

## PCBs and Dioxins

PCBs, dibenzofurans and dioxins are mixtures of many chlorinated aromatic compounds, some of which are very persistent both in the environment and in the body. There are over 75 chlorinated dioxins, 135 chlorinated dibenzofurans, and 209 PCB congeners. Since they are lipophilic, they dissolve in the fatty tissues of the body and are released slowly to the bloodstream. Some of the PCB congeners have been reported to have half-lives of elimination as long as 19 years in the body and 100 years in sub-surface soil. Unborn fetuses and neonates have developing nervous systems that are particularly sensitive to the actions of PCBs and dioxins in that the toxicants tend to disrupt synaptogenesis, the process which forms the neuronal network of the brain. Other health effects from exposure to these persistent toxicants include endocrine disruption, immunosuppression, developmental delays, thyroid problems, and cancers at multiple sites, including thyroid, lung, skin, soft tissue, and testes, among others.

Since PCBs are stored in the fatty tissue, they are in equilibrium with the fat cells which circulate in the blood and can be detected in the blood many years after exposure has ceased. In one study Dr. Parent conducted a survey of over 1,200 individuals living near a transformer plant, by sampling their blood and the dust in their homes. He related the concentration of PCBs in blood to the extent of current and future injury. This complex program involved working closely with the analytical laboratory to produce the most economical screening methodology which was followed by analysis of specific PCB and dioxin congeners that were consistent with the congener patterns emanating from the contaminated site. The case was settled on the basis of the blood analyses. A synopsis of PCB characteristics and health effects are available in the report provided below as well as selected references.

\* View Additional Information

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