

PFAS – Whole House Water Treatment

2023 Update: On March 14, 2023, the U.S. Environmental Protection Agency (EPA) released a [Per- and Polyfluoroalkyl Substance \(PFAS\) Proposed National Primary Drinking Water Regulation \(NPDWR\)](#). The proposed NPDWR includes maximum contaminant levels (MCLs) for PFOA and PFOS. It also regulates four additional PFAS: HFPO-DA (GenX), PFBS, PFHxS, PFNA, using a Hazard Index approach to address these substances as a mixture. Ohio is reviewing and evaluating the proposed PFAS NPDWR documents. At this time, Ohio will continue to provide educational resources to help residents make decisions on their drinking water. Visit [Ohio's PFAS in Drinking Water](#) page or [EPA Proposed PFAS National Primary Drinking Water Regulation](#) for more information.

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 water treatment systems are also called POE, or whole house treatment systems, and treat all the water entering the household plumbing system. Point of use water treatment systems are also called POU and 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 selected 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 drinking water is obtained from multiple locations in a home, then a point of entry or whole house treatment system, may be preferred. 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 – Point of Use Water Treatment](#)] factsheet for more information.

Whole House Water Treatment Systems

Whole house (also called point of entry or POE) water treatment is where all the water entering the home is treated for the removal of PFAS. Research has shown that a point of entry granular activated carbon treatment can be effective if properly designed.

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/ANSI Standard 53](#): Drinking Water Treatment Units – Health Effects with the claim of “PFOA Reduction” and “PFOS Reduction.”
- [NSF/ANSI Standard 58](#): Reverse Osmosis Drinking Water Treatment Systems with the claim of “PFOA Reduction” and “PFOS Reduction.”

The NSF International consumer information team can also be contacted at info@nsf.org or 1-800-673-8010 for assistance with finding a certified product.

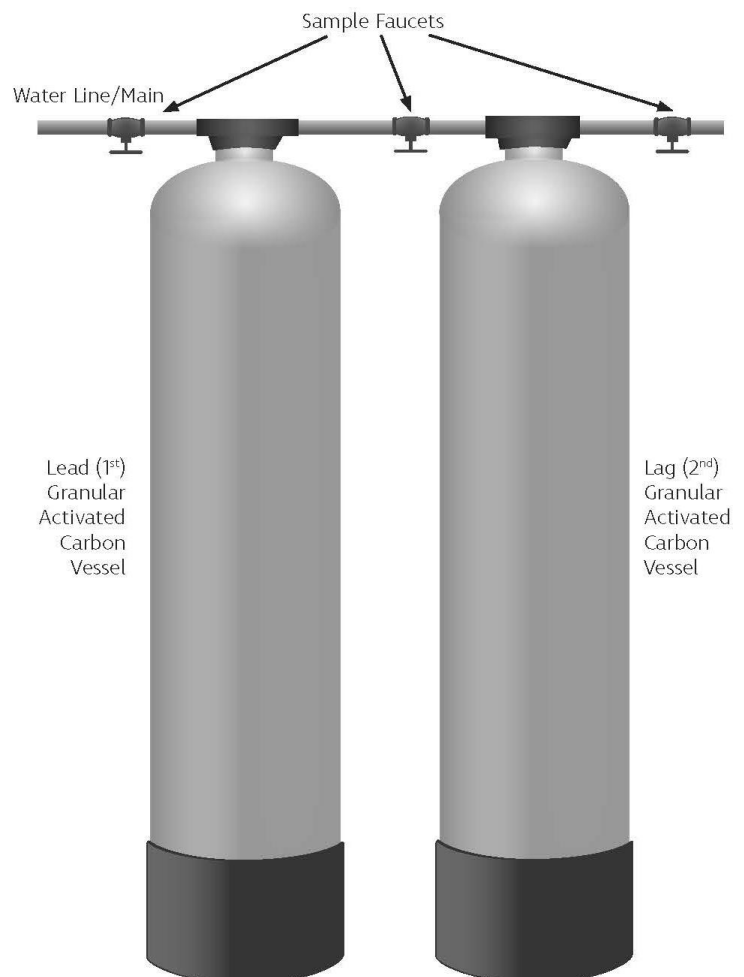
Products tested and certified by the Water Quality Association can be found [here](#).

The installation of a point of entry water treatment system to treat water received from a public water system may require a local plumbing permit. Please check with the local building or health department to determine if a plumbing permit is needed.

The installation of a point of entry water treatment system to treat water received from a private water system (water well, spring, pond, rainwater cistern or hauled water storage tank) will require an installation permit from the local health department. These treatment systems may only be installed by a private water systems contractor registered by the Ohio Department of Health (ODH). These contractors are bonded, and the list of registered contractors may be found [here](#).

These types of whole house systems are commonly referred to as a lead-lag granular activated carbon system. This system consists of two flow-through vessels filled with granular activated carbon with a water sample faucet installed between the two vessels (after the lead vessel, before the lag vessel). Water samples are collected periodically and analyzed at a certified lab for PFAS to monitor the lifespan of the first carbon vessel. When the first vessel starts to lose its ability to remove PFAS, it is removed. The second carbon vessel which was in the lag position is moved to the lead carbon vessel position and new granular activated carbon media is placed into the other vessel, and it is moved to the lag position. This design relies on the lag vessel to provide protection for the water consumer in case the lead vessel is no longer able to trap the PFAS before periodic sample collection identifies that the lead carbon vessel is no longer able to perform effective PFAS removal.

When considering a contractor, be an informed consumer and request complete information on the components that will be installed, product certification as applicable, the maintenance requirements and cost, and appropriate disposal of the treatment media.



An Ohio resident can find which local health department they live in using the online [directory of local health districts](#).

Costs

U.S. EPA has estimated costs for a point of entry lead-lag granular activated carbon water treatment system.

Approximate Initial Equipment Purchase Cost	Approximate Cost of Annual Water Sample Tested at a Certified Lab	Approximate Replacement Treatment Media Cost
\$1,200	\$400 each year	\$2,000 every three to five years (replacement will depend on the water sample results)

Maintenance

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. The professional that installed your system should provide you with the maintenance requirements of 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](#).

For more information on treatment systems, visit [US EPA Reducing PFAS in Drinking Water with Treatment Technologies](#).

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.