Consumer Factsheet on: POLYCHLORINATED BIPHENYLS

List of Contaminants

As part of the Drinking Water and Health pages, this fact sheet is part of a larger publication:
National Primary Drinking Water Regulations

This is a factsheet about a chemical that may be found in some public or private drinking water supplies. It may cause health problems if found in amounts greater than the health standard set by the United States Environmental Protection Agency (EPA).

What are PCBs and how are they used?

Polychlorinated biphenyls (PCBs) are a group of organic chemicals which can be odorless or mildly aromatic solids or oily liquids. They were formerly used in the USA as hydraulic fluids, plasticizers, adhesives, fire retardants, way extenders, de-dusting agents, pesticide extenders, inks, lubricants, cutting oils, in heat transfer systems, carbonless reproducing paper.

The list of trade names given below may help you find out whether you are using this chemical at home or work.

Trade Names and Synonyms:

PCB
Chlorinated diphenyl
Clophen
Kanechlor
Aroclor
Fenclor
Chlorextol
Dykanol
Inerteen
Monter
Pyralene
Santotherm
Sovol
Therminol
Noflamol

Why are PCBs being Regulated?

In 1974, Congress passed the Safe Drinking Water Act. This law requires EPA to determine safe levels of chemicals in drinking water which do or may cause health problems. These non-enforceable levels, based solely on possible health risks and exposure, are called Maximum Contaminant Level Goals.

The MCLG for PCBs has been set at zero because EPA believes this level of protection would not cause any of the potential health problems described below.

Based on this MCLG, EPA has set an enforceable standard called a Maximum Contaminant Level (MCL). MCLs are set as close to the MCLGs as possible, considering the ability of public water systems to detect and remove contaminants using suitable treatment technologies.

The MCL has been set at 0.5 parts per billion (ppb) because EPA believes, given present technology and resources, this is the lowest level to which water systems can reasonably be required to remove this contaminant should it occur in drinking water.

These drinking water standards and the regulations for ensuring these standards are met, are called National Primary Drinking Water Regulations. All public water supplies must abide by these regulations.

What are the Health Effects?

Short-term: EPA has found PCBs to potentially cause the following health effects when people are exposed to it at levels above the MCL for relatively short periods of time: acne-like eruptions and pigmentation of the skin; hearing and vision problems; spasms.

Long-term: PCBs has the potential to cause the following effects from a lifetime exposure at levels above the MCL: effects similar to acute poisonings; irritation of nose, throat and gastrointestinal tracts; changes in liver function; cancer.

How much PCBs are produced and released to the environment?

Production of PCBs has decreased drastically: from over 86 million lbs. in 1970 to 35 million lbs in 1977. Since EPA banned most uses of PCBs in 1979, current releases are due mainly to the cycling of this persistent contaminant from soil to air to soil again. PCBs are also currently released from landfills, incineration of municipal refuse and sewage sludge, and improper (or illegal) disposal of PCB materials, such as waste transformer fluid, to open areas.

From 1987 to 1993, according to EPA's Toxic Chemical Release Inventory, PCB releases to land and water totalled over 74,000 lbs. The bulk of these releases occurred in 1990 and were primarily from non-ferrous wire drawing and insulating industries. The largest releases occurred in California.

What happens to PCBs when they are released to the environment?

PCBs are very persistent in soil and water, with no known break down processes other than slow degradation by microbes. They adhere to soils or evaporate, and so will not usually leach to ground water. PCB-contaminated sediments in lakes or rivers can slowly release PCB back into water, from which it eventually evaporates.

How will PCBs be Detected in and Removed from My Drinking Water?

The regulation for PCBs became effective in 1992. Between 1993 and 1995, EPA required your water supplier to collect water samples every 3 months for one year and analyze them to find out if PCBs are present above some lowest detectable level. If it is present above this level, which differs for each type of PCB, the system must continue to monitor this contaminant.

If contaminant levels are found to be consistently above the MCL, your water supplier must take steps to reduce the amount of PCBs so that it is consistently below that level. The following treatment methods have been approved by EPA for removing PCBs: Granular activated charcoal.

How will I know if PCBs are in my drinking water?

If the levels of PCBs exceed the MCL, 0.5 ppb, the system must notify the public via newspapers, radio, TV and other means. Additional actions, such as providing alternative drinking water supplies, may be required to prevent serious risks to public health.

Drinking Water Standards:

Mclg: zero

Mcl: 0.5 ppb

PCB Releases to Water and Land, 1987 to 1993 (in pounds):

		Water	Land
TOTALS (in pounds)		**784**	**73,632**
Top Five States			
CA	7	58,178	
NJ	0	13,188	
KY	250	750	
WA	0	998	
TN	255	251	
Major Industries			
Non-ferrous wire		0	58,178
Steel pipe/tubing		0	13,183
Pulp mills		0	998

Learn more about your drinking water!

EPA strongly encourages people to learn more about their drinking water, and to support local efforts to protect and upgrade the supply of safe drinking water. Your water bill or telephone book's government listings are a good starting point.

Your local water supplier can give you a list of the chemicals they test for in your water, as well as how your water is treated.

Your state Department of Health/Environment is also a valuable source of information.

For help in locating these agencies or for information on drinking water in general, call: EPA's Safe Drinking Water Hotline: (800) 426-4791.

For additional information on the uses and releases of chemicals in your state, contact the: Community Right-to-Know Hotline: (800) 424-9346