

PFAS - Point of Use Water Treatment

Home water treatment to reduce levels of PFAS in drinking water

Home water treatment systems to reduce the levels of per- and polyfluoroalkyl substances (PFAS) in drinking water can be installed to treat the water at the point of entry or at the point of use. Point of entry (POE) water treatment systems, also called whole house treatment systems, treat all of the water entering the household plumbing system. Point of use (POU) water treatment systems treat the water at a specific location within the house, typically the kitchen sink or primary source of water for drinking and cooking (some also provide water to the refrigerator).

Either type of water treatment has pros and cons that should be considered before selecting the best treatment option for a household. The type of treatment system chosen should consider the volume of water that will be used in the home, the number and location of sites where water is consumed in the home, and the type of PFAS chemical identified in the laboratory result.

If water for drinking, cooking and making ice is primarily obtained from the kitchen sink, then the installation of a treatment unit below the sink or on the sink faucet is an option. If drinking water and ice are obtained from the refrigerator, then it is important to consider treating the water line to the refrigerator also. If drinking water is obtained from multiple locations in a home, then a point of entry, or whole house treatment system may be preferred. See [PFAS – Whole House Water Treatment] factsheet for more information.

If possible, it is important to choose a treatment system that has been tested and certified to remove the PFAS present in the water based on data provided from the public water system provider or from a laboratory analysis.

Certified POU water treatment products to remove PFOA and PFOS

Currently, certified products are only for point of use (POU) treatment, which means they are products designed to treat the water at only one or two locations, usually at the kitchen sink and possibly the refrigerator if it has water connected. Certified products are either granular activated carbon (GAC) filtration or reverse osmosis (RO) treatment systems. It should be noted that some of the products certified to treat water at the point of use are counter top products or pour through (like a pitcher filter that you fill from the tap yourself as needed).

NSF International and the Water Quality Association are independent third-party testing agencies that currently test and certify products to remove the specific PFAS PFOA and PFOS.

Look for products identified as certified to NSF International's Standard P473 (on-line listing is located at: <http://info.nsf.org/Certified/DWTU/Listings.asp?ProductFunction=P473%7CPFOA+Reduction&ProductFunction=P473%7CPFOS+Reduction&ProductType=&submit2=Search>). The NSF International consumer information team can also be contacted at info@nsf.org or 1-800-673-8010 for assistance in finding a certified product.

Products tested and certified by the Water Quality Association can be found here: <https://www.wqa.org/find-products#/>

NSF Standard P473 was retired in March of 2019 when the testing protocol was incorporated into existing water treatment standards, so new products certifications are tested to meet either NSF/ANSI Standard 53: Drinking Water Treatment Units – Health Effects for the reduction of PFOA and PFOS with granular activated carbon filtration systems or to NSF/ANSI Standard 58 Reverse Osmosis Drinking Water Treatment Systems for the reduction of PFOA and PFOS with reverse osmosis systems. There is currently not a standard for certification of other types of treatment systems.

POU water treatment products to remove other PFAS

There are currently no certified standards for removing PFAS other than PFOA and PFOS, however, consideration of the type of PFAS chemical can inform the selection of the best water treatment system. PFOA and PFOS are longer chain PFAS than other chemicals in the PFAS family. Longer chain chemicals are larger which makes it easier for a filter or membrane to trap them. Shorter chain PFAS are harder to remove with granular activated carbon treatment alone. Though there is no product certification standard at this time, research has shown that reverse osmosis treatment systems can effectively remove a wide range of PFAS, including the shorter chain chemicals in the PFAS family.

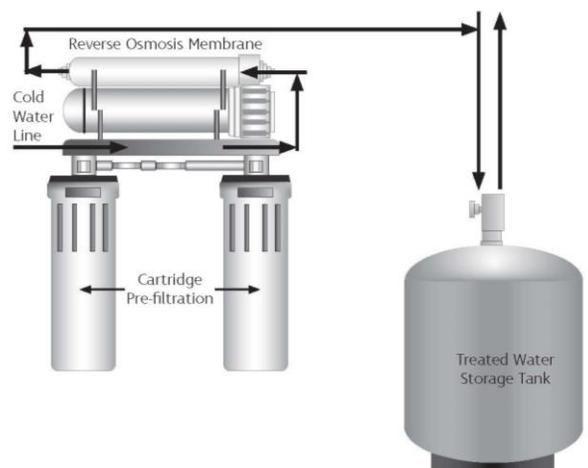
Considerations for POU granular activated carbon (GAC) treatment

- Physical filter cartridge “traps” contaminant(s) which is then removed and disposed of at the end of its rated lifecycle.
- Filter must be replaced on a regular schedule (identified by the manufacturer).
- Generally, granular activated carbon filters provide more water flow than a reverse osmosis system.
- May not effectively treat shorter chain PFAS if present in addition to the longer chain PFOA and/or PFOS.



Considerations for POU reverse osmosis (RO) treatment

- Typically requires pre-filtration to be installed to remove any sediment and small particles as well to maximize the life and effectiveness of the membrane.
- Large volumes of water are wasted in the treatment process. Typically, for every 10 gallons sent into the treatment unit, 7-8 gallons are sent down the drain as waste, and 2-3 gallons of treated water are produced.
- Membranes must be replaced on a regular schedule (identified by the manufacturer) in addition to any pre-filtration cartridges.
- Research has shown it to effectively reduce shorter chain PFAS in addition to the longer chain PFOA and/or PFOS.



Costs

US EPA has estimated costs for different types of point of use water treatment systems.

	Approximate Initial Equipment Purchase Cost	Approximate Replacement Treatment Media Cost
NSF P473 Certified Point of Use Granular Activated Carbon (GAC) Filter	\$100 to \$1200	\$200 to \$300 each year
NSF P473 Certified Point of Use Reverse Osmosis (RO)	\$400 to \$700	\$200 each year

Maintenance

Any water treatment system installed requires regular maintenance to help ensure effective treatment. Follow the instructions that come with your system for filter and membrane replacements. The instructions will identify how often they need to be replaced as well as the specific filter or membrane that must be used.

If a system is not properly maintained, water will still flow through it, but the system will not work and the water will not be treated. PFAS do not change the taste, smell, or color of the water and are not indicators of when a system needs maintenance. Always refer to the manufacturer's recommendations for how and when to maintain your system.

For More Information

For more information on PFAS, including the health effects of PFAS, PFAS in drinking water, water testing and treatment, and other PFAS activities in Ohio, visit the Ohio PFAS webpage here: www.pfas.ohio.gov.

For more information on point of use water treatment to reduce PFAS concentrations, contact the ODH Residential Water and Sewage Program at BEH@odh.ohio.gov or at (614) 644-7558.