

# What You Need To Know About PCBs

## What are Polychlorinated biphenyls (PCBs)?

Polychlorinated biphenyls (PCBs) belong to a family of organic chemicals called chlorinated hydrocarbons that contain chlorine, carbon and hydrogen atoms. They are mixtures of 209 chlorinated compounds (called congeners) that are no longer produced in the United States, but that linger in the environment to this day. They are man-made; have no smell or taste; can be solids, oily liquids or vapors and are colorless to light yellow.

What are PCBs Used For?

PCBs were used as lubricants and coolants in capacitors, transformers and other electrical equipment, because they are good insulators and do not burn easily. Before they were banned in 1979, PCBs were also widely used in:

- Oil-based paints
- plastics and rubber products
- fluorescent light fixtures
- caulking
- pigments, dyes and carbonless copy paper
- floor finish
- thermal insulation materials
- oil used in motors and hydraulic systems
- cable insulation

Because they do not easily break down in the environment and can cause harmful health effects, manufacturers stopped making PCBs in the U.S. after 1977. However, products such as old fluorescent lighting fixtures, caulking, electrical devices with PCB capacitors, old microscopes and hydraulic oils that were produced before 1977 may still contain PCBs.

## How Might I be Exposed to PCBs?

Old fluorescent lighting fixtures, caulking, electrical devices and appliances can leak small amounts of PCBs into the air. This is why there is such a concern about schools built between the early 1950's and the late 1970's. It is estimated that as many as one third of these schools may contain PCBs in caulking, masonry and fluorescent lighting fixtures that are leaking into the air, exposing students and teachers. Stable and persistent, PCBs may also be lurking in thousands of old buildings nationwide that have not been renovated.

You may also be exposed to PCBs in contaminated water, soil and air if you live near a hazardous waste site, landfill or factory where PCBs, PCB laden oil or PCB transformers were

illegally or improperly disposed of. In addition, workers who repair old transformers, remove old fluorescent lighting fixtures or dispose of PCB materials may also come into contact with PCBs. Finally, you may be exposed if you eat food such as fish, meat or dairy that is contaminated with PCBs. PCBs are easily absorbed by the body and are stored in fatty tissue, and because they are not easily eliminated, PCBs can accumulate in the body and cause problems.

## **What Happens to PCBs in the Environment?**

PCBs are still being released into the environment from: hazardous waste sites and old industrial sites that improperly or illegally disposed of PCBs; disposal of PCBs in landfills not designed to handle hazardous waste: leaks from electrical transformers that contain PCBs: or the burning of certain wastes in municipal or industrial incinerators. Unfortunately, these PCBs do not break down easily and may remain in the environment for a long time. They can travel long distances in the air, bind strongly to soil and are only partially dissolved in water, while the rest sticks to particles or sediment.

## **How Can PCBs Affect My Health?**

PCBs have been categorized as carcinogenic to humans (Group 1) by the International Agency for Research on Cancer and probably carcinogenic to humans by the US Environmental Protection Agency, based on conclusive studies in animals and various studies in humans. These studies have shown an increased risk of the following cancers in people who have significant exposure to PCBs:

- malignant melanoma
- brain cancer
- liver cancer
- biliary tract cancer
- non-Hodgkin lymphoma
- breast cancer
- multiple myeloma
- prostate cancer
- rectal cancer
- stomach cancer

PCBs can also affect the immune system, endocrine system, reproductive system, and nervous system in the following significant ways:

- Decrease in size of the thymus gland
- Reductions in the response of the immune system
- Decreased resistance to Epstein-Barr virus and other infections
- Elevated blood pressure, serum triglyceride and serum cholesterol

- Decreased thyroid hormone levels which are critical for normal growth and development
- Skin conditions like chloracne and rashes
- Irritation of eyes, nose, lungs and throat
- Headaches
- Numbness, weakness, tingling in arms and legs

Reproductive effects:

- Decreased birth weight and a significant decrease in gestational age
- Decreased live birth rate
- Lower sperm count

Neurological effects:

- persistent and significant deficits in neurological development, including visual recognition
- short-term memory deficits
- learning deficits

### **Is there a Medical Test That Shows Whether I Have Been Exposed to PCBs?**

There are tests that can measure if you have elevated levels of PCBs in blood, body fat or breast milk, from above normal exposure to PCBs in the past. A blood test is the best method for measuring exposure to large amounts of PCBs. However, the results cannot determine when or how long you were exposed and do not predict health effects or treatment.

### **How Can I Reduce my Family's Risk of Exposure to PCBs?**

1. Get your private well tested.
2. Check for an oily film or fuel odor in your well water.
3. You may have a submersible pump in your well that has failed and is leaking PCBs. Replace it and contact the Dept. of Public Health for information on cleaning your well.
4. Avoid drinking water from contaminated sources. Drink bottled water until a solution is reached. Limit showers and baths or use bottled water.
5. If the PCB contamination is from an industrial site, landfill or hazardous waste site, demand the polluter connect your family to a clean water source.
6. Prevent children from playing in the dirt if you live near a site contaminated with PCBs.
7. Have the soil in your yard tested for PCBs.
8. Demand that the polluter clean up the contaminated groundwater and soil.
9. Most importantly demand that the polluter clean up the contamination on their property.
10. Insist that your child's school be tested for PCBs if it was built before 1979.
11. Demand your school district remove any PCBs found in local schools.
12. Stay away from streams and lakes that are contaminated with PCBs.

13. Have old fluorescent lighting fixtures containing PCBs removed from your home or office.
14. Avoid eating fish and wildlife from areas contaminated with PCBs.
15. If you are exposed to PCBs in the workplace, shower and change clothes before leaving work.
16. Contact an experienced environmental lawyer to help you.

### **What Should I Do if I'm Concerned My Health May be Affected?**

1. See your family doctor or an occupational doctor familiar with chemical exposure. Let him or her know if you have been exposed to PCBs and bring any PCB test results.

### **PCBs May Also be Labeled as:**

Aceclor, Adkarel, ALC, Apirolio, Arochlor(s), Aroclor(s), Arubren, Asbestol, ASK, Askael, Askarel, Auxol, Bakola, Chlorinated biphenyl, Chlophen, Chloretol, Chlorextol, Chlorinated diphenyl, Chlorphen, Chlorextol, Chlorinol, Clophen, Clophenharz, Cloresil, Clorinal, Clorphen, Decachlorodiphenyl, Declor, Delorene, Diaclor, Dicolor, Diconal, DK, Duconal, Dykanol, Educarel, EEC-18, Elaol, Electrophenyl, Elemex, Elinol, Eucarel, Fenchlor, Fenclor, Fenocloro, Gilotherm, Hydol, Hyrol, Hyvol, Inclor, Inerteen, Inertenn, Kanechlor, Kaneclor, Kennechlor, Kenneclor, Leromoll, Magvar, MCS 1489, Montar, Nepolin, No-Flamol, Non-Flamol, Olex-sf-d, Orophene, PCB, PCB's, PCBs, Pheaoclor, Phenochlor, Phenoclor, Plastivar, Polychlorinated biphenyl(s), Polychlorinated diphenyl(s), Polychlorobiphenyl, Polychlorodiphenyl, Prodelec, Pydrau, Pyraclor, Pyralene, Pyranol, Pyroclor, Pyronol, Saf-T-Kuhl, Saf-T-Kohl, Santosol, Santotherm, Santothern, Santovac, Solvol, Sorol, Soval, Sovol, Sovtol, Terphenychnore, Thermanal, Therminol, Turbinol.

<https://www.epa.gov/pcbs/learn-about-polychlorinated-biphenyls-pcbs#healtheffects>

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2791455/>

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1332650/>

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<http://www.idph.state.il.us/cancer/factsheets/polychlorinatedbiphenyls.htm>