

Get The Lead Out

How to Choose a Water Filter to Remove Lead

Installing and maintaining a point-of-use water filter that is certified to remove lead may be a low-cost solution to improve your drinking water. Whether water testing has shown you need to take action to remove lead or you want to choose a water filter as a precaution, this flyer will help you make the right filter choice and answer some of the most frequently asked questions about dealing with lead in drinking water.

No amount of lead in drinking water is safe. Installing a point-of-use water filter can help remove or reduce lead in your drinking water. Point-of-use water filters treat water from one tap—such as a kitchen sink—after the water has passed through most of the pipes and fixtures that could increase the water’s lead content. We recommend using water filters at taps designated for cooking or drinking water.

Where Does Lead in My Water Come From?

Lead does not generally come from the water source or water system itself. Instead, lead in drinking water usually comes from corroding pipes, plumbing, and fixtures on the way to the tap. Some plumbing components that are still in use were made partly or wholly of lead, including solder, pipes, and faucet fixtures. Even new components may have a small amount of lead. In addition, lead can be part of a build-up of minerals on the inside of the pipes.

What Are Point-of-Use Water Filters?

Point-of-use filters treat the water where you use it, typically at a sink. There are also “point-of-entry” water treatment systems that can make the water less corrosive before it continues through the rest of the plumbing in a building. These systems can reduce lead in drinking water but are much more expensive and may not fully solve a lead problem if plumbing components within the building still contain lead. Water softeners are another common type of point-of-entry system, but they are not designed to reduce or remove lead in the building. Since lead can come from so many different sources in a building’s plumbing, a point-of-use filter is often the best and most cost-effective option for removing lead in the water that you drink.

How Do I Choose Among the Different Types of Point-of-Use Water Filters?

Many types of point-of-use filters are available, including faucet-mounted filters, countertop units, plumbed-in units installed underneath the sink, pour-through pitchers, and refrigerator water dispensers. Here, we compare the types of water filters that are certified to remove lead. The examples in the table below are not particularly recommended over other certified systems. We encourage you to research the best filter that fits your needs. Products also change often, so these products in the table may no longer be available.

Activated carbon

The most common filters are made with activated carbon, a highly porous material designed specifically for water treatment. Activated carbon can also improve the taste of your water. These filters are economical and come in the different all types mentioned above. Not all activated carbon filters are certified to remove lead, however, and they don’t remove certain other contaminants like nitrate.










Reverse osmosis

This other common type of point-of-use system removes the widest range of contaminants but is usually more expensive than activated carbon. It also has lower flow rates, creates waste that increases total water use, and requires more space underneath the sink. Most reverse osmosis systems also require a post-treatment remineralization step to add flavor back into the water and prevent the water from becoming more corrosive, which could be a concern for lead.

A note about pitcher-style water filters: We do not recommend pitcher filters because they do not have adequate capacity to meet the needs of a child care center or school, or homes that rely on filtered water for all drinking and cooking uses. They have also been shown to be less effective at removing lead in tap water and are more expensive to operate per gallon because they require frequent filter changes.

Regardless of the type of filter you choose, make sure it is certified to remove lead by an accredited third party (see *How Are Water Filters Certified?* below).

See examples of certified products in the table below.

Water Filter Type/Examples ¹	Purchase Price ²	Installation Difficulty	Flow	Number of cartridges	Filter Life ³	Maintenance Cost ⁴	Other Considerations
Faucet mounted filters							
PUR PLUS Faucet Mount Filtration System	\$33			1	100 gal. 3 mos.	\$0.15/gallon \$5/month	<ul style="list-style-type: none"> Requires manual switch for filtered water Need to replace filter cartridge more often than other types May not fit some faucets
BRITA Complete Water Filter Faucet System	\$20			1	100 gal. 4 mos.	\$0.18/gallon \$4.5/month	
Countertop filters							
Pentair Pelican Countertop Drinking Filter System (PDF-450)	\$135			2	450 gal. 6 mos.	\$0.18/gallon \$13/month	<ul style="list-style-type: none"> Uses existing faucet Requires manual switch for filtered water
Refrigerator filters							
Specific filter type for each refrigerator brand and model	\$30-50			1	200–300 gal. 6 months	\$0.10–0.20/ gallon \$5–10/month	<ul style="list-style-type: none"> Requires refrigerator connected to water line Also filters water for the refrigerator ice dispenser
Under-sink activated carbon filters							
A.O. Smith Main Faucet Single-Stage Carbon Block Under Sink Filtration System (AO-MF-ADV)	\$100			1	784 gal. 6 mos.	\$0.09/gallon \$12/month	<ul style="list-style-type: none"> Different designs either filter the full flow of cold water from the main faucet or filter water to a separate lead-free faucet
Culligan US-2 Two-Stage Under Sink Drinking Water Filtration System	\$105			2	500 gal. 6 mos.	\$0.11/gallon \$9/month	
Under-sink reverse osmosis (RO) filters							
AquaSana OptimH2O Reverse Osmosis + Claryum Filter	\$250			4	Pre/post filters: 6 mos. RO membrane: 12 mos.	\$20/month	<ul style="list-style-type: none"> Removes the most contaminants Filters water to a separate lead-free faucet Takes up more space underneath the sink Generates wastewater May change water's taste
GE Under Sink Reverse Osmosis Water Filtration System (GXRQ18NBN)	\$200			3	Pre/post filters: 6 mos. RO membrane: 12 mos.	\$15/month	

	Easy DIY installation, no tools required		Low flow, less than 0.5 gallons per minute
	Can be installed without professional help with basic tools		Full faucet flow, up to 1.5 gallons per minute
	May require the help of a professional plumber or additional tools		

- 1 These are examples only, not recommendations.
- 2 Purchase price is approximate and may change. Purchase price does not include installation costs. Some systems may need to be installed by a plumber at an additional cost.
- 3 Filter life is measured by volume of water filtered and time in use. Some filters have a built-in flow meter or timer with an indicator light that turns on to remind you when to replace the filter. If your filter has an indicator light, be sure to replace the cartridge promptly when the light turns on. If your filter does not have an indicator light, be sure to replace the filter promptly after the recommended amount of time.
- 4 Maintenance cost is calculated in two ways: 1) assuming the filter is changed at the time limit (price per month), and 2) assuming the filter is changed at the volume limit (price per gallon). The price per gallon estimate is only relevant for filters with a built-in device to measure water use over time. In most cases, the price per month provides a more realistic estimate. Reverse osmosis membranes usually need to be replaced every 12 months, regardless of the amount of use, so a price per gallon estimate is not available for RO filters.



How Are Water Filters Certified?

The National Sanitation Foundation (NSF) and the American National Standards Institute (ANSI) have developed standards for ensuring that point-of-use filters remove what they claim to remove. Not all filters on the market are certified. To be sure you choose a reliable product:

1. **Make sure that the device you choose lists lead as one of the removed contaminants** by reviewing the filter's "performance data sheet," which is a list of all the contaminants it is certified to remove. This can generally be found online by downloading the user guide or manual for the product.
2. Check for its **certification**. This can be found online or on product packaging.
 - For activated carbon filters, make sure it is certified for lead removal according to **NSF/ANSI 53** and for particle removal according to **NSF/ANSI 42**.
 - For reverse osmosis filters, check that it is certified for lead removal according to **NSF/ANSI 58**.
3. Make sure it was certified by an **accredited third-party organization** such as NSF, the International Association of Plumbing and Mechanical Officials (IAPMO), the Water Quality Association (WQA), or Canadian Standards Association (CSA) Group. You should see their logo on the product packaging.

For images of the certification logos, see the [Environmental Protection Agency's Consumer Tool for Water Filters to Reduce Lead](#).

Why Is Filter Replacement Important?

Regularly maintaining your filter is the only way to make sure your water continues to be lead free. Both activated carbon and reverse osmosis filters have disposable cartridges that must be replaced regularly according to manufacturer specifications, based on how much time has passed or how much water has been used since it was installed. Activated carbon filters work by accumulating contaminants from the water onto the filter's surface. Once the filter cartridge is full, it cannot remove any more contaminants and may release the accumulated contaminants back into the water. Reverse osmosis filters use specialized membranes to separate contaminants from the water, but these membranes wear out over time and need to be replaced.

Determining when the filter cartridge is full or when the membrane is worn out can be difficult. Replace the filter cartridges as often as the manufacturer recommends—usually every three to six months, or after a certain volume of water has been filtered, whichever occurs first. Some devices have an indicator light or alarm that turns on when the filter needs to be changed. If the device doesn't have a built-in indicator, add a reminder to your calendar for when the filter needs to be replaced.

Make sure to purchase the manufacturer's replacement filters because off-brand filters may not be certified. Only buy replacement filters certified to remove lead to NSF/ANSI standards.

How Much Do Water Filters Cost?

In general, the operating costs—that is, the costs of replacing the filter cartridges regularly—will quickly exceed the initial cost. Thus, we recommend that you weigh maintenance cost more heavily than initial cost in your planning. If water in your area is expensive or scarce, note that reverse osmosis systems create 1 or more gallons of wastewater for every 1 gallon of filtered water.

What About Water Fountains?

If there is lead in your water fountain, you can replace the existing fountain with one that contains a filter certified to remove lead. These fountains also often have bottle fillers, which promote water consumption and can allow for water bottle filling that follows COVID-19 precautions (e.g., [Elkay Enhanced ezH2O Bottle Filling Station](#), \$1,000).

You can also replace the water fountain with a freestanding dispenser that filters water from your building's water supply. These units can be purchased or rented from water cooler companies (e.g., [quenchWATER+ QZ series](#)). The company covers maintenance costs when renting a unit. The cost to rent a unit is typically less than the cost to purchase bottled water. However, the rental cost may be higher than the cost to maintain a water fountain. Investing in a water fountain with a certified lead filter is likely to pay off in a few years compared to renting a freestanding dispenser.

What About Having Drinking Water Outside?

It is not recommended to drink water from outdoor spigots because they may not meet the lead-free requirements of indoor plumbing. If you need drinking water available outdoors, you can use a portable water jug that can be filled inside at a lead-free or filtered tap. For water play, a certified lead-free hose can be purchased (e.g., [Camco Premium Drinking Water Hose](#), \$15–\$25). Keep in mind that lead-free hoses will not address lead in other parts of the plumbing, just lead from the hose itself.

What About Other Chemicals in My Water?

If you suspect other chemical contaminants are in your water, such as per- and polyfluoroalkyl substances (known as PFAS), make sure that the filter is certified to specifically remove them according to NSF/ANSI performance standards. For PFAS, make sure that the filter is certified according to NSF P473 or that the chemicals PFOA and PFOS are listed in the performance data sheet for filters certified under NSF/ANSI 53 or NSF/ANSI 58. Reverse osmosis filters are generally the most reliable for PFAS and other emerging contaminants, but certified activated carbon filters can also be effective for the levels of PFAS typically found in U.S. tap water. To find more information about whether there may be PFAS in your tap water, contact your water utility.



Can I Eliminate Sources of Lead in the Plumbing?

You may be able to eliminate or reduce sources of lead in your plumbing and fixtures. A plumber can help to locate and replace any lead-lined water fountains, lead service lines, or other plumbing components containing lead. Detailed water testing can also help you identify lead sources.

We recommend replacing any faucets where lead is detected with new, certified lead-free faucets. Look for faucets certified according to NSF/ANSI 372 or NSF/ANSI 61. Stainless steel is best. Avoid brass and chrome-plated faucets because they may contain small amounts of lead. The [Lead Service Line Replacement Collaborative](#) also has helpful resources for checking whether water lines in your building are made of lead and provides suggestions for coordinating with your utility. Your local or state health department, water utility, or other relevant program may be able to provide additional support.

After taking any actions to remove lead, it is important to retest the water to make sure the actions were effective.

Should I Just Use Bottled Water?

If the tap water in your home or building has less than 150 parts per billion (ppb) of lead, installing a water filter will be more cost-effective than buying bottled water. Bottled water can cost up to \$1–\$2 per gallon, while maintaining a point-of-use filter costs only a few cents per gallon. If your tap water has over 150 ppb lead, however, you should consider using bottled water because point-of-use filters are not certified to remove more than 150 ppb of lead.

If you use bottled water, check the package or the manufacturer's website to ensure the company meets Food and Drug Administration (FDA) standards. The FDA mandates that bottled water contain less than 5 ppb of lead. For long-term bottled water use, we recommend buying refillable 5-gallon jugs to lower costs and waste. Make sure to store all bottled water out of direct sunlight and away from heat to avoid microbial growth and reduce leaching of other chemicals from the plastic into the water.

What If I Get My Water from a Private Well?

If your home or building is connected to a private well, there can be other sources of lead in your plumbing, including the bore hole, pump components, and pressure tank. Many water utilities treat the water with certain chemicals to make it less corrosive, but private well water is not required to have any corrosion control so children who get their water from private wells may be at greater risk of lead exposure. Fortunately, point-of-use water filters are also effective for removing lead from private well water. However, if you are on a private well, make sure to test your water for microbial contaminants, including *E. coli* and total coliforms. If any microbial contamination is detected, consult a well water professional to make sure your well is properly sealed, protected, and disinfected before installing a filter since most point-of-use filters are not protective against bacteria and viruses. You can find a well water contractor and schedule a well water checkup at [WellOwner.org](#).

Additional Resources

This informational flyer was developed for RTI International's Clean Water for US Kids™ program. For additional resources please refer to the following links.

- www.cleanwaterforUSkids.org
- [Environmental Working Group Water Filter Buying Guide](#)
- [Environmental Protection Agency Consumer Tool for Water Filters to Reduce Lead](#)
- [Environmental Protection Agency Consumer Tool for Lead-Free Plumbing Products](#)
- [NSF Lead Filtration Guide](#)
- [FDA Bottled Water Consumer Update](#)

More Information

Clean Water for US Kids

www.cleanwaterforUSkids.org/contact

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Clean Water For US Kids™