DEQ

FACT SHEET

DRINKING WATER AND MUNICIPAL ASSISTANCE DIVISION

PFAS IN-HOME FILTRATION SYSTEMS

In-Home Water Filtration Systems for PFAS Reduction

Per- and polyfluoroalkyl substances (PFAS), also known as perfluorinated chemicals (PFCs), are a large group of more than 3000 man-made fluorinated organic chemicals that have been used since the 1950s in firefighting foams, oil and water repellent products, and surfactants. PFAS can be released to the environment by manufacture and use of items that have PFAS in them. PFAS in the environment may enter surface water, groundwater, and drinking water wells. Some wells may have PFAS levels, or amounts, that are high enough to cause concern for human health. For these residents, in-home water filtration systems are recommended to lower the levels of the PFAS in their drinking water.

The U.S. Environmental Protection Agency (U.S. EPA) has set a lifetime health advisory (LTHA) level for two PFAS, perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS), in drinking water. An LTHA is set to protect human health. To date, the EPA has not set LTHAs for the other PFAS chemicals.

The LTHA level for PFOA and PFOS is 70 parts per trillion (ppt), either singularly or combined when both PFOA and PFOS are found in drinking water. PFOA and PFOS levels below the LTHA are not expected to harm human health. Some filtration systems that lower the amounts of PFOA and PFOS below the LTHA have been certified. However, no systems have been certified for lowering all PFAS.

Certified Filtration Systems

NSF International (http://www.nsf.org/about-nsf/) was founded in 1944 to standardize sanitation and food safety requirements, and is accredited internationally. NSF developed a standard for reducing PFOA and PFOS in water in 2016.

In order to be certified for PFOA and PFOS reduction, a water filter must undergo extensive testing and meet strict NSF P473 (http://bit.ly/2gmEFTl) requirements set by the American National Standard Institute for drinking water units - health effects. Reverse osmosis systems must also meet all of the requirements in the NSF/ANSI 58 standard (http://bit.ly/2gmEFTl). To meet these requirements a filter must be able to reduce PFOA and PFOS below the EPA LTHA level. Certified products must be retested periodically and their manufacturing facilities must be inspected every year.

To date, NSF has certified some point-of-use (POU) granular activated carbon (GAC) and reverse osmosis filters for PFOA and PFOS reduction from three manufacturers, Aquasana, Culligan, and eSpring (http://bit.ly/2jwyCuY). The filters that have received this certification can be found at www.aquasana.com/drinking-water-filter-systems, www.amway.com/at-home/eSpring, and www.culligan.com/home/water-filtration. Select a filter and scroll to its Performance Data Sheet web link. The Sheet provides information on certifications, capacity, flow rate, and other details.

Non-Certified Filtration Systems

There may be other filters that lower PFAS. However, without the NSF P473 certification, it can be difficult to know which filters effectively reduce PFAS and which do not.

In 2007, the Minnesota Department of Health hired Water Science & Marketing, LLC and the Water Quality Association to determine if water filtration systems could lower PFAS in water. At that time, there was no NSF standard for reducing PFAS. Fourteen filters were tested, and eleven of these were shown to sufficiently reduce the amount of PFAS in water. Four of these filters were activated carbon devices and seven were reverse osmosis devices. None of the devices were, or are currently, certified for PFAS removal. It is important to note that the Minnesota Department of Health does not certify water filters.

For more information about the study, visit the following link: http://bit.ly/2klnuU0.

Types of Filtration Systems

Both granular activated carbon (GAC) and reverse osmosis (RO) filters can remove PFAS substances. Both systems provide less water flow than a standard water faucet.

A GAC system:

- reduces the amounts of PFAS and some other contaminants in drinking water.
- has a carbon filtration cartridge which captures the contaminants.
- provides more water flow than an RO system.
- has cartridges that are rated to treat more gallons of water than those in an RO system and are less expensive to replace.
- are often easier to install than RO systems.
- does not remove minerals from water.

An RO system:

- reduces the levels of more contaminants in water, including arsenic and nitrates, than a GAC system.
- typically consists of a sediment filter, carbon filters, and an RO system membrane. RO systems force water through the membrane under pressure, leaving the contaminants at the membrane.
- provides less water flow than a GAC system.
- uses approximately three times as much water as it treats, and discharges the untreated water to the sewer or septic system.
- removes minerals from water. Some systems include remineralizers.
- requires more frequent changes of the filtration cartridge and the RO membrane.
- is more costly.

Maintenance

For any filtration system to be effective, it must be maintained. Follow the manufacturer's instructions, and change the cartridges as often as recommended. Most systems include an indicator to notify you when the cartridges or the RO membrane should be replaced.

Cartridge Disposal

The cartridges may be disposed of in household trash. They are not considered hazardous waste.

Local Health Department Contact Information

If you have been notified that PFAS were found in your drinking water well sample, alternate water or a filtration system may be available to you. For more information, contact your local health department. Contact information can be found by visiting the "Michigan Department of Environmental Quality Guide to Local Health Department Personnel" found at http://bit.ly/2zOiZEj.

December 5, 2017