



## INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

# Polychlorinated Biphenyls (PCBs)

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[www.idem.IN.gov](http://www.idem.IN.gov)

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**Description:**

- Polychlorinated biphenyls (PCBs) consist of a group of over 200 man-made synthetic, chlorinated and organic chemicals with the same basic chemical structure. There are no known natural sources of PCBs.
- PCBs are manufactured as oily liquids or solids and range from colorless to light yellow in color. They have no known smell or taste.
- Because PCBs are flame retardant, chemically stable, have a high boiling point and possess electrical insulating properties, they were used in hundreds of industrial and commercial applications. PCBs were used as coolants and lubricants in electrical, heat transfer and hydraulic equipment; as plasticizers which provided flexibility in paints, plastics, caulking, and rubber products; in pigments, dyes and carbonless copy paper; and for many other applications.
- The manufacture of PCBs was stopped in the United States in 1977 because of evidence they build up in the environment and can cause harmful health effects. More than 1.5 billion pounds of PCBs were manufactured in the United States prior to the end of their production.
- Some commercial PCB mixtures are known in the United States by their industrial trade name, such as Aroclor.

**How do PCBs Get Into the Environment**

- Prior to 1977, PCBs entered the air, water and/or soil during their manufacture, use and disposal; from accidental spills and leaks during transport; and from fires or leaks by products containing PCBs.
- Today, PCBs can be released into the environment from hazardous waste sites; through illegal or improper dumping of industrial wastes and consumer products; from leaks in old electrical transformers; or during the burning of some wastes in incinerators.
- Because PCBs do not readily break down in the environment, they remain for long periods of time.
- Released PCBs bind strongly to soil, organic particles and sediments.
- Although PCBs prefer to bind to soil and other particles, small amounts will dissolve in water.
- Small concentrations of PCBs can also evaporate and be carried long distances in the air.

**Environmental Impacts:**

- Fish and small organisms can absorb PCBs from the water and sediments in their habitat. The PCBs accumulate in the food chain when bigger fish consume contaminated smaller fish or organisms.
- The contamination is passed up the food chain and can reach levels thousands of times higher than the actual levels in the water.

**Health Impacts:**

- PCBs have been shown to cause cancer in animals and to cause a number of serious non-cancer health effects, including effects on the immune system, reproductive system, nervous system and endocrine system. Studies in humans provide supportive evidence for potential carcinogenic and non-carcinogenic effects of PCBs.

- The Food and Drug Administration requires testing on infant foods, eggs, milk and other dairy products, fish, shellfish, poultry and red meats to ensure they do not contain high levels of PCBs.
- Indiana has issued advisories to warn residents about any fish or fish-eating wildlife that may be contaminated with PCBs.

**IDEM's Role:**

- The Indiana Department of Environmental Management (IDEM) is responsible for protecting human health and the environment while providing for safe industrial, agricultural, commercial and governmental operations vital to a prosperous economy.
- IDEM also regulates the disposal, clean up and emission limits at wastewater treatment plants and smoke stacks.
- Public drinking water supplies are also regulated, and water systems are checked for concentrations of PCBs.

**Citizen's Role:**

- There are a number of actions every citizen can take to reduce their potential exposure to PCBs, such as:
  - Avoid using old fluorescent lighting fixtures and old appliances such as televisions and refrigerators that were made more than 30 years ago. These may leak small amounts of PCBs during operation.
  - Ensure that wild caught fish and game, or animals raised for personal consumption have not been contaminated with PCBs.
  - Use appropriate respiratory protection around PCB waste sites and do not drink contaminated well water.
  - Take precautions when replacing, repairing or maintaining materials containing PCBs, and equipment such as old capacitors, fluorescent lighting ballasts, and transformers.

**Additional Information:**

- For questions or concerns regarding PCBs, please call the Industrial Waste Section of IDEM's Office of Land Quality at (317) 234-6932, or (800) 451-6207, ext. 4-6932.
- For health related concerns, please visit the Agency for Toxic Substances and Disease Registry's "ToxFAQs" website at [www.atsdr.cdc.gov/substances/toxsubstance.asp?toxid=26](http://www.atsdr.cdc.gov/substances/toxsubstance.asp?toxid=26).