



# Per- and Polyfluoroalkyl Substances (PFAS) in Drinking Water

## What are per- and polyfluoroalkyl substances (PFAS)? Why are they found in drinking water?

PFAS are a large group of human-made chemicals that are fire resistant, and repel oil, stains, grease, and water. They are used in fire-fighting foams, stain repellants, nonstick cookware, waterproof clothing and shoes, fast food wrappers, personal care products, and many other consumer goods. These chemicals are very persistent, meaning they do not break down easily in the environment.

These chemicals are widely used and move in groundwater as well as lakes, rivers, and streams. Groundwater is water found underground in the cracks and spaces in soil, sand, and rock. Most private wells and some public water supplies use groundwater.

## How can exposure to high amounts of PFAS affect my health?



Research is ongoing to understand the effects PFAS might have on health. Having PFAS exposure or PFAS in your body does not mean you will necessarily have health problems now or in the future. Most people in health studies do not have health effects, even when exposed to high amounts of PFAS. Some health studies have found health effects linked to some PFAS such as:

- Decreased chance of a woman getting pregnant
- Increased chance of high blood pressure in pregnant women
- Increased chance of thyroid disease
- Changed immune response
- Increased cholesterol levels
- Increased chance of cancer, especially kidney and testicular cancers



Animal studies have been done to understand what might happen in people. Some animals given high amounts of PFOA and PFOS (two types of PFAS), showed:

- Birth defects, slow growth, and newborn pup deaths
- Harm to the liver
- Changed immune response

## Who is working on the PFAS issue in Michigan?

The Michigan PFAS Action Response Team brings together 10 state departments to provide a coordinated response to PFAS contamination in the state.

The Michigan Department of Environment, Great Lakes, and Energy (EGLE) collects water samples to find out where PFAS may be located and if it has entered drinking water wells. Wells being tested include those serving homes, schools, businesses, camps, medical care facilities, and parks. The Michigan Department of Health and Human Services (MDHHS) works with EGLE and the local health departments to make public health recommendations for residents about their drinking water.

## What numbers does MDHHS use to understand the risk to public health?

MDHHS has developed public health screening levels to protect everyone, including those most at risk of harm to their health: fetuses and breastfed babies. The screening levels also protect people during all stages of their lives.

MDHHS set public health screening levels for five types of PFAS in drinking water: perfluorooctanoic acid (PFOA), perfluorooctane sulfonic acid (PFOS), perfluorobutane sulfonic acid (PFBS), perfluorohexane sulfonic acid (PFHxS), and perfluorononanoic acid (PFNA). The screening levels are measured in nanograms per Liter (ng/L), which is equal to parts per trillion (ppt).

PFOA	PFOS	PFBS	PFHxS	PFNA
9 ng/L (ppt)	8 ng/L (ppt)	1000 ng/L (ppt)	84 ng/L (ppt)	9 ng/L (ppt)

The most scientific information available at this time is for these five types of PFAS. MDHHS will continue to review information on PFAS to determine if more public health screening levels are needed or if updates should be made.

## What does MDHHS consider when recommending public health actions?

To determine if public health actions should be taken, MDHHS uses different sources of information, including:

- Its screening levels
- Drinking water test results
- Information about the source of the PFAS and the way the groundwater is moving
- EGLE's residential drinking water criterion (If PFOA and PFOS are above 70 ppt in drinking water, EGLE can require action such as further testing)

After reviewing all of this information, MDHHS may recommend residents use another source of water, such as filtered water.

The State of Michigan has a website with information about its response to PFAS. Visit [Michigan.gov/PFASResponse](https://Michigan.gov/PFASResponse).

To learn more about filters used to reduce PFOA and PFOS, find the information on [In-Home Water Filtration Systems for PFAS Reduction](#) available at [Michigan.gov/PFASResponse](https://Michigan.gov/PFASResponse).

The Agency for Toxic Substances and Disease Registry has a website for PFAS. Visit [ATSDR.CDC.gov/PFAS](https://ATSDR.CDC.gov/PFAS).

MDHHS can help answer questions related to PFAS and health and public health recommendations. Call MDHHS at 800-648-6942.

EGLE can help answer questions about water sampling. Call the EGLE Environmental Assistance Center at 800-662-9278.