

Per- and Polyfluoroalkylated Substances (PFAS) in Drinking Water

What are Per- and Polyfluoroalkylated Substances (PFAS)?

PFAS are a group of more than 9,000 man-made chemicals used in a wide variety of industry and consumer products since the 1940s. PFAS do not occur naturally in the environment. The two most common and most studied PFAS chemicals are PFOA (perfluorooctanoic acid) and PFOS (perfluorooctane sulfonate).

PFAS can be found in many products, such as: paper and cardboard coatings, leather products, stain-resistant carpet, upholstery, clothing, non-stick cookware, food packaging, paints, varnishes, sealants, cleaning products, personal care products, cosmetics, fire retardants, and in the production of electronics, plastics, and metals.

PFAS can remain in the environment for a long time and have been detected in:

- landfill sites
- industrial sites that use PFAS chemicals
- locations where fire-fighting foams have been used



How do PFAS enter the body?

All Canadians are exposed to PFAS because these chemicals have been used in many products and last in the environment for a long time.

In most cases, the main route of exposure is through ingestion. PFAS are not easily absorbed into the skin, and are usually not inhaled since most PFAS are not volatile. Infants, toddlers, and children may be exposed through hand-to-mouth contact with fabrics and products containing PFAS.

Common PFAS sources include:

- Water bottles
- Food packaging materials
- Non-stick cookware

Can PFAS affect health?

Our understanding of the association of PFAS with potential human health effects is evolving as new research emerges. Possible health effects from ingesting PFAS depend on how much PFAS you are exposed to and for how long. Scientists are still learning about the health effects of exposures to mixtures of different PFAS. Most health effects associated with PFAS are also linked with other chemicals or causes. This makes it difficult to link specific health issues to PFAS exposure alone.

Potential human health effects that may be associated with high levels of exposure to certain PFAS include some cancers (e.g., kidney, testicular), increased cholesterol levels, reduced ability of the body's immune system to fight infections, and decreased fertility. Overall, human health effects are still uncertain.

Where individuals are known to be exposed to high concentrations of PFAS, exposure reduction measures can be taken while the research on potential health effects continues. Examples of exposure reduction measures include installing a drinking water treatment system where warranted (see more below).



What is an acceptable level of PFAS in drinking water?

PFAS levels are not monitored regularly in Canada's municipal drinking water systems. In Ontario, the drinking water guidelines do not include maximum acceptable concentrations for PFAS.

Ontario set an interim guidance of 70 ng/L for a sum of 11 PFAS in 2017. In 2024, Health Canada posted a Drinking Water Objective of 30 ng/L for 25 PFAS. Both are based on treatment technology.

If my drinking water is above the recommended levels of PFAS, how can I reduce my exposure?

Install a water filter certified to reduce PFAS. Professionals specializing in water treatment can offer suggestions on effective treatment options for PFAS, such as adsorption by granular activated carbon, ion exchange resin, or high pressure membranes (e.g., nanofilters and reverse osmosis).

Note: Boiling water will concentrate the PFAS chemicals and will not remove them.

It is safe to use water with elevated PFAS levels for bathing and showering, washing dishes, brushing teeth, laundry and other household uses that do not involve consumption of the water by cooking or drinking.



What are other ways to limit PFAS exposure?

To reduce exposure to PFAS, focus on minimizing contact with contaminated sources. This may include, but is not limited to, using filtered drinking water, choosing PFAS-free products (cookware and food packaging, avoiding stain-resistant products).

Can I use water with elevated PFAS in it for other purposes (animals, livestock)?

PFAS can have health effects in animals. Using a water treatment device (described above), or an alternate source of drinking water is recommended if high levels of PFAS are in the drinking water provided to animals.

For more information about PFAS, please contact:

Grand Erie Public Health: 519-753-4937 ext. 470 (Brantford/Brant)

Ministry of the Environment, Conservation and Parks | Public Health Ontario: www.ontario.ca

Health Canada: www.canada.ca