

Per- and Polyfluoroalkyl Substances

What are per- and polyfluoroalkyl substances?

Per- and polyfluoroalkyl substances (PFAS) are a large group of man-made chemicals that have been used in industry and consumer products worldwide since the 1950s. These chemicals are used to make products that resist stains, grease and water. They are used in many common products such as stain resistant carpet, clothing, non-stick cookware, and firefighting foam.

- PFAS do not occur naturally but are now widespread in the environment.
- PFAS are found in people, wildlife, and fish all over the world.
- Some PFAS do not break down easily in the environment.
- Some PFAS can stay in people's bodies a long time.

Many studies have focused on perfluorooctanoic acid (PFOA or C8) and perfluorooctane sulfonic acid (PFOS).

How can I be exposed to PFAS?

PFAS can be found in the environment near facilities where they are made or in areas where products containing PFAS are often used. PFAS may be found in contaminated drinking water, food, indoor dust, some consumer products, and workplaces. Most exposures occur through consuming contaminated food or water. Research is limited regarding exposures through skin, but based on current research, only a small amount of PFAS can get into your body through your skin, so very little PFAS exposure occurs during swimming, bathing, or showering in water contaminated with PFAS. Although some types of PFAS are no longer used, many products such as food packaging, firefighting foam and stain resistant treatments still contain PFAS.

What drinking water standards exist for PFAS in drinking water?

The U.S. Environmental Protection Agency (EPA) proposed new drinking water maximum contaminant levels for 6 PFAS chemicals (Table 1) in March 2023. The National Primary Drinking Water Regulations (NPDWR) are legally enforceable primary standards and treatment techniques that apply to public water systems. The proposed Maximum Contaminant Level (MCL) reflects the level that protects human health and that water systems can achieve using the best available technology. The proposed Maximum Contaminant Level Goal (MCLG) is the maximum level of a contaminant in drinking water at which no known or anticipated adverse effect on the health of individuals would occur.

Importantly, a drinking water standard is not a boundary line between "safe" and "dangerous" levels for a chemical. Generally, the lower the levels, the lower the risk of harm.

PFAS CHEMICAL	PROPOSED MAXIMUM CONTAMINANT LEVEL GOAL (MCLG)	PROPOSED MAXIMUM CONTAMINANT LEVEL (MCL)
PFOA	0 NG/L (PROPOSED)	4.0 NG/L (PROPOSED)
PFOS	0 NG/L (PROPOSED)	4.0 NG/L (PROPOSED)
HFPO-DA (GENX CHEMICALS)	1.0 HAZARD INDEX (HI)	1.0 HAZARD INDEX (HI)
PFBS		
PFHXS		
PFNA		



How can I reduce my exposure to PFAS?

It is difficult to fully prevent PFAS exposure because PFAS are present at low levels in some foods and in the environment. However, there are steps you can take to reduce your PFAS exposure.

- If you live near known sources of PFAS contamination or your drinking water contains PFAS, you may want to use a different water source or filter your water before drinking, cooking, and preparing infant formula. See below for more information on water supply testing.
- Reduce your use of [products containing PFAS](#) (packaged foods, products with non-stick or stain resistant coatings, and some personal care products). If you have questions about the products you use in your home, contact the Consumer Product Safety Commission at (800) 638-2772.
- Boiling water will NOT remove PFAS.

Who's responsible for testing my water? How often should it be tested?

Water from a Private Well

- If you live in the Fayetteville area or lower Cape Fear region, you may be eligible for free testing. Visit the North Carolina Department of Environmental Quality (NCDEQ) website at <https://deq.nc.gov/news/key-issues/genx-investigation/genx-information-residents> or contact the Chemours Fayetteville Works Plant to request well testing:
 - Bladen, Cumberland, Robeson and Sampson counties: (910) 678-1101
 - New Hanover, Brunswick, Pender or Columbus counties: (910) 678-1100
 - Those with GenX levels exceeding the EPA MCL may be eligible for replacement drinking water supplies or filtration.
- Other private well owners should regularly test their wells for many different possible contaminants. Info on PFAS testing and filtration can be found on the [PFAS Testing and Filtration Resources Fact Sheet](#) and routine private well testing can be found at <https://epi.dph.ncdhhs.gov/oe/wellwater/faqs.html>.

Water from a Public Water Supply

- Reach out to your water utility provider with questions regarding concentrations of PFAS in your public water supply. Several utilities monitor and PFAS in their finished drinking water and post results online for consumers.
- Several utilities in the lower Cape Fear region are already implementing treatment systems to limit levels of GenX and other PFAS in municipal drinking water supplies.

How can PFAS affect my health?

Whether you develop health problems after being exposed to PFAS depends on which PFAS, how much, and for how long you are exposed, and personal factors including age, lifestyle and how healthy you are. Communities with known PFAS contamination should take special care to reduce exposure.

It now is known that some PFAS can cause serious health problems if you are exposed to them – even at low levels over a long period of time. Drinking water is one of several ways people may be exposed to PFAS and reducing PFAS in drinking water helps reduce PFAS health risks. Exposure to the PFAS can increase the risks of a range of health effects, including:

- Reproductive effects such as increased high blood pressure in pregnant people
- Developmental effects or delays in children, including low birth weight, bone variations, or behavioral changes
- Increased risk of some cancers, including kidney, liver, and testicular cancers
- Reduced ability of the body's immune system to fight infections, including reduced vaccine effectiveness
- Interference with the body's natural hormones, including thyroid hormones
- Increased cholesterol levels
- Liver damage

This information will continue to be updated as more research is conducted.



What is being done to reduce PFAS in the environment?

NC government agencies are working on all fronts to continue to reduce exposures to GenX and other PFAS. This includes continuing efforts to reduce emissions and discharges from the Chemours plant and efforts to reduce GenX and other PFAS as much as possible in drinking water. The [NC Department of Environmental Quality's Action Strategy for PFAS](#) details NCDEQ's priorities and planned actions to reduce PFAS in North Carolina. The [US EPA's PFAS Roadmap](#) details national policies, priorities, and actions planned for the next five years.

For more information:

- NCDHHS: https://epi.dph.ncdhhs.gov/oee/a_z/pfas.html
- NCDEQ: <https://deq.nc.gov/news/key-issues/genx-investigation>
- CDC: www.atsdr.cdc.gov/pfas/index.html
- EPA: www.epa.gov/sdwa/and-polyfluoroalkyl-substances-pfas
- Food and Drug Administration: www.fda.gov/food/chemicals/and-polyfluoroalkyl-substances-pfas
- If you have questions or concerns about PFAS-related health effects, contact NCDHHS at (919) 707-5900.

