

Carbon tetrachloride and drinking water

Carbon tetrachloride is a synthetic liquid used as a solvent and in the production of paints and plastics.¹ Carbon tetrachloride can get into drinking water from industry discharge.²

How can carbon tetrachloride affect my health?

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

- Kidney damage³
- Liver problems
- Increased risk of cancer²

When does carbon tetrachloride in drinking water become a health concern?

Carbon tetrachloride is measured in parts per billion (ppb). The federal government has established the safe drinking water standard (also called maximum contaminant level) for carbon tetrachloride as 5 ppb.

What can I still use my water for if it is contaminated with carbon tetrachloride?

Water for drinking, beverage-making or food preparation can be obtained from a known safe source and used on a temporary basis. Other uses of water pose much less hazard, but are not entirely safe if carbon tetrachloride levels are significantly above the drinking water limit.

Can I wash my food with water contaminated with carbon tetrachloride?

If carbon tetrachloride levels in your water are above 5 ppb, you should use bottled water or water from a safe source to wash, prepare and cook your food.

Can I irrigate or water my garden with water contaminated with carbon tetrachloride?

Carbon tetrachloride cannot be taken up by plants, however, carbon tetrachloride can be absorbed onto organic material in soil and migrate into groundwater.⁴ Therefore water above 5 ppb carbon tetrachloride should not be used for irrigating or watering.

What about bathing and showering?

Carbon tetrachloride does not easily enter the body through the skin. However, carbon tetrachloride easily releases from water into the air, so bathing and showering with carbon tetrachloride-contaminated water may increase exposure through breathing. Bathing, swimming and showering with water contaminated with carbon tetrachloride is not recommended.¹

What about washing dishes, utensils and food preparation areas?

Only a very small amount of water clings to smooth surfaces, such as dishes. Water contaminated

with carbon tetrachloride can be safely used to wash and sanitize dishes, tables and eating utensils.

What about general cleaning and laundry?

Very little water remains on washed surfaces and in laundered fabrics. Water contaminated with carbon tetrachloride can be safely used for general cleaning and washing of clothing, bedding and linens.

What about my pets?

Animals should not drink water with carbon tetrachloride levels above 5 ppb.

Learning about carbon tetrachloride levels in your drinking water

For people on public water systems:

Public drinking water providers must monitor for carbon tetrachloride and ensure levels remain below the drinking water standard of 5 ppb. Public water system monitoring results are available on the Oregon Drinking Water Services [Data Online](#) website. If your water comes from a community water system (you pay a water bill) your drinking water provider must provide a [Consumer Confidence Report](#) to its customers every year. This report contains the most recent carbon tetrachloride 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 carbon tetrachloride from drinking water

Don't boil the water!

There is no evidence that boiling removes carbon tetrachloride. Boiling the water may also increase the risk of breathing carbon tetrachloride in the steam or concentrating the carbon tetrachloride even more.

For operators of public drinking water systems:

Carbon tetrachloride can be reduced below 5 ppb in drinking water using granular activated carbon filtration or packed tower aeration. Work with a professional engineer to determine the best 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. 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 carbon tetrachloride from well water. The most commonly used is granular activated carbon filtration. Options include central treatment (at the well or entry to home) or a point-of-use device (kitchen sink filter). A point-of-use device will not protect against the breathing risk from showering or bathing from taps not treated with the device.

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

Treatment equipment must be carefully maintained to work properly and might not be effective if carbon tetrachloride 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-related questions and concerns about carbon tetrachloride in their water can call 971-673-0440 or email 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 carbon tetrachloride in drinking water

References

1. ATSDR. 2005. Toxicological Profile on Carbon Tetrachloride.
2. USEPA. 2013. Basic Information about Carbon Tetrachloride in Drinking Water.
3. OEHHA (ed California Environmental Protection Agency). 2000. Public Health Goals for Chemicals in Drinking Water: Carbon Tetrachloride.
4. WHO. 2004. Carbon Tetrachloride in Drinking Water.