



Perfluorooctane Sulfonate (PFOS) & Perfluorooctanoic Acid (PFOA) in Drinking Water

Frequently Asked Questions for Consumers

FACT SHEET 95-001-0217

Army-owned or operated drinking water systems are being sampled for PFOS and PFOA as part of the Army's ongoing effort to ensure Soldiers, Civilians and Family Members have access to good quality drinking water. This sampling is being conducted to ensure that PFOS and PFOA are not present at concentrations that exceed the new U.S. Environmental Protection Agency (EPA) lifetime health advisory (LHA) levels, issued in May 2016. The Army will inform consumers of sampling results and the actions taken to eliminate or reduce PFOS and PFOA in water systems if concentrations are detected above the LHA levels.

What type of chemicals are PFOS and PFOA and where are they found?

PFOS and PFOA are perfluorinated compounds (PFCs), a family of man-made chemicals that have been used for many years in various products such as carpets, clothing, fabrics, paper packaging for food and other materials that are resistant to water, grease and stains. They have also been part of the chemical makeup of aqueous film forming foam (AFFF), an important product used by military and civilian firefighting units to suppress fuel fires. AFFF is often directly discharged into the environment where it is used to fight fires, such as at an airfield. The EPA has promoted the phasing out of PFOS, PFOA and similar PFCs in products since the early 2000s (ATSDR 2015a).

What are the PFOS and PFOA LHA levels for drinking water?

In May 2016, the EPA released LHAs for PFOA and PFOS in drinking water. These LHAs represent a concentration in drinking water that is not expected to produce adverse effects with daily consumption over an entire lifetime. The PFOS and PFOA LHAs are 70 parts per trillion (ppt) individually or combined if both are detected in drinking water.

What is known about the possible health effects of exposure to PFOS or PFOA in drinking water?

The Agency for Toxic Substances and Disease Registry (ATSDR) recent conclusion regarding overall findings from studies performed to date is that, "studies in humans and animals are inconsistent and inconclusive but suggest certain PFAS (*i.e.*, *PFOS and PFOA*) may affect a variety of possible endpoints. Confirmatory research is needed." A connection between PFOS and PFOA exposure and cancers continues to be evaluated (ATSDR, 2015b).

The EPA LHA levels are based on the best available peer-review studies of the effects of PFOS and PFOA on laboratory animals and epidemiological studies of human populations exposed to PFOS and PFOA. The EPA suggests that notification is especially important for pregnant and nursing women, because of the unknown impact these chemicals could have on developing fetuses and breast- or formula-fed infants (EPA, 2016).

How are people exposed to PFOS and PFOA and what can be done to reduce exposure?

ATSDR has stated that exposure is most likely through contaminated food and water, although it may occur through house dust, consumer packaging, and consumer products such as non-stick coating on cookware and surface-protection

coatings on clothing and carpets. It is not clear whether a person can avoid getting PFOS and PFOA into their body by limiting the use of PFC-containing products. ATSDR has stated that they are not able to recommend specific ways to reduce a person's exposure to PFCs other than avoiding products known to contain them.

Is it safe to bathe or swim in water contaminated with PFOS or PFOA?

There are no known studies to show that swimming or bathing in water containing PFOS or PFOA can be harmful to your health. ATSDR has stated that it is safe to shower and bathe in PFC-contaminated water (ATSDR, undated). PFOS and PFOA are not easily absorbed through the skin, and accidentally swallowing water while bathing or swimming will not result in a significant exposure.

Are there medical tests to determine if I have been exposed to PFOS or PFOA? According to ATSDR, while exposure to PFOS and PFOA can be measured through a blood sample, finding measurable amounts in your blood does not necessarily mean that your health is being harmed. In fact, almost everyone has a detectable level of PFOS or PFOA in their blood (EPA and ATSDR, 2016). ATSDR has stated that, "there are no guidelines to support laboratory testing to monitor perfluoroalkyl and polyfluoroalkyl substances." Further, a blood test will not reveal how, where or when a person may have been exposed to PFOS/ PFOA.

Do PFOS and PFOA pose a health threat to pregnant women or breast-fed infants?

ATSDR has stated that exposure to PFCs before pregnancy has been associated with pregnancy-induced hypertension and pre-eclampsia, but also notes that this occurs in many pregnancies and the specific cause is often unknown. According to ATSDR, PFCs such as PFOS and PFOA can move from a mother's blood into her breast milk. However, concentrations in the breast milk are much lower than in the mother's blood. ATSDR considers

the benefit of breastfeeding to outweigh the concern of PFOS and PFOA in the breast milk. The EPA recommends consumers, especially sensitive populations, reduce exposure if their drinking water source has PFCs above the LHA levels. EPA also provides that pregnant and nursing mothers can reduce risk by seeking an alternate drinking water source that is known to have PFOS and PFOA levels below the LHA. For formula-fed infants, EPA notes that mothers may choose to use water from an alternate source to mix with powdered or concentrated formula or use formula that does not require adding water (ready-to-feed).

Who should I talk to if I have health concerns? If you have any concerns regarding potential exposure to PFOS and PFOA in drinking water, please discuss your concerns with your primary care provider.

Where can I find out more about PFOS and PFOA?

U.S. Environmental Protection Agency: <https://www.epa.gov/ground-water-and-drinking-water/drinking-water-health-advisories-pfoa-and-pfos>
Agency for Toxic Substances & Disease Registry: <http://www.atsdr.cdc.gov/toxfaqs/tf.asp?id=1116&tid=237>

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