

# Polychlorinated biphenyls (PCBs) and drinking water

## What are PCBs and where do they come from?

PCBs are a mixture of individual liquid or solid chemicals that are odorless or mildly scented. PCBs are no longer produced in the United States, but were once used as flame retardants and in electrical components because of their resistance to burning and high insulation ability. PCBs were also added to inks, hydraulic fluids, lubricants, plastics and pesticides. PCBs have been shown to persist in the environment for long periods of time. PCBs can enter drinking water by runoff from landfills or industrial waste discharge or industrial incinerators.<sup>1-4</sup>

## How can PCBs affect my health?

PCBs are a health hazard. Children are particularly susceptible to the health effects of PCBs. Consuming water with high levels of PCBs over time can cause health effects such as:

- Acne and rashes
- Liver and kidney dysfunction
- Depression and fatigue
- Nose and lung irritation
- Increased risk of cancer
- Developmental problems in children<sup>2,3</sup>

## When do PCBs in drinking water become a health concern?

The federal government has established the safe drinking water standard (also called maximum contaminant level) for PCBs as 500 ppt (parts per trillion).<sup>1</sup> It is unsafe to drink water with higher concentrations of PCBs.

## What can I still use my water for if it is contaminated with PCBs?

Water contaminated with PCBs should not be used for drinking. A safe, alternate source of water should be used for drinking, beverage-making and food preparation. Other uses of water pose much less hazard, but are not entirely safe if PCBs levels are significantly above the drinking water limit.

## Can I wash my food with PCB-contaminated water?

If PCBs levels in your water are above 500 ppt, you should use water from a safe source to wash, prepare and cook your food.

## **Can I irrigate or water my garden with PCB-contaminated water?**

PCBs accumulate in soil. Once in soil, PCBs can be carried through the air and taken up by plants or inhaled. Therefore water containing PCBs above 500 ppt should not be used for irrigating or watering.<sup>2</sup>

## **What about bathing and showering?**

PCBs can enter the body through the skin. Bathing, swimming and showering with water containing PCBs above 500 ppt is not recommended.<sup>2</sup>

## **What about washing dishes, utensils and food preparation areas?**

PCBs in water used for washing dishes, utensils and food preparation might cling to smooth surfaces. Water contaminated with PCBs above 500 ppt should not be used to wash dishes, utensils or food preparation areas.

## **What about general cleaning and laundry?**

PCBs in water used for general cleaning and laundry may remain on washed surfaces and on laundered fabrics. Using water containing PCBs above 500 ppt is not recommended for general cleaning and washing of clothing, bedding and linens.

## **What about my pets?**

Animals should not be allowed to drink water with PCB levels above 500 ppt.

# **Learning about PCB levels in your drinking water**

## **For people on public water systems:**

Public drinking water providers must monitor for PCBs and ensure levels remain below the drinking water standard of 500 ppt. They must also make those results public. If your water comes from a public water system, you can find results on the Oregon Drinking Water Services [Data Online](#) website. If you are on a community water system, your drinking water provider must provide a [Consumer Confidence Report](#) to its customers every year. This report contains the most recent PCB test results if detected. Contact your drinking water provider to request a copy of the most recent consumer confidence report.

## **For private well owners:**

If your drinking water comes from your own well, you will have to find an accredited laboratory that does water testing for private property owners. These labs can provide information and instructions for getting your well water tested. For a list of accredited laboratories for drinking water in Oregon, refer to the following [link](#).

# Removing PCBs from drinking water

## Don't boil the water!

There is no evidence that boiling removes PCBs.

## For operators of public drinking water system:

PCBs can be reduced below 500 ppt in drinking water using granular activated carbon filtration.<sup>1</sup> Work with a professional engineer to determine the most appropriate treatment for your system. Not all kinds of treatment are effective, and no single treatment method can remove all contaminants from water. Alternatives to treatment include developing a different water source or connecting to another safe water source in the area. Avoid using piping or pump components that may contain PCBs and treating water from industrial discharge sites or runoff from landfills. Treatment has limitations and disadvantages. Before deciding on treatment equipment, contact [Oregon Drinking Water Services](#) for regulatory requirements for public water systems.

## Private well treatment options:

Treatment options are available to remove PCBs from well water. The most commonly used is called granular activated carbon filtration. Options include central treatment (at the well or entry to home) or a point-of-use device (kitchen sink filter).

Check to be sure any treatment system used, including replacement parts, is certified by a recognized, third-party testing organization that meets strict testing procedures established by the [American National Standards Institute](#) (ANSI) and [National Sanitation Foundation](#) (NSF) International. Proof of certification should be available through the manufacturer. Alternatively, NSF certification for various treatment units may be verified through NSF or the [Water Quality Association](#).

Treatment equipment must be carefully maintained in order to work properly and might not be effective if PCBs levels are very high. It is recommended that treated water be tested at least once a year. Untreated water should be tested at least every three years.

## For more information

- Private well owners with health-based questions and concerns about PCBs in their water can call 971-673-0440 or email [general.toxicology@state.or.us](mailto:general.toxicology@state.or.us).
- For questions about treatment options for your domestic well, contact the drinking water specialist at your local or county health department. Here is a [list of local and county health departments](#) in Oregon with their contact information.
- [U.S. Environmental Protection Agency](#) – Basic Information about polychlorinated biphenyls (PCBs) in drinking water

## References

1. USEPA. Basic Information about Polychlorinated Biphenyls (PCBs) in Drinking Water. <http://water.epa.gov/drink/contaminants/basicinformation/polychlorinated-biphenyls.cfm> (2014).
2. ATSDR. Toxicological Profile for Polychlorinated Biphenyls (PCBs). [www.atsdr.cdc.gov/toxprofiles/tp17.pdf](http://www.atsdr.cdc.gov/toxprofiles/tp17.pdf) (2000).
3. ATSDR. Addendum to the Toxicological Profile for Polychlorinated Biphenyls (PCBs). [www.atsdr.cdc.gov/toxprofiles/pcbs\\_addendum.pdf](http://www.atsdr.cdc.gov/toxprofiles/pcbs_addendum.pdf) (2011)
4. OEHHA. Public Health Goal for Water Soluble Polychlorinated Biphenyls Expected to be Found in Drinking Water. [www.oehha.ca.gov/water/phg/pdf/PCBphg10052007.pdf](http://www.oehha.ca.gov/water/phg/pdf/PCBphg10052007.pdf) (2007).



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