



Washington State Action Levels for PFAS in Drinking Water


WHEN AND HOW

TO LOWER YOUR EXPOSURE
TO PFAS IN DRINKING WATER:



 PFAS have been discovered above recommended federal and state safety levels in the drinking water supplies of millions of Americans, including in Washington State. Because it can take many years for our bodies to clear PFAS chemicals, exposure to levels above recommended limits could lead to harmful health effects.

 Washington State Action Levels (SALs) help you know when to take action to protect your health. If your tap water has PFAS above our SALs, take action to reduce PFAS in the water you drink and cook with.

 Limiting PFAS exposure is the best way to protect yourself and your family. The sooner you lower your PFAS exposure, the sooner your body can start clearing PFAS.

Installing a PFAS-reducing water filter on your kitchen sink can help lower PFAS levels in your drinking and cooking water.

Follow the advice on the back page if PFAS levels in your drinking water are higher than our SALs.

Our SALs are based on the best available science, and may be updated as we get more information on PFAS health impacts.

Water tests from private labs sometimes give results with different measurements, or "units", than parts per trillion. Our SALs are shown here in these other common units.

PFAS CHEMICALS	SAL in parts per trillion (ppt)	SAL in nanograms per liter (ng/L)	SAL in micrograms per liter (ug/l)	SAL in parts per billion (ppb)
PFOA (perfluorooctanoic acid)	10 ppt	10 ng/l	0.010 ug/l	0.010 ppb
PFOS (perfluorooctane sulfonic acid)	15 ppt	15 ng/l	0.015 ug/l	0.015 ppb
PFNA (perfluorononanoic acid)	9 ppt	9 ng/l	0.009 ug/l	0.009 ppb
PFHxS (perfluorohexane sulfonic acid)	65 ppt	65 ng/l	0.065 ug/l	0.065 ppb
PFBS (perfluorobutane sulfonic acid)	345 ppt	345 ng/l	0.345 ug/l	0.345 ppb

Who should follow the State Action Levels (SALs) advice?

All people drinking water with PFAS above our SALs should act to lower their PFAS levels. This is especially important for sensitive groups, like pregnant people, people who may become pregnant, breastfeeding people and their infants, infants drinking formula mixed with tap water, and children under 5. These groups usually drink more water than most people, and are more vulnerable due to their life stage.

Why should I reduce my exposure to PFAS?

There is strong evidence from animal studies and supporting evidence from human studies that PFAS can harm human health. For people, having higher PFAS levels in your body could: interfere with your immune system and make some vaccinations less effective, increase your risk for kidney cancer, high cholesterol, and lower birthweights. PFAS may also increase your risk for other cancers (like testicular cancer), thyroid disease, high blood pressure during pregnancy, and other reproductive issues.

Your risk of developing health problems depends on how much, how often, and how long you were exposed. Age, lifestyle, and overall health can impact how your body responds to PFAS exposure. The best way to protect yourself and your family is to lower your exposure.

Point Of Use (POU) water filters can help lower PFAS levels

Some POU water filters can reduce PFAS. These filters often come in "Under the Sink" or "Countertop" styles. PFAS-reducing POU filters are usually granular activated carbon filters certified by the National Standards Federation to reduce PFOA and PFOS (NSF/ANSI Standard 53, must include claim of PFOA/PFOS

reduction), or reverse osmosis filters. See our factsheet (<https://doh.wa.gov/sites/default/files/2022-10/331-699.pdf>)

for help deciding which type best fits your needs and how to find a filter.



"Under the Sink" Style Filter



"Countertop" Style Filter

A note on watering your garden and livestock

We're still learning what PFAS levels are safe for watering gardens and livestock. We know plants can soak up certain PFAS from soil and irrigation water. How much PFAS exposure you get from eating PFAS-contaminated plants depends on soil condition, the type of plant, the type of PFAS, and PFAS levels in the soil and water. We also know that farm animals who drink PFAS can pass the PFAS into their eggs and milk, or meat. There are no regulations or guidelines for eating plants and animal products contaminated with PFAS.

If you are concerned, consider filtering water used for gardening and livestock. For gardening, we recommend you:

- Wash or scrub all dirt off produce before eating to avoid swallowing soil.
- Peel and wash all root vegetables before eating.
- Use rainwater for garden irrigation.
- Add clean compost to your garden soil. Increasing the organic content of your garden soil can reduce the amount of PFAS your plants pick up from the soil.

For a list of certified PFAS water-testing labs, visit <https://doh.wa.gov/sites/default/files/2022-09/221-700.pdf>

For a more information on PFAS, visit <https://doh.wa.gov/community-and-environment/contaminants/pfas>



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Manganese in Drinking Water

What Customers Should Know

Manganese is a naturally occurring mineral found in rocks, groundwater, and surface water. Small amounts of manganese are essential nutrients for humans. Your body needs some manganese to stay healthy, but too much can be harmful, especially to infants.

Manganese in your water can also stain your laundry and create a brownish-black or black stain on your toilet, shower, bathtub, or sink. Manganese can make your water look, smell, or taste bad.



Why is manganese a problem?

Research worldwide has given us a more complete understanding of how manganese interacts with drinking water systems and its human health impacts. Current research suggests:

- Exposure to manganese above 0.1 mg/L has been associated with increased risks for negative health outcomes for children under 5 years of age.
- Manganese builds up in water pipes, potentially resulting in drinking water with manganese at much higher levels than are present in the source water.
- The buildup of manganese in pipes can absorb other metals that may also be in water, like lead or arsenic. When water quality changes, the build-up of all these contaminants may release rapidly in high amounts.
- We cannot rely on the taste or look of drinking water to know if there are high levels of manganese of concern to human health because it may not be visible or noticeable when dissolved in the water.

Is manganese of particular concern for infants?

Yes, infants are the most sensitive age group to excess manganese. Too much manganese exposure during their development can cause learning and behavioral problems. Even short-term exposures to elevated manganese in drinking water (0.1 mg/L) during early childhood have been shown to increase the likelihood of a neurodevelopmental disorder diagnosis (Schullehner et al (2020)).



While manganese is included in baby formula to support healthy development, too much can cause negative health effects. Manganese is a "goldilocks compound." Too much or too little is harmful – you need just the right amount. When manganese levels in drinking water are above 0.3 mg/L, infants under 6 months of age should immediately stop consuming the water or formula prepared with the water.

What you can do

- If your drinking water is above 0.05 mg/L, contact your water system provider, and ask them to install water treatment for manganese removal on the water system sources.
- If your drinking water tests at or above the health advisory level 0.3 mg/L, use another source of water, like bottled water, for preparing baby formula for infants and young children. Adults who drink water with manganese levels above the health advisory levels are at a lower risk than infants and children.
- Boiling water may increase manganese concentration because it removes only the water, so it is not recommended.
- Manganese is not easily absorbed through the skin. There are no known health concerns from bathing, showering, brushing teeth, or washing clothes in water with high levels of manganese.
- If you have been consuming water with high levels of manganese and have concerns about your health, talk to your health care provider.

Recommendations for Water Systems

The Washington State Department of Health Office of Drinking Water (ODW) is modifying our recommendations for public water systems that have manganese in their water supply. For many years, manganese in drinking water was only considered an aesthetic concern, causing discoloration and staining. However, recent studies show negative health effects from exposure to high levels of manganese in drinking water. We have used this new information to revise our guidelines for your water system.

- All water systems with source manganese levels greater than 0.05 mg/L should install and operate manganese removal treatment at the water source.
- Systems operating manganese treatment should strive to meet a removal goal of less than or equal to 0.02 mg/L at entry point to the distribution system.
- All systems with elevated manganese or operating manganese treatment should have accurate manganese field testing equipment.
- Water systems that have distribution manganese levels of 0.3 mg/L or greater should issue public notification to their customers.

Manganese Levels of Concern in Drinking Water

In 2004, EPA set health advice for manganese in drinking water to keep people safe (0.3 mg/L) and a lower aesthetic standard (0.05 mg/L) to prevent staining and a bad smell or taste in the water. Both standards are voluntary, and it's up to individual water systems to test for or treat manganese in drinking water. The table below shows health advice and aesthetic standards set for manganese by various agencies.

Manganese concentration	Recommendation / Action Levels
0.02 mg/L	ODW (2023) recommends water systems maintain this level or less at entry point to the water distribution system after treatment.
0.05 mg/L	ODW (2023) recommends treatment for manganese removal at levels greater than 0.05 mg/L. EPA Secondary Maximum Contaminant Level (SCML) based on aesthetic effects.
0.08 mg/L	World Health Organization (2021) provisional health-based guidance value for bottle fed infants. Also protective of the general population.
0.1 mg/L	Minnesota Dept of Health (2018) recommended limit for water fed to infants during their first 12 months of life. This is health-based advice to protect infants from learning and behavioral problems.
0.12 mg/L	Health Canada (2019) maximum acceptable concentration (MAC) for drinking water. Set to protect infants, also protective of the general population.
0.3 mg/L	EPA Health Advisory Level (2004): <ul style="list-style-type: none"> • Applies to short-term consumption (10 days) for infants less than 6 months old. • Applies to lifetime consumption for general population. ODW recommends that water systems issue public notice to users when manganese level in drinking water is above this level.
1.0 mg/L	EPA Health Advisory Level (2004) for short-term exposure (10 days) for children 6 months and older and for adults.

If you do not know the manganese level in your drinking water, contact your water system provider.
 If you have questions or concerns about the quality of your drinking water, contact your water system provider.



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CONCERNED ABOUT LEAD IN YOUR DRINKING WATER?

Sources of LEAD in Drinking Water



Copper Pipe with Lead Solder: Solder made or installed before 1966 contained high lead levels.

Galvanized Pipe: Lead particles can attach to the surface of galvanized pipes. Over time, the particles can enter your drinking water, causing elevated lead levels.

Lead Service Line: The service line is the pipe that runs from the water main to the home's internal plumbing. Lead service lines can be a major source of lead contamination in water.


Lead Goose Necks: Goose necks and pigtail are shorter pipes that connect the lead service line to the main.

Faucets/Fixtures: Inside your home may contain lead.


WATER METER

MAIN WATER LINE


Reduce Your Exposure To Lead




Use only cold water for drinking, cooking and making baby formula. Boiling water does not remove lead from water.



Regularly clean your faucet's screen (also known as an aerator).




Consider using a water filter certified to remove lead and know when it's time to replace the filter.



Before drinking, flush your pipes by running your tap, taking a shower, doing laundry or a load of dishes.

To find out for certain if you have lead in drinking water, have your water tested.

Replace Your Lead Service Line




Water systems are required to replace lead service lines if a water system cannot meet EPA's Lead Action Level through optimized corrosion control treatment.

Replacement of the lead service line is often the responsibility of both the utility and homeowners.

Homeowners can contact their water systems to learn about how to remove the lead service line.

Identify Other Lead Sources In Your Home

Lead in homes can also come from sources other than water. If you live in a home built before 1978, you may want to have your paint tested for lead. Consider contacting your doctor to have your children tested if you are concerned about lead exposure.



For more information, visit: [epa.gov/safewater](https://www.epa.gov/safewater)