

Ethylbenzene and drinking water

What is ethylbenzene and where does it come from?

Ethylbenzene is a clear, sweet-smelling liquid used as a solvent for coatings. It is also used to produce styrene, rubber and plastic wrap.¹ Ethylbenzene is sometimes used as a fuel additive.² Drinking water can become contaminated with ethylbenzene through continuous spills of fuel from leaking underground tanks² and discharge from petroleum refineries.¹

How can ethylbenzene affect my health?

Ethylbenzene is a health hazard. Young children, pregnant women and individuals with hearing loss and respiratory system, liver, kidney or skin disease are particularly susceptible to the health effects of ethylbenzene.² Drinking water with high levels of ethylbenzene over long periods of time can cause health effects such as:

- Hearing damage²
- Liver and kidney problems¹
- Skin irritation
- Increased risk of cancer²

When does ethylbenzene in drinking water become a health concern?

Ethylbenzene is measured in parts per billion (ppb). The federal government has established the safe drinking water standard (also called maximum contaminant level) for ethylbenzene as 700 ppb.

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

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 ethylbenzene levels are significantly above the drinking water limit.

Can I wash my food with ethylbenzene-contaminated water?

If ethylbenzene levels in your water are above 700 ppb, you should use water from a safe source to wash, prepare and cook your food.

Can I irrigate or water my garden with ethylbenzene-contaminated water?

It has not been demonstrated that ethylbenzene can be taken up by plants. However, ethylbenzene has been shown to moderately accumulate in soil and migrate to groundwater.² Water containing ethylbenzene above 700 ppb should not be used for irrigating or watering.

What about bathing and showering?

Ethylbenzene has been shown to be irritating to the skin.² Since ethylbenzene easily releases from

water into the air, bathing and showering with ethylbenzene-contaminated water may increase exposure through inhalation.² Bathing, swimming or showering with water contaminated with ethylbenzene above 700 ppb is not recommended.

What about washing dishes, utensils and food preparation areas?

Only a very small amount of water clings to smooth surfaces, such as dishes. Water with ethylbenzene 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 ethylbenzene can be safely used for general cleaning and washing of clothing, bedding and linens.

What about my pets?

Animals should not drink water with ethylbenzene levels above 700 ppb.

Learning about ethylbenzene levels in your drinking water

For people on public water systems:

Public drinking water providers must monitor for ethylbenzene and ensure levels remain below the drinking water standard of 700 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 ethylbenzene 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 ethylbenzene from drinking water

Don't boil the water!

There is no evidence that boiling removes ethylbenzene and boiling water may increase exposure by breathing in ethylbenzene during the boiling process.²

For operators of public drinking water systems:

Ethylbenzene can be reduced below 700 ppb in drinking water using granular activated carbon filtration. 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 ethylbenzene from well water. The most commonly used is called granular activated carbon filtration.¹ 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 ethylbenzene 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 and concerns about ethylbenzene 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 ethylbenzene in drinking water

References

1. USEPA. Basic Information about Ethylbenzene in Drinking Water. <http://water.epa.gov/drink/contaminants/basicinformation/ethylbenzene.cfm> (2014).
2. ATSDR. Toxicological profile for ethylbenzene. <http://www.atsdr.cdc.gov/toxprofiles/tp110.pdf> (2010).



This document can be provided upon request in an alternate format for individuals with disabilities or in a language other than English for people with limited English skills. To request this publication in another format or language, contact Drinking Water Services (DWS) at 971-673-0405 or 711 for TTY.