

An Introduction to Per- and Polyfluoroalkyl Substances (PFAS)

Per- and polyfluoroalkyl substances (PFAS) are a group of widely used and potentially harmful chemicals. Because PFAS have been used so often, they have been found in many places in the environment. The Michigan Department of Health and Human Services (MDHHS) recommends everyone in Michigan reduce their exposure to all PFAS when and wherever possible.

PFAS are used in a variety of ways.



PFAS are used to fight fires and repel oil, stains, grease and water. They have been used in manufacturing and commercial products since the 1940s and are still used in some firefighting foams, metal plating, carpeting, waterproof clothing, upholstery, food paper wrappings and personal care products.

When products that contain PFAS are created or used, PFAS can be released into the environment, including into drinking water sources. Although some PFAS, like PFOA and PFOS, are no longer made in the U.S., others are still commonly used in some consumer products and industrial settings.

High levels of PFAS have been found in certain locations.

Some PFAS are persistent chemicals, meaning they do not easily break down in the environment. PFAS also move easily around the environment in water and other materials. They are nearly everywhere. In Michigan, current data show that airports, military bases, manufacturing facilities and landfills have some of the highest levels of PFAS.



Airports and Military Bases. PFAS are used in some firefighting foam. Drinking water contaminated with PFAS near airports and military bases is often associated with the use of firefighting foams.



Manufacturing facilities. PFAS used in manufacturing can be released into lakes and rivers during production or as wastewater. PFAS may be in industrial waste that can seep into the soil and drinking water sources.



Unlined Landfills. PFAS are used in many different consumer products that eventually end up in landfills. PFAS in unlined landfills can seep from the soil into drinking water sources.

Long-term exposure to PFAS may lead to negative health effects.

Some PFAS can stay in our bodies for many years. In fact, they *bioaccumulate*, which means they build up in our bodies over time. Some studies in people have found exposure to PFAS may be related to the following negative health effects:

- High blood pressure or pre-eclampsia in pregnant people.
- Thyroid disease.
- Decreased immune system response to vaccines in children.
- Reduced fertility.
- Liver damage.
- Higher cholesterol, especially total cholesterol and LDL cholesterol.
- Small decreases in infant birth weight.
- Developing certain types of cancer, in particular kidney and testicular cancers.

You can reduce your exposure to PFAS.

You can accidentally swallow PFAS when you drink water or eat food that contains PFAS, such as fish from contaminated lakes. You can also swallow PFAS if you touch PFAS-containing foam or consumer products and do not wash your hands before eating or putting your hands in your mouth.



Drinking water contaminated with PFAS is a main way people are exposed to PFAS. If you are concerned about being exposed to PFAS in drinking water, you can:

- Use a water filter that is certified to reduce PFAS. Visit eh.Michigan.gov/PFASfilter to learn more.
- Have your drinking water well tested for PFAS if you have a private residential well. For more information on private residential well testing, visit eh.michigan.gov/PFASLabTesting.
- If PFAS is detected in your drinking water, contact the MDHHS Environmental Health Hotline for more information at 800-648-6942.
- Learn more about drinking water quality and PFAS by visiting Michigan.gov/CareforMidDrinkingWater.



Wildlife, such as some fish and deer, have been found to have PFAS in their bodies. Eating wildlife that have been exposed to PFAS can also expose you to PFAS. If you are concerned about PFAS exposure from eating wildlife, you can:

- Learn about the lakes, rivers and other waterbodies in Michigan where it is safe to eat the fish. Visit Michigan.gov/EatSafeFish to learn more.
- Follow MDHHS Do Not Eat deer and wildlife advisories available at eh.michigan.gov/PFASWildlife.



Accidentally swallowing foam on surface water that contain PFAS is another way people may be exposed to PFAS. To reduce your exposure, you can:

- Avoid foam on lakes, rivers and any other surface water.
- Rinse off or shower after coming into contact with foam.
- For more information, visit eh.michigan.gov/PFASfoamFS.

For More Information

For more information on PFAS, visit Michigan.gov/PFASResponse.

If you have questions about PFAS and your health, call the MDHHS Environmental Health Hotline at 800-648-6942.



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