

Public Health Division offices will be closed Friday, March 23 due to state budget cuts. We will reopen Monday, March 26.



Arsenic

Arsenic in Drinking Water - Frequently Asked Questions

On this page:

- General information about arsenic and its health effects
- Safely using arsenic-contaminated water
- Learning about arsenic levels in your drinking water
- Removing arsenic from drinking water
- For more information

General information about arsenic and its health effects

What is arsenic and where does it come from?

Arsenic is a naturally occurring element found in the earth's crust. As water flows through certain rock formations, the arsenic can be dissolved and carried into underground aquifers, streams or rivers that may be used as drinking water sources.

When does arsenic in drinking water become a health concern?

Arsenic is measured in parts per billion (ppb). The federal government has established the safe drinking water standard (also called maximum contaminant level) for arsenic as 10 ppb. If your water has arsenic levels above 10 ppb, it is advisable to switch to bottled water.

How can arsenic affect my health?

Arsenic is a health hazard. Drinking water that has high levels of arsenic can cause health effects such as:

- Thickening and discoloration of the skin;
- Stomach pain, nausea, vomiting and diarrhea;
- Heart, lung, liver, immune, nervous or reproductive system disorders and diabetes; and
- Cancer of the bladder, lungs, skin, kidney, liver and prostate.

Safely using arsenic-contaminated water (See Table 1)

Can I wash my food with arsenic-contaminated water?

If arsenic levels in your water are above 10 ppb, you should use bottled water to wash, prepare and cook your food.

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

If your water has more than 100 ppb of arsenic, you should not use it for irrigation. Over a period of years, the amount of arsenic in the soil may build up to levels that are poisonous for some plants. An increase in soil arsenic may also pose a direct hazard to humans by accumulating in food crops.

What about bathing and showering?

Arsenic does not easily enter the body through the skin. Bathing, swimming and showering with water that has levels as high as 500 ppb is safe as long as you avoid swallowing the water. Supervise small children when they are bathing and brushing teeth to ensure they do not swallow the water.

Washing dishes, utensils and food preparation areas:

Only a very small amount of water clings to smooth surfaces, like dishes. Water having up to 500 ppb of arsenic can be safely used to wash and sanitize dishes, tables and eating utensils.

General cleaning and laundry:

Very little water remains on washed surfaces and in laundered fabrics. Because these articles are not placed in the mouth, water having up to 500 ppb of arsenic may be safely used for general cleaning and washing of clothing, bedding and linens.

What about my pets?

Animals should not drink water that is above 10 ppb.

Learning about arsenic levels in your drinking water

For people on municipal or public water systems:

Public drinking water providers are required to monitor for arsenic and ensure levels remain below the drinking water standard of 10 ppb. They are also required to make those results public. If your water comes from a public water system (i.e., you pay a water bill), you can find results on the Oregon Drinking Water Program's Data Online website. Your drinking water provider is also required to provide a Consumer Confidence Report to its customers every year. This report contains the most recent arsenic test results.

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 in Oregon, call the Oregon Environmental Laboratory Accreditation Program (ORELAP) at 503-693-4122 or visit: <http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Documents/acclab.pdf> (PDF).

Removing arsenic from drinking water

For Public Drinking Water System Operators:

Arsenic can be reduced or removed entirely from drinking water, but treatment processes are expensive and require careful maintenance and monitoring. Current treatments include activated alumina, electrodialysis, reverse osmosis and ion exchange resins. If treatment isn't possible for your system, you should consider developing a different water source or connecting to another safe water source in the area.

Water that is to be used for drinking, beverage-making or food preparation may be obtained from a known safe source and used on a temporary basis. Non-ingestion uses of water pose much less hazard, but are not entirely safe if arsenic levels are significantly above the drinking water limit. Treatment has limitations and disadvantages. Not all kinds of treatment are effective, and no single treatment method can remove all contaminants from water. Before deciding on treatment equipment, call for information and advice from the Oregon Drinking Water Program at 971-673-0405.

For Private Well Owners:

Don't boil the water!

Boiling contaminated water does not remove arsenic and can, in fact, increase arsenic levels.

Private well treatment options:

Several treatment methods can remove arsenic from drinking water. The one most commonly used is called reverse osmosis.

Treatment equipment must be carefully maintained in order to work properly, and may not be effective if arsenic 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 3 years.

Check to be sure that any treatment system to be used 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.

For more information

- Private well owners that have questions and concerns about arsenic in their water may contact the Office of Environmental Public Health at 971-673-0400 or by email at general.toxicology@state.or.us.
- US Environmental Protection Agency – Arsenic in Drinking Water
- Agency for Toxic Substances & Disease Registry – Arsenic

Updated: January 2012

Table 1. Safely using arsenic-contaminated water

Arsenic Level	Water Use	Recommendations
10 ppb or less	<ul style="list-style-type: none"> • SAFE for drinking, cooking and all other domestic uses 	<ul style="list-style-type: none"> • Test water once every 3 years
Between 10 and 99 ppb	<ul style="list-style-type: none"> • NOT SAFE for drinking, mixing into beverages, cooking or washing fruits and vegetables • NOT SAFE for pets to drink • SAFE for all other domestic uses, including bathing, washing dishes, doing laundry or irrigating gardens 	<ul style="list-style-type: none"> • Use bottled water (or approved water filtration system) for drinking, cooking and washing fruits and vegetables. • Use bottled water for pets. • Supervise children to help them avoid swallowing water while bathing, brushing teeth, etc. • If you have a treatment system, test treated water at least once a year. Test untreated water (pre-treatment unit) at least every 3 years
Between 100 and 499 ppb	<ul style="list-style-type: none"> • Same restrictions as above • NOT SAFE for irrigating gardens – arsenic may build up in soil over time and be taken up into vegetables • SAFE for all other domestic uses 	
500 ppb and greater	<ul style="list-style-type: none"> • NOT SAFE for any domestic uses 	<ul style="list-style-type: none"> • Contact your local or state health department or the Oregon Drinking Water Program at 971-673-0405