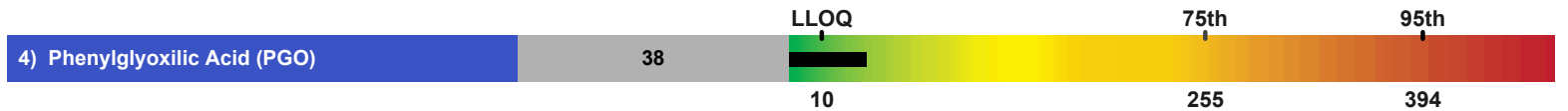
Parent: Diethylphthalates

Phthalates may be the most widespread group of toxins in our environment, commonly found in many bath and beauty products, cosmetics, perfumes, oral pharmaceuticals, insect repellants, adhesives, inks, and varnishes.



Parent: Xylene

Xylenes (dimethylbenzenes) are found not only in common products such as paints, lacquers, pesticides, cleaning fluids, fuel and exhaust fumes, but also in perfumes and insect repellents.



Parent: Styrene/Ethylbenzene

Styrene is used in the manufacturing of plastics, in building materials, and is found in car exhaust fumes. Polystyrene and its copolymers are widely used as food-packaging materials.

*LLOQ - Lower Limit of Quantitation

Testing performed by The Great Plains Laboratory, Inc., Lenexa, Kansas. The Great Plains Laboratory has developed and determined the performance characteristics of this test. This test has not been evaluated by the U.S. FDA; the FDA does not currently regulate such testing.

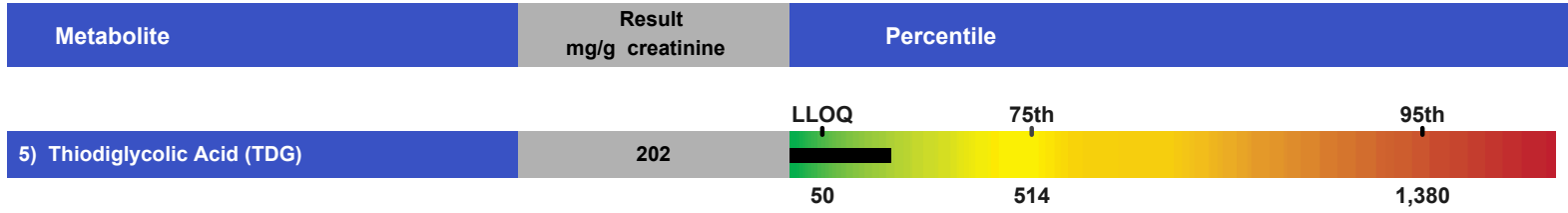
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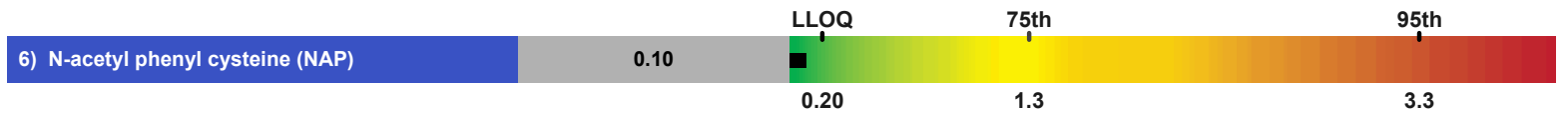
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Toxic Compounds



Parent: Vinyl Chloride

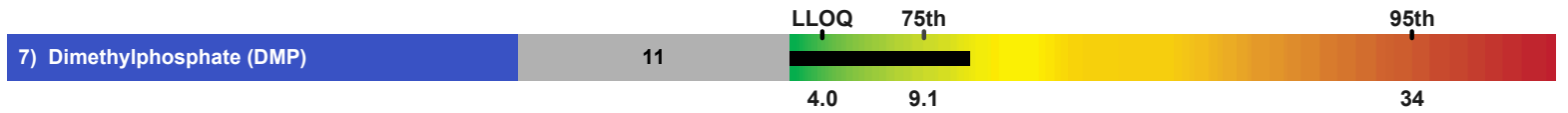
Vinyl chloride is an intermediate in the synthesis of several commercial chemicals, including polyvinyl chloride (PVC). Exposure to vinyl chloride may cause central nervous system depression, nausea, headache, dizziness, liver damage, degenerative bone changes, thrombocytopenia, enlargement of the spleen, and death. Elevated urinary values of TDG, the vinyl chloride metabolite, may also be found after ingestion of large amounts of fresh onion, or after vitamin B12 administration, due to stimulation of sulfur amino acid metabolism.



Parent: Benzene

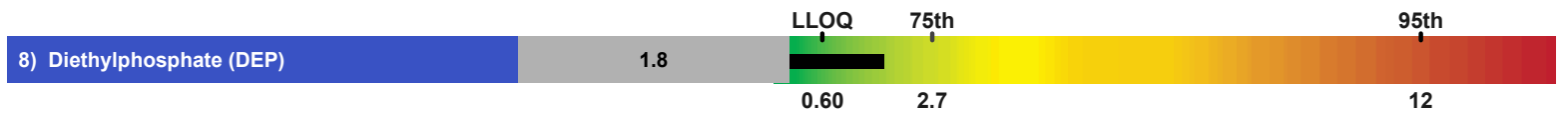
Benzene is an organic solvent that is widespread in the environment. Benzene is a by-product of all types of industrial processes and combustion, including motor vehicle exhaust and cigarette smoke, and is released by outgassing from synthetic materials. Benzene is an extremely toxic chemical that is mutagenic and carcinogenic. High exposures to benzene cause symptoms of nausea, vomiting, dizziness, lack of coordination, central nervous system depression, and death. It can also cause hematological abnormalities.

Organophosphate Insecticide Metabolites



Parent: Organophosphates

Organophosphates are one of the most toxic groups of substances in the world, primarily in found in pesticide formulations. They are inhibitors of cholinesterase enzymes, leading to overstimulation of nerve cells, causing sweating, salivation, diarrhea, abnormal behavior, including aggression and depression. Children exposed to organophosphates have more than twice the risk of developing pervasive developmental disorder (PDD), an autism spectrum disorder. Maternal organophosphate exposure has been associated with various adverse outcomes including having shorter pregnancies and children with impaired reflexes.



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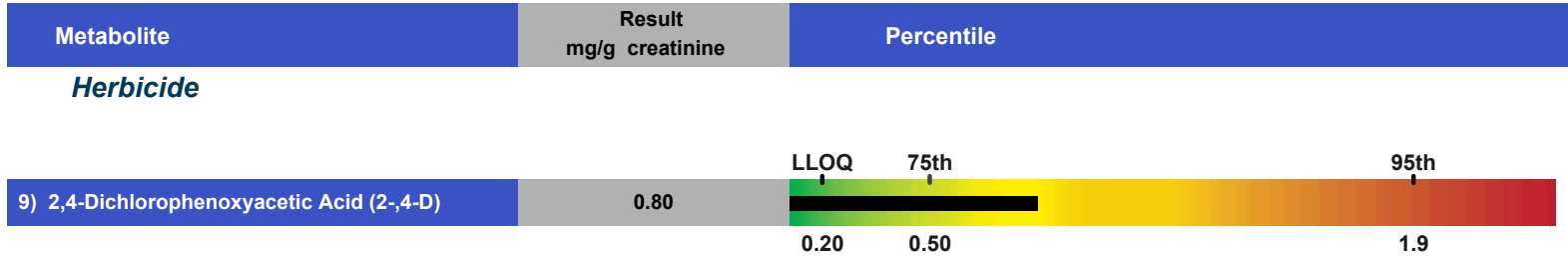
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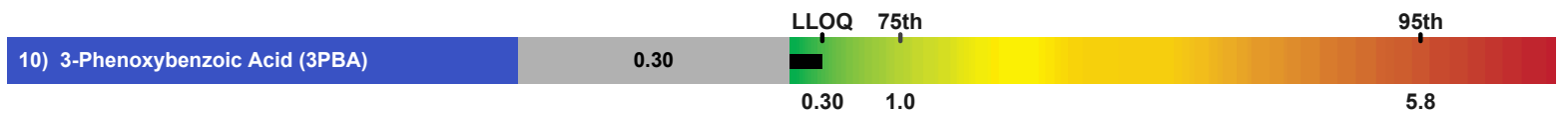
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Toxic Compounds



2,4-Dichlorophenoxyacetic Acid (2,4-D) is a very common herbicide that was a part of Agent Orange, which was used by the U.S. in the Vietnam War. It is most commonly used in agriculture on genetically modified foods, and as a weed killer for lawns. Exposure to 2, 4-D via skin or oral ingestion is associated with neuritis, weakness, nausea, abdominal pain, headache, dizziness, peripheral neuropathy, stupor, seizures, brain damage, and impaired reflexes. 2, 4-D is a known endocrine disruptor, and can block hormone distribution and cause glandular breakdown.

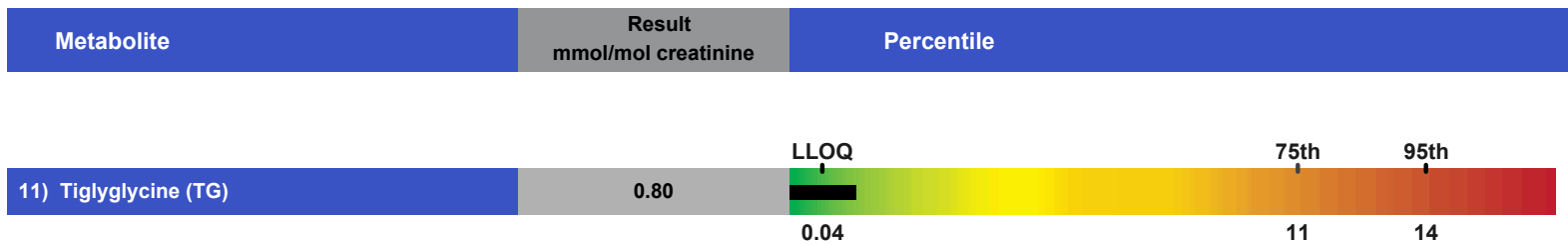
Pyrethroid Insecticide



Parent: Pyrethroids - Including Permethrin, Cypermethrin, Cyhalothrins, Fenpropathrin, Deltamethrin, Trihalomethrin

Pyrethrins are widely used as insecticides. Exposure during pregnancy doubles the likelihood of autism. Pyrethrins may affect neurological development, disrupt hormones, induce cancer, and suppress the immune system.

Marker for Mitochondria Function



Tiglyglycine (TG) is a marker for mitochondrial disorders resulting from mutations of mitochondrial DNA, which can manifest from exposure to toxic chemicals, infections, inflammation, and nutritional deficiencies. TG indicates mitochondrial dysfunction by monitoring a metabolite that is elevated in mitochondrial deficiency of cofactors such as NAD⁺, flavin-containing coenzymes, and Coenzyme Q10. Disorders associated with mitochondrial dysfunction include autism, Parkinson's disease, and cancer.



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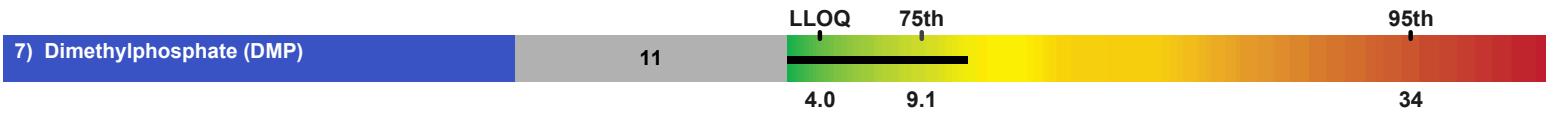
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Toxic Compounds

Metabolite	Result mg/g creatinine	Percentile
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Organophosphate Insecticide Metabolites



- | | | |
|--------------------------------|----------------------------------|---------------------|
| -Amidithion | -Fenthion | -Phosnichlor |
| -Anilofos | -Fenthion oxon | -Phosphamidon |
| -Azamethiphos | -Formothion | -Phoxim-methyl |
| -Azinphos | -Fosmethilan | -Pirimiphos-methyl |
| -Azinphos-methyl | -Fospirate | -Quinalphos-methyl |
| -Azinphos-methyl oxygen analog | -Heptenophos | -Ronnel |
| -Azothoate | -Iodofenfos | -Sophamide |
| -Bomyl | -Isazophos-methyl | -Temephos |
| -Bromophos | -Isochlorthion | -Temephos sulfoxide |
| -Chlorpyrifos-methyl | -Isothioate | -Tetrachlorvinphos |
| -Chlorthion | -Lythidathion | -Thiometon |
| -cis-Azodrin | -Malaoxon | -Tolclofos-methyl |
| -cis-Methocrotophos | -Malathion | -Vamidothion |
| -Crotoxyphos | -Menazon | |
| -Cyanophos | -Methacrifos | |
| -Cythioate | -Methidathion OA | |
| -DDVP | -Methyl paraoxon | |
| -Demephion-O | -Methyl phenkapton | |
| -Demephion-S | -Methyl trithion | |
| -Demeton-O-methyl | -Mevinphos | |
| -Demeton-S-methyl | -(E)-Mevinphos | |
| -Dicrotophos | -(Z)-Mevinphos | |
| -Dimethoate | -Monocrotophos | |
| -Dimethoate-ethyl | -Morphothion | |
| -DMCP | -Naled | |
| -Endothion | -OOS-Trimethyl phosphorodithiate | |
| -Etrimfos | -Omethoate | |
| -Famphur | -Oxydemeton-methyl | |
| -Famphur O-analog | -Phenthoate | |
| -Fenitrothion | -Phosmet | |
| | -Phosmetoxon | |



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Organophosphate Insecticide Metabolites



-Acethion	-5-Dichloro-alpha-(chloro-methylene) benzyl diethyl pho	-Phorate
-Acetoxon	-Diethyldithio phosphate	-Phosalone
-Akton	-Diethylthio phosphate	-Phoxim
-Amiton	-Dioxathion	-Pirimiphos ethyl
-Amiton oxalate	-Disulfoton	-Primidophos
-Athidathion	-Disulfoton sulfone	-Propoxon
-Azethion	-Disulfoton sulfoxide	-Prothidathion
-Azinphos-ethyl	-Ethion	-Prothion
-Bromophos-ethyl	-Ethion O-analog	-Prothoate
-Butathiofos	-Fensulfothion	-Pyrazophos
-Carbophenothion	-Isazophos	-Pyrazophos
-Chlorethoxyphos	-Isoxathion	-Pyridiphenthion
-Chlorfenvinphos	-Mecarbam	-Quinalphos
-Chlorphoxim	-Miral	-Quinothion
-Chlorprazophos	-Miral	-Sulfotep
-Chlorpyrifos	-Naphthalophos	-TEPP
-Chlorpyrifos oxygen analog	-OO-diethyl O-naphthaloximido phosphorothioate	-Terbufos
-Chlorthiophos	-OO-diethyl O-naphthaloximido phosphorothioate	-Terbufos sulfone
-Chlorthiophos II	-OO-diethyl phosphoro chloridothionate	-Terbufos sulfoxide
-Chlorthiophos III	-OO-Diethyl S-(46-dimethyl-2-pyrimidinyl) phosphorodith	-Thionazin
-Coumaphos	-OO-diethyl-O-phenyl phosphoro thioate	-Thionazin O-analog
-Coumithioate	-Paraoxon	-Triazophos
-Cyanthoate	-Parathion	
-Demeton	-Phenkapton	
-Demeton-O	-Phorate	
-Demeton-S		
-Dialifor		
-Diazinon		
-Diazoxon		
-Dichlofenthion		

