



---

## *CDC's Third National Report on Human Exposure to Environmental Chemicals*

### **Spotlight on Non-Dioxin-Like Polychlorinated Biphenyls**

No longer produced in the United States but still found in the environment, non-dioxin-like polychlorinated biphenyls (PCBs) are either solids or oily liquids that are colorless to light yellow. PCBs also can exist as vapor in air. PCBs have been used as coolants and lubricants in transformers, capacitors, and other electrical equipment because they do not burn easily and are good insulators.

In 1977, the manufacture of PCBs was stopped in the United States because of evidence that they built up in the environment and could harm health. Products made before 1977 that may contain PCBs include old fluorescent lighting fixtures and electrical appliances containing PCB capacitors and other electrical equipment.

Today PCBs still can be released into the environment from poorly maintained hazardous waste sites; illegal or improper dumping of PCB wastes, such as old transformer fluids; leaks or releases from electrical transformers containing PCBs; and disposal of PCB-containing consumer products into municipal or other landfills not designed to handle hazardous waste. PCBs may be released into the environment by the burning of some wastes in municipal and industrial incinerators.

#### **How People Are Exposed to Non-Dioxin-Like PCBs**

People can be exposed to PCBs by

- Using old fluorescent lighting fixtures and electrical devices and some appliances made 30 or more years ago. These items may leak small amounts of PCBs into the air when they get hot during operation and could be a source of exposure. People can be exposed to PCBs while repairing and maintaining PCB transformers in the workplace. Accidents, fires, or spills involving transformers, fluorescent lights, and other old electrical devices also may lead to exposure.
- Eating foods contaminated with PCBs. The main dietary sources of PCBs are fish, meat, and dairy products.
- Breathing air near hazardous waste sites and drinking well water contaminated with PCBs.

## How Non-Dioxin-Like PCBs Affect People's Health

- Skin conditions, such as acne or rashes, may occur in people exposed to high levels of PCBs in the workplace or after accidental exposures. Studies in exposed workers have shown changes in blood and urine that may indicate liver damage. PCB exposures in the general population are not likely to result in skin and liver effects.
- The most likely way infants are exposed to PCBs is from the mother's blood during gestation and from breast milk that contains PCBs. Some studies have shown an association between infant exposure to PCBs and lower scores on developmental tests.
- The U.S. Environmental Protection Agency and the International Agency for Research on Cancer have classified some PCBs as probable human carcinogens. PCBs have been associated with other possible health effects including effects on the immune, reproductive, nervous, and endocrine systems.

## Levels of Non-Dioxin-Like PCBs in the U.S. Population

- For the *Third Report*, scientists tested serum samples from people 12 years and older who took part in CDC's national study known as the National Health and Nutrition Examination Survey (NHANES). Measuring PCBs in serum can reflect either recent or past exposure. Some PCBs can persist in the body for years after exposure.
- Measuring PCBs at the levels in the *Third Report* is possible because of advances in analytical chemistry. More research is needed because we do not know whether the levels measured in NHANES are of concern.
- The data in the *Third Report* will provide physicians with a reference range so that they can determine whether people have been exposed to higher levels of PCBs than those found in the general population.
- Information about levels of specific PCBs in the U.S. population is available in the *Third Report* at <http://www.cdc.gov/exposurereport>.

## For More Information

- **Agency for Toxic Substances and Disease Registry**  
Public Health Statement for Polychlorinated Biphenyls:  
<http://www.atsdr.cdc.gov/toxprofiles/phs17.html>  
ToxFAQs for Polychlorinated Biphenyls (PCBs):  
<http://www.atsdr.cdc.gov/tfacts17.html>

■ **U.S. Environmental Protection Agency**

PCBs:

<http://www.epa.gov/opptintr/pcb/>

■ **International Agency for Research on Cancer**

Polychlorinated Biphenyls:

<http://www-cie.iarc.fr/htdocs/monographs/suppl7/polychlorinatedbiphenyls.html>

---

NCEH Pub 05-0664  
July 2005

*The Centers for Disease Control and Prevention (CDC) protects people's health and safety by preventing and controlling diseases and injuries; enhances health decisions by providing credible information on critical health issues; and promotes healthy living through strong partnerships with local, national, and international organizations.*