

Per- and Polyfluoroalkyl Substances (PFAS)

What are per- and polyfluoroalkyl substances?

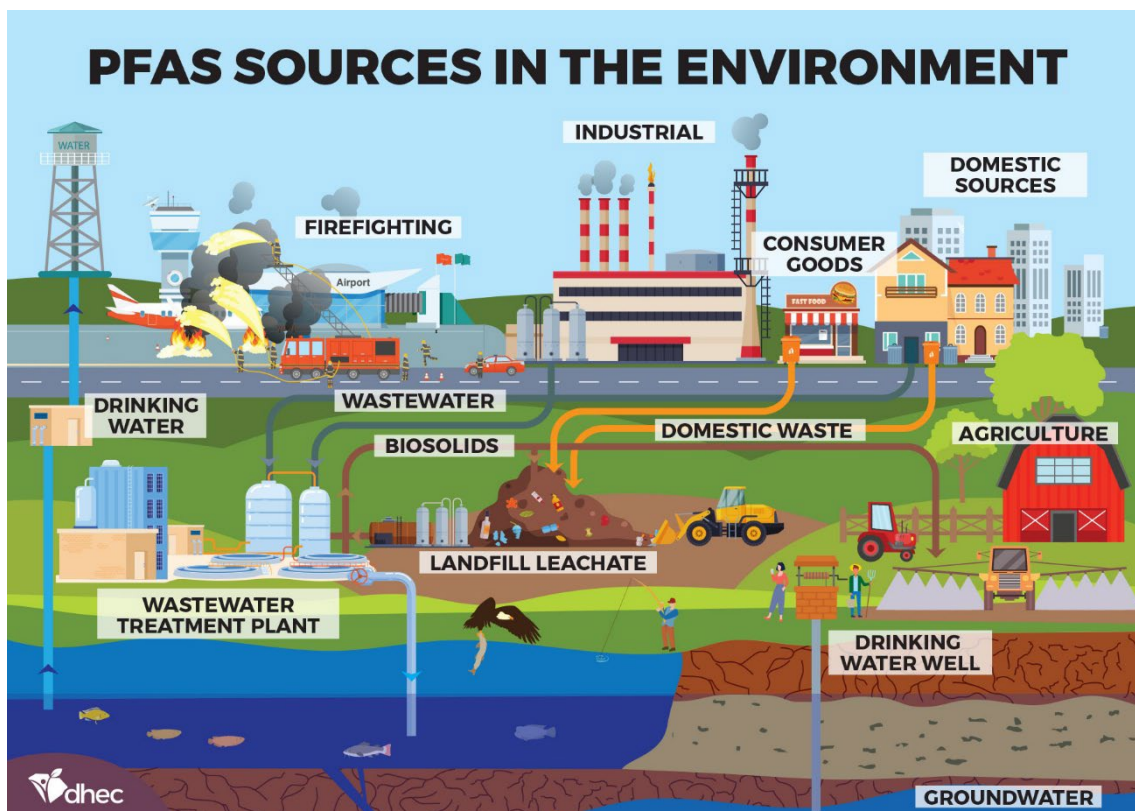
Per- and polyfluoroalkyl substances (PFAS) are a large group of man-made chemicals that have been used worldwide in consumer products and in some industrial applications. They have been used in the United States since the 1940s. PFAS are used to make products that resist heat, oil, stains, grease and water. Perfluorooctanoic acid (PFOA) and perfluorooctane sulfonic acid (PFOS) were the two most commonly produced and most studied of the group. PFOA and PFOS are no longer manufactured in the United States. PFAS chemicals:

- do not occur naturally but are widespread in the environment because of their broad and long-term uses
- are stable and do not break down easily in the environment (they are persistent)
- build up in biological tissues of people, wildlife, and fish over time if exposure continues

Where do PFAS come from and how do they get into drinking water and streams?

Because PFAS are man-made, they can be found near where they are manufactured; where used in some industrial applications; and/or, in some manufactured commercial and consumer products.

PFAS enters drinking water streams, rivers and lakes by direct discharge or indirect discharge (e.g., leaching) from sources such as a PFAS manufacturer, some types of wastewater treatment facilities, some land-applied wastewater sludges, landfills, U.S. military bases and/or firefighter training facilities.



How can I be exposed to PFAS?

For most people, the main ways of exposure are through use of consumer products where PFAS are used in their production and through eating food and drinking liquids that contain PFAS. Exposure to PFAS by contact with products using PFAS compounds through dermal absorption (by touching and passing through the skin) and inhalation are lesser human health concerns at this time.

Are PFAS harmful?

Human health effects from exposure to PFAS chemicals are not completely understood. However, studies have shown that exposure to some PFAS may affect developmental stages (growth, learning, behavior) of infants and older children; lower a woman's chance of getting pregnant; disrupt the body's hormones; increase cholesterol; and increase cancer risk (for PFOA). Impacts to flora and fauna in the natural environment due to PFAS exposure are also not well understood. However, it is known that those chemicals do accumulate in organisms and upward through the food web.

The U.S. Environmental Protection Agency has issued Lifetime Health Advisories for four PFAS chemicals in drinking water and draft ambient water quality criteria for freshwaters (stream, lakes) and fish tissue. Health advisories and water quality criteria are chemical concentrations that should not be exceeded in the waters.

How can I reduce my water-related exposure to PFAS?

Because PFAS are present in so many different consumer products and throughout our environment, it is not reasonably possible to prevent PFAS exposure altogether. However, some steps can be taken to reduce your exposure.

- If you're concerned about PFAS compounds in your drinking water, consider using an alternate water source not affected by PFAS for drinking, food preparation, brushing teeth, and/or preparing infant formula.
- Water affected by PFAS is not known to pose a risk for bathing, showering, or washing clothes and cleaning.
- Activated carbon filtration or reverse osmosis membranes are effective in reducing PFAS in water supplies.
- Read consumer product labels and avoid using those products with PFAS.

What is DHEC doing about PFAS?

The Bureau of Water has developed and is implementing, strategies for assessing PFAS in the State's waters:

- **Community Drinking Water Assessment**
 - Focuses on community, or public, water systems
 - Contact: Richard Welch, PE; 803-898-3546; welchra@dhec.sc.gov
- **Ambient Surface Water Assessment**
 - Focuses on lakes, rivers and streams and fish tissue
 - Contact: Matthew Baumann, Ph.D.; 803-898-4249; baumanms@dhec.sc.gov
- **Private Drinking Water Assessment**
 - Focuses on private (individual) residential wells
 - Contact: Dustin Leypoldt; 803-898-4312; leypold@dhec.sc.gov
- **Wastewater Sludge Assessment**
 - Focuses on sludge from wastewater treatment facilities that is used as a soil amendment or additive by land application for a beneficial use
 - Contact: Crystal Rippey; 803-898-3964; rippycd@dhec.sc.gov