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Drinking Water Health Advisories for PFOA and PFOS

Health Advisories

EPA has established health advisories for PFOA and PFOS based on the agency's assessment of the latest peer-reviewed science to provide drinking water system operators, and state, tribal and local officials who have the primary responsibility for overseeing these systems, with information on the health risks of these chemicals, so they can take the appropriate actions to protect their residents. EPA is committed to supporting states and public water systems as they determine the appropriate steps to reduce exposure to PFOA and PFOS in drinking water. As science on health effects of these chemicals evolves, EPA will continue to evaluate new evidence.

To provide Americans, including the most sensitive populations, with a margin of protection from a lifetime of exposure to PFOA and PFOS from drinking water, EPA has established the health advisory levels at 70 parts per trillion.

What's a health advisory?

Health advisories provide information on contaminants that can cause human health effects and are known or anticipated to occur in drinking water. EPA's health advisories are non-enforceable and non-regulatory and provide technical information to states agencies and other public health officials on health effects, analytical methodologies, and treatment technologies associated with drinking water contamination. EPA's health advisory level for PFOA and PFOS offers a margin of protection for all Americans throughout their life from adverse health effects resulting from exposure to PFOA and PFOS in drinking water.

What health effects are the basis for the health advisories?

EPA's health advisories are based on the best available peer-reviewed studies of the effects of PFOA and PFOS on laboratory animals (rats and mice) and were also informed by epidemiological studies of human populations that have been exposed to perfluoroalkyl substances (PFASs). These studies indicate that exposure to PFOA and PFOS over certain levels may result in adverse health effects, including developmental effects to fetuses during pregnancy or to breastfed infants (e.g., low birth weight, accelerated puberty, skeletal variations), cancer (e.g., testicular, kidney), liver effects (e.g., tissue damage), immune effects (e.g., antibody production and immunity), thyroid effects and other effects (e.g., cholesterol changes). There is limited information identifying health effects from inhalation or dermal exposures to PFOA or PFOS in humans and animals. To learn more about the underlying studies for the health advisories, see EPA's Health Effects Support Documents for PFOA and PFOS. <https://epa.gov/ground-water-and-drinking-water/supporting-documents-drinking-water-health-advisories-pfoa-and-pfos>

- **Read more questions and answers** <https://epa.gov/node/251099>

Additional PFOA and PFOS Information

- General about PFOA, PFOS and Other PFAS <https://epa.gov/pfas>
- PFOA and PFOS UCMR data <https://epa.gov/dwucmr>
- Laboratory Method 537 Q&A <https://epa.gov/node/204271>
- EPA programs
 - TSCA related <https://epa.gov/assessing-and-managing-chemicals-under-tsca/and-polyfluoroalkyl-substances-pfass-under-tsca>
 - Research Activities <https://epa.gov/chemical-research/perfluorinated-chemical-pfc-research>
- Federal partners
 - ATSDR [EXIT https://www.atsdr.cdc.gov/pfas/](https://www.atsdr.cdc.gov/pfas/)
- En español: Avisos de salud sobre el PFOA y PFOS en el agua potable <http://espanol.epa.gov/espanol/avisos-de-salud-sobre-el-pfoa-y-pfos-en-el-agua-potable>

Basic Information

- Fact Sheet on PFOA and PFOS Drinking Water Health Advisories (November 2016) [<https://epa.gov/node/149925/>](https://epa.gov/node/149925/)
 - HOJA INFORMATIVA Presencia de PFOA y PFOS en el agua potable Avisos de salud [<https://espanol.epa.gov/espanol/hoja-informativa-presencia-de-pfoa-y-pfos-en-el-agua-potable-avisos-de-salud>](https://espanol.epa.gov/espanol/hoja-informativa-presencia-de-pfoa-y-pfos-en-el-agua-potable-avisos-de-salud)
- EPA memorandum "Clarification about the Appropriate Application of the PFOA and PFOS Drinking Water Health Advisories [<https://epa.gov/ground-water-and-drinking-water/supporting-documents-drinking-water-health-advisories-pfoa-and-pfos/>](https://epa.gov/ground-water-and-drinking-water/supporting-documents-drinking-water-health-advisories-pfoa-and-pfos/)" (November 2016)

Technical Information

- FR Notice on the Health Advisories for PFOA and PFOS (May 25, 2016) [EXIT <https://www.gpo.gov/fdsys/pkg/fr-2016-05-25/pdf/2016-12361.pdf>](https://www.gpo.gov/fdsys/pkg/fr-2016-05-25/pdf/2016-12361.pdf)
- 2016 PFOA Health Advisory [<https://epa.gov/ground-water-and-drinking-water/supporting-documents-drinking-water-health-advisories-pfoa-and-pfos>](https://epa.gov/ground-water-and-drinking-water/supporting-documents-drinking-water-health-advisories-pfoa-and-pfos)
- 2016 PFOA Health Effects Support Document [<https://epa.gov/ground-water-and-drinking-water/supporting-documents-drinking-water-health-advisories-pfoa-and-pfos>](https://epa.gov/ground-water-and-drinking-water/supporting-documents-drinking-water-health-advisories-pfoa-and-pfos)
- 2016 PFOS Health Advisory [<https://epa.gov/ground-water-and-drinking-water/supporting-documents-drinking-water-health-advisories-pfoa-and-pfos>](https://epa.gov/ground-water-and-drinking-water/supporting-documents-drinking-water-health-advisories-pfoa-and-pfos)
- 2016 PFOS Health Effects Support Document [<https://epa.gov/ground-water-and-drinking-water/supporting-documents-drinking-water-health-advisories-pfoa-and-pfos>](https://epa.gov/ground-water-and-drinking-water/supporting-documents-drinking-water-health-advisories-pfoa-and-pfos)
- 2016 EPA Response to Peer Review Comments [<https://epa.gov/ground-water-and-drinking-water/supporting-documents-drinking-water-health-advisories-pfoa-and-pfos>](https://epa.gov/ground-water-and-drinking-water/supporting-documents-drinking-water-health-advisories-pfoa-and-pfos)

Provisional Health Advisories and Draft Health Effects Documents

Technical documents

- 2009 Provisional Health Advisory [<https://epa.gov/sdwa/provisional-health-advisories-perfluorooctanoic-acid-pfoa-and-perfluorooctane-sulfonate-pfos>](https://epa.gov/sdwa/provisional-health-advisories-perfluorooctanoic-acid-pfoa-and-perfluorooctane-sulfonate-pfos)
- 2014 Draft Health Effects Document for Perfluorooctanoic Acid (PFOA) [EXIT](#)
- 2014 Draft Health Effects Document for Perfluorooctane Sulfonate (PFOS) [EXIT](#)
- Peer Reviewer Summary Report: External Peer Review of EPA's Draft Health Effects Documents for Perfluorooctanoic Acid (PFOA) and Perfluorooctane Sulfonate (PFOS) [EXIT](#)

Peer Review

- Contractor Led Peer Review [<https://epa.gov/ground-water-and-drinking-water/>](https://epa.gov/ground-water-and-drinking-water/)

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Safe Drinking Water Information System
For Students and Teachers <https://www.epa.gov/ground-water-and-drinking-water/drinking-water-activities-kids-and-teachers>

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