

# Toluene and drinking water

## What is toluene and where does it come from?

Toluene is mainly used as a solvent and in the process of making other chemicals. It can get into drinking water through discharge from industrial plants.<sup>1</sup> Toluene can also leach from coatings used to protect drinking water storage tanks.<sup>2</sup>

## How can toluene affect my health?

Toluene is a health hazard. Children are particularly susceptible to the health effects of toluene. Drinking water with high levels of toluene over long periods of time can cause health effects such as:

- Kidney and liver dysfunction<sup>1</sup>
- Nervous system damage

## When does toluene in drinking water become a health concern?

Toluene is measured in parts per million (ppm). The federal government has established the safe drinking water standard (also called maximum contaminant level) for toluene as 1 ppm.<sup>1</sup>

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

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 toluene levels are significantly above the drinking water limit.

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

If toluene levels in your water are above 1 ppm, 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 toluene-contaminated water?

There is evidence that toluene can be absorbed by plants, however, toluene easily degrades in soil and water and does not normally accumulate. Water above the 1 ppm limit can be used for irrigating or watering.<sup>3,4</sup>

## What about bathing and showering?

Toluene can be absorbed through the skin. Toluene can also be released into the air from contaminated water during activities such as bathing or showering. Bathing, swimming and showering with toluene-contaminated water is not recommended.<sup>4</sup>

## 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 toluene 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 with toluene can be safely used for general cleaning and washing of clothes, bedding and linens.

## What about my pets?

Animals should not drink water with toluene levels above 1 ppm.

# Learning about toluene levels in your drinking water

## For people on public water systems:

Public drinking water providers must monitor for toluene and ensure levels remain below the drinking water standard of 1 ppm. 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 toluene 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 toluene from drinking water

## Don't boil the water!

There is no evidence that boiling removes toluene and boiling could increase risk of breathing in toluene in contaminated steam.

## For operators of public drinking water systems:

Toluene can be reduced below 1 ppm in drinking water using granular activated carbon filtration or packed tower aeration.<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. Before selecting treatment equipment, contact [Oregon Drinking Water Services](#) for regulatory requirements for public water systems.

## Private well treatment options:

Treatment options are available to remove toluene from well water. The most commonly used is granular activated carbon filtration. Options include central treatment (at the well or at entry to home) or a point-of-use device (kitchen sink filter). A point-of-use device will not protect against inhalation risk from showering or bathing from taps not treated with a 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 from the distributor or 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 toluene 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 that have health-related questions about toluene 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 toluene in drinking water

## References

1. USEPA. Basic Information about Toluene in Drinking Water. <http://water.epa.gov/drink/contaminants/basicinformation/toluene.cfm> (2012).
2. WHO. Toluene in Drinking Water. [www.who.int/water\\_sanitation\\_health/dwq/chemicals/toluene.pdf](http://www.who.int/water_sanitation_health/dwq/chemicals/toluene.pdf) (2004).
3. USEPA. Technical Factsheet on: Toluene. [www.epa.gov/safewater/pdfs/factsheets/voc/tech/toluene.pdf](http://www.epa.gov/safewater/pdfs/factsheets/voc/tech/toluene.pdf) (n.d.)
4. ATSDR. Toxic Substances Portal-Toluene. [www.atsdr.cdc.gov/PHS/PHS.asp?id=159&tid=29](http://www.atsdr.cdc.gov/PHS/PHS.asp?id=159&tid=29) (2011).



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