

What are Polychlorinated Biphenyls (PCBs)?

PCBs are a group of man-made chemicals consisting of 209 individual compounds of a similar chemical structure. They are either oily liquids or solids with no smell or taste. PCBs do not burn easily and are good insulating material. The United States ceased the production of PCBs in 1977 because of evidence of accumulation in the environment. PCBs were used mainly as coolants and lubricants in transformers, capacitors, and other electrical equipment. They were also used in fluorescent lighting fixtures, microscope oil, and hydraulic fluids.

Who is exposed to PCBs?

The two main sources of exposures to PCBs are from the workplace or from the environment. Exposures in the U.S. workplace rarely occur because PCBs are no longer manufactured, but PCBs may leak from the repair and maintenance of PCB transformers or old electrical devices. Persons may be exposed to PCBs by consuming PCB-contaminated fish, meat, or dairy products.

How can PCBs affect my health?

Workers exposed to PCBs in the air for a long period of time have experienced irritation of the nose and lungs, as well as skin irritation such as acne and rashes. Experimental animals that inhaled very high levels of PCBs had liver and kidney damage.

How likely are PCBs to cause cancer?

PCBs have been classified as probably carcinogenic by the U.S. Environmental Protection Agency (EPA), and as carcinogenic to humans by the International Agency for Research on Cancer (IARC). There are a few studies in workers exposed to PCBs that show associations with cancer of the liver and biliary tract. Rats exposed to high levels of PCBs in their food developed liver cancer. In a long-term study, PCBs caused cancer of the liver in animals that ate certain PCB mixtures throughout their lives. It is not known if the effects seen in animals would occur in people.

How can PCBs affect children?

Babies can be exposed to PCBs through breast milk or through the placenta. Babies born to women with high dietary PCB exposure were smaller and showed abnormal responses to tests of infant behavior. Some of those behaviors lasted several years. There is no evidence of these health effects in older children, or of birth defects caused by PCB exposure. In most cases, the benefits of breast-feeding outweigh the risks of PCB exposure in mothers' milk.

Is there a medical test to show whether I have been exposed to PCBs?

Tests are available to determine if PCBs are in your blood, body fat, and breast milk. These tests cannot show the exact amount or type of PCBs you were exposed to or for how long you were exposed, and do not predict whether you will experience harmful health effects. Blood tests are the best method for detecting recent exposures to large amounts of PCBs. Fat biopsies (small amounts of fat taken with a needle and syringe) may be better than blood tests for determining whether you were ever exposed to PCBs, but are not routinely available at your doctor's office. Nearly everyone

has been exposed to PCBs because these chemicals are found throughout the environment, and nearly all persons are likely to have detectable amounts of PCBs in their blood, fat, or breast milk.

How can I reduce the risk of exposure to PCBs?

You can reduce exposure to ingesting PCBs in contaminated fish by following fish consumption advisory recommendations set by state and federal government agencies. Virginia's fish consumption advisories can be found at:

<http://www.vdh.virginia.gov/environmental-epidemiology/public-health-toxicology/fish-consumption-advisories/>.

Children should be discouraged from playing with old appliances and electrical equipment that may contain PCBs. Children should also be discouraged from playing in dirt near hazardous waste sites or in areas where there was a transformer fire. After playing in dirt, children should wash their hands.

If you are exposed to PCBs at work, shower and change clothes before leaving work and launder work clothes separately from your other clothes.

Has the federal government made recommendations to protect human health?

EPA has set a maximum contaminant level (MCL) for PCBs of 0.0005 milligrams per liter (mg/L) of drinking water. The EPA requires that spills or accidental releases into the environment of one pound or more of PCBs be reported to the EPA. The U.S. Food and Drug Administration (FDA) has established PCB tolerances for several foods and food-related items. These generally range from as low as 0.2 parts per million (ppm) in infant foods to as high as 3.0 ppm in red meat.

Where can I get more information about PCBs?

- If you have concerns about PCBs, contact your healthcare provider.
- Call your local health department. A directory of local health departments is located at <http://www.vdh.virginia.gov/local-health-districts/>. Contact the Virginia Department of Health at (804) 864-8127 or at toxicology@vdh.virginia.gov.
- Visit the Agency for Toxic Substances and Disease Registry website at <https://www.atsdr.cdc.gov/substances/toxsubstance.asp?toxid=26>.

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