

Perfluorooctane sulfonic acid (PFOS) | 2019 Cycle 10

Substance Overview

Perfluorooctane sulfonate (PFOS) is a chemical in a group of contaminants called per- and polyfluoroalkyl substances (PFAS). Because of its chemical properties, PFOS has been used as stain repellants in commercial products like carpet and fabric, as a coating for packaging, and in some fire-fighting foams.¹ PFOS can persist in the environment and in the body for long periods of time.¹

Recommendations

Wisconsin does not currently have a NR140 Groundwater Quality Public Health Enforcement Standard for PFOS.

DHS recommends an enforcement standard of 20 nanograms per liter (ng/L) for PFOS. This standard is based on the Agency for Toxic Substances and Disease Registry's (ATSDR's) intermediate oral minimum risk level for PFOS.

This standard applies to the sum of PFOS and PFOA concentrations in groundwater.

DHS recommends that the NR140 Groundwater Quality Public Health Preventive Action Limit for PFOS be set at 10% of the enforcement standard because PFOS have been shown to have carcinogenic, teratogenic and interactive effects.

Health Effects

Studies in workers and people living in areas with high levels of PFOS in drinking water show that PFOS may increase cholesterol, damage the liver, cause pregnancy-induced hypertension, increase the risk for thyroid disease, decrease antibody response to vaccines, decrease fertility, and cause small decreases in birth weight.¹⁻³ Studies in research animals have found that PFOS can cause damage to the liver and the immune system. PFOS has also been shown to cause birth defects, delayed development, and newborn deaths in animals, indicating that PFOS can cause teratogenic effects.

The EPA has classified PFOS as having suggestive evidence of carcinogenic potential.^{2,3} PFOS has not been shown to have mutagenic effects.¹⁻³ Both PFOA and PFOS have been shown to cause the same or similar effects on the immune system, development, and reproduction in people and research animals indicating that PFOS can cause interactive effects.¹⁻³

Current Standards

Enforcement Standard:	N/A
Preventive Action Limit:	N/A
Year:	N/A

Recommended Standards

Enforcement Standard:	20 ng/L
Preventive Action Limit:	2 ng/L
(sum of PFOS and PFOA)	

References

1. ATSDR. Toxicological Profile for Perfluoroalkyls - Draft for Public Comment. In: Registry of Toxic Substances, ed. Atlanta, GA2017.
2. USEPA. Drinking Water Health Advisory for Perfluorooctane sulfonic acid (PFOS) In. Vol EPA 822-R-16-0042016.
3. USEPA. Health Effects Support Document for Perfluorooctane sulfonic acid (PFOS) In. Vol EPA 822-R-16-0022016.

This document is a summary of the Scientific Support Document for the Cycle 10 Recommended Groundwater Standard for this substance. The recommendations in this summary were developed in accordance with [Chapter 160](#), Wis. Stats.

