

# Water Filters Certified to Remove Lead in Drinking Water and Cooking Water

CLEAN WATER FOR CAROLINA KIDS



This informational brochure was developed for RTI International's Clean Water for Carolina Kids (CWCK) program. If you have lead in your tap water, installing a point-of-use water filter can remove or reduce the lead in your drinking water. Point-of-use water filters treat water from one tap—usually a kitchen sink—after the water has passed through all pipes and fixtures that could increase the water's lead content. We recommend using water filters at taps designated for cooking or drinking.

## Where Does Lead in My Water Come From?

Lead in drinking water generally comes from corroding pipes, plumbing, and fixtures in your home or building—not from the water supply entering the building. Therefore, a point-of-use filter is usually the best option for removing lead; a whole-house or point-of-entry filter system will filter water before it continues through more plumbing. Sometimes, a clog or lead in the faucet material results in lead in your water. If you suspect this, we recommend hiring a plumber to fix the clog and/or replace the faucet with a new *stainless steel* faucet. Do not purchase a brass or chrome faucet because it may contain lead.

## What Are Point-of-Use Water Filters?

These filters treat the water where you use it, typically at a sink. Various types are available: faucet-mounted filters, countertop units, and plumbed-in units (under sink), as well as pour-through pitchers and integrated refrigerator water dispensers. The filter captures contaminants as the water passes through. The most common filters are activated carbon. These filters are economical and come in all the previously mentioned types; however, activated carbon filters do not remove all contaminants. Some activated carbon filters are not certified to remove lead.

Reverse osmosis systems are another common type of point-of-use water filters. These systems remove the widest range of contaminants; however, reverse osmosis systems are more expensive, have lower flow rates, create waste that increases total water usage, and must be mounted under the sink.

## How Are Water Filters Certified?

The American National Standards Institute (ANSI) has developed two standards for removing lead from drinking water: ANSI 53 (activated carbon filters) and ANSI 58 (reverse osmosis systems). ANSI has also accredited two organizations to certify water filters to these standards: NSF International (NSF) and the Water Quality Association (WQA). *Make sure that the device you choose lists lead as one of the removed contaminants and is certified by NSF or WQA to ANSI 53 or ANSI 58.*

## Why Is Filter Replacement Important?

Filters must be replaced regularly based on the manufacturer's guidelines. Filters work by accumulating contaminants; once a filter's surface is full, the filter cannot remove any more contaminants and may release accumulated contaminants back into the water.

Determining when a filter surface is full can be difficult. In addition, a filter used for too long—even if it’s not full—can grow bacteria that pass into your water. To avoid recontamination, you must replace the filter as often as the manufacturer recommends—by either gallons filtered or time in use, whichever occurs first. Many devices have an indicator light that comes on when the filter needs to be changed. Make sure to purchase the manufacturer’s replacement filters because off-brand filters may not be certified. *Buy only replacement filters certified to remove lead to ANSI standards.*

### How Do I Choose Among the Different Types of Water Filters?

The following table compares different types of water filters that are certified to remove lead. Pitcher-style water filters are omitted because they do not have adequate capacity to meet the needs of a childcare center or school; additionally, they are the most expensive to operate because they require frequent filter changes. In general, the operating costs of the following water filter systems will exceed any initial costs fairly quickly based on the usage levels found in a childcare center or school; thus, *we recommend you weigh maintenance cost more heavily than initial cost.* If water in

your area is expensive or scarce, please note that reverse osmosis systems create wastewater by using 1–6 gallons of water to produce 1 gallon of treated water. *But, if you have or are concerned about per- and polyfluoroalkyl substances (PFAS)—such as GenX—in your water, we recommend reverse osmosis.* The examples are not particularly recommended over other ANSI 53 or 58 certified systems, which are numerous; these examples are provided only to illustrate the range of lead-certified products available. Products change often, so these specific products may no longer be available.

### 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 often have bottle fillers also, which promote water consumption (e.g., [Elkay Enhanced ezH<sub>2</sub>O Bottle Filling Station](#), \$1,000).

You also can replace the water fountain with an in-line filtered water dispenser. These may include reverse osmosis treatment, which is preferable if PFAS or other contaminants—in addition to lead—are present. In-line filtered water dispensers can be purchased or rented from water cooler companies (e.g., [quenchWATER+ Q7 series](#)).

Water Filter Type/Examples <sup>1</sup>	Purchase Price <sup>2</sup>	Installation Difficulty	Flow <sup>3</sup>	Filter Life <sup>4</sup>	Maintenance Cost <sup>5</sup>	Other Considerations
<b>Under-Sink Filter (Plumbed-in)—Activated Carbon</b> <a href="#">3M Aqua-Pure DWS1000LF</a> (\$300 + \$115/filter) <a href="#">Multipure MP750</a> (\$440 + \$70/filter) <a href="#">American Plumber™ WLCS-1000</a> (\$200 + \$40/filter)	\$ \$				\$0.09/gal \$6/child/year	<ul style="list-style-type: none"> <li>Recommend using a separate tap</li> <li>Removes other contaminants aside from lead to a lesser degree compared to reverse osmosis filters</li> </ul>
<b>Under-Sink Filter (Plumbed-in)—Reverse Osmosis</b> <a href="#">Culligan Aqua-Clear®</a> (\$1,000; professional service required to replace filter) <a href="#">Home Master® TMHP-L Hydroperfection</a> (\$600 + \$130/filter)	\$ \$ \$				\$0.07/gal \$200–\$400/year (total)	<ul style="list-style-type: none"> <li>Recommend using a separate tap</li> <li>Highest removal efficiency for the most contaminants</li> <li>Also removes PFAS compounds</li> <li>Creates more wastewater</li> <li>Takes up more space under the sink</li> </ul>
<b>Countertop Filter (Connected to Sink Faucet)</b> <a href="#">Shaklee® BestWater MTS 2000U</a> (\$260 + \$100/filter) <a href="#">Aquasana® AQ-4000W</a> (\$125 + \$60/filter)	\$ \$				\$0.12/gal \$7/child/year	<ul style="list-style-type: none"> <li>High-end brands provide ambient, hot, cold, or sparkling water</li> <li>Takes up space on counter</li> <li>Able to use it for similar time frame as under-sink filters</li> </ul>
<b>Faucet-Mount Filter</b> <a href="#">PUR PFM450S</a> (\$50 + \$12/filter) <a href="#">Culligan® FM-15A</a> (\$25 + \$12/filter)	\$				\$0.12/gal \$8/child/year	<ul style="list-style-type: none"> <li>Switches between filtered and unfiltered water</li> <li>Blocks entire faucet and may not fit some faucets</li> <li>Need to replace filter most often</li> </ul>
<b>Refrigerator Water Dispenser Replacement Filter</b> <a href="#">Frigidaire WF3CB PureSource</a> (\$0 + \$30/filter)	—				\$0.15/gal \$9/child/year	<ul style="list-style-type: none"> <li>Filters water for the ice dispenser also</li> <li>Requires refrigerator with filtered water dispenser</li> <li>Need to replace filter more often than some other water filter types</li> </ul>

<sup>1</sup> Example filter systems were chosen from reviews available at [Consumer Reports](#) or [NSF-certified](#) filters. These are examples only, not recommendations. Most links are to Amazon or the manufacturer’s website, but many of these products can be purchased elsewhere as well. For each product, the first dollar amount represents the product’s purchase price; the second dollar amount represents the cost per filter.

<sup>2</sup> Purchase price does not include installation costs. All filter types shown here, except plumbed-in systems, can be installed by the consumer at no cost; plumbed-in systems will typically need to be installed by a plumber at some additional cost.

<sup>3</sup> For comparison, the typical flow of an unfiltered tap is 1.5 gallons/minute.

<sup>4</sup> Filter life is measured by gallons used and time in use; guidelines for filter replacement are based on the condition that occurs first.

<sup>5</sup> Maintenance cost is based on cost and filter life of replacement filters. The filters that many childcare centers use typically need to be replaced based on gallons used, not time in use; therefore, maintenance costs are presented as cost per child, per year. This guidance does not apply to small childcare centers (i.e., fewer than 25 children) and reverse osmosis system filters. Costs associated with reverse osmosis system filters are stated as cost per year because they are more likely to need replacement based on time in use rather than gallons used. Small childcare centers also will likely need to replace filters based on time in use, not gallons used.

#### Key

\$ <\$50		simple filter insertion		0.5 gal/min		<100 gal		3 months
\$ \$ \$50–\$500		easy do-it-yourself		1 gal/min		100–500 gal		6 months
\$ \$ \$ >\$500		professional installation required				>500 gal		12 months

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 is likely to be considerably higher than maintenance costs for a water fountain—so unless other contaminants are a concern, investing in a water fountain is likely to pay off in a few years compared to renting an in-line dispenser.

### What About Having Drinking Water Outside?

If you need drinking water available outdoors, you can use a stainless steel portable water cooler that can be filled inside at the filtered tap (e.g., [Sansone® NSF Stainless Steel Water Dispenser with Spigot](#), \$110–\$150). These do not require filters or maintenance and are relatively inexpensive, though heavy. For water play, a certified lead-free hose can be purchased (e.g., [Camco Premium Drinking Water Hose](#), \$15–\$25). Lead-free hoses are stiffer than regular hoses and may kink more easily (and thus be less convenient); additionally, lead-free hoses and portable water coolers will not address lead in the water source, just lead from the hose or the cooler itself.

### What About Other Chemicals in My Water?

If you suspect other chemical contaminants are in your water, such as the chemicals that make up nonstick and water-repellant surfaces (i.e., PFAS), we recommend an under-sink reverse osmosis filter rather than an activated carbon filter. Research indicates that reverse osmosis filters work better to remove PFAS and other unregulated, insufficiently regulated, or emerging contaminants. To find more information about whether there may be PFAS in your tap water, check out the [PFAS Contamination in the U.S. interactive map](#).

### Should I Just Use Bottled Water?

Bottled water is not the most cost-effective option (\$1–\$2/gallon) if your home or building's tap water has less than 150 parts per billion (ppb) lead. If the tap water has over 150 ppb lead, you should consider using bottled water because filters will not reduce the level enough to safely drink the water. In fact, lead removal to safe levels cannot be certified at 150 ppb lead or more.

If you choose to use bottled water, check the package or the manufacturer's website to ensure the provider meets Food and Drug Administration (FDA) standards. The FDA

mandates that bottled water contain less than 5 ppb lead. Give preference to bottled water that has been purified; you can check the label to see if the water has been treated using technologies such as activated carbon or reverse osmosis. Spring water is typically not purified, and its water quality characteristics can vary based on the source and other factors. For long-term bottled water use, we recommend using 5-gallon jugs to lower costs and waste. Make sure to store all bottled water out of direct sunlight and away from heat to reduce leaching of plastic material into the water.

### Additional Resources

- [NSF-Certified Devices](#)
- [WQA-Certified Devices](#)
- [NSF's Lead Filtration Guide](#)
- [Environmental Protection Agency's Water Filtration Guide](#)
- [Environmental Protection Agency's Consumer Tool for Water Filters to Reduce Lead](#)
- [Consumer Reports Water Filter Buying Guide](#) (paywall)
- [Environmental Working Group Water Filter Buying Guide](#)
- [FDA Bottled Water Consumer Update](#)

### CWCK Resources

- [Detecting Lead in Drinking Water in North Carolina Childcare Centers](#)
- [CWCK Testing Program](#)

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### More Information

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