



CENTER FOR TRUTH IN SCIENCE

Seeking integrity in the pursuit of scientific knowledge.

Per-and Polyfluoroalkyl Substances Issue Primer

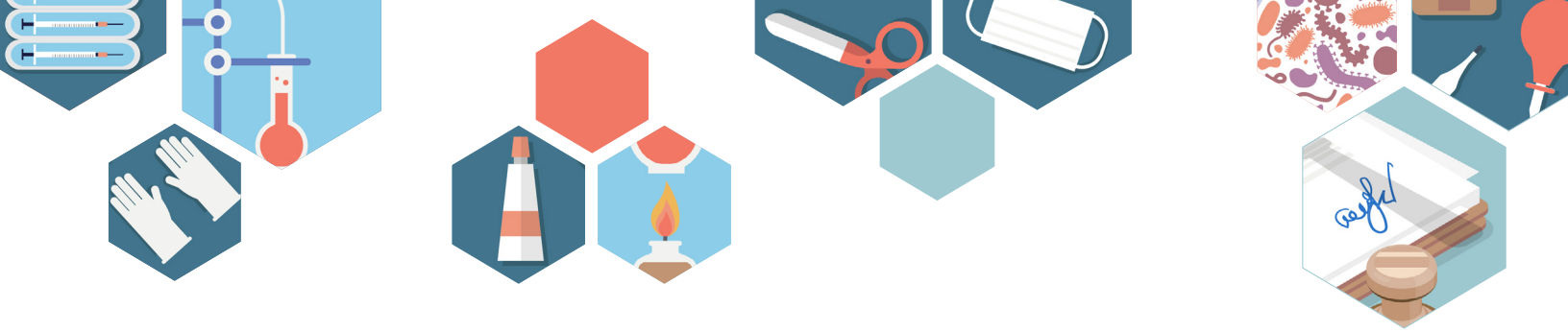
Overview

Per-and polyfluoroalkyl substances (PFAS) are a group of man-made chemicals that includes PFOA, PFOS, GenX, and many others. PFAS have been manufactured and used in a variety of industries around the globe, including in the United States since the 1940s, and are found in more than 4,700 products including packaged food and household cleaners.

PFAS are commonly found in the blood of people and animals all over the world and are present at low levels in a variety of products—the vast majority are innocuous. Concerns have been raised regarding a potential link between PFAS exposure and cancer. Despite the fact that the Centers for Disease Control (CDC) [found that](#) “more research is needed to assess the human health effects of exposure to PFAS,” since 2017, more than \$2.45 billion has been paid through mass litigation settlements based on inconclusive science.

Fast facts

- PFAS is an acronym that stands for per-and polyfluoroalkyl substances, which are groups of man-made chemicals.
- PFAS have been manufactured and used in a variety of industries around the globe, including in the United States, since the 1940s, and are found in more than [4,700 products](#), including packaged food and household cleaners.
- PFAS are commonly found in the blood of people and animals all over the world and are present at low levels in a variety of products. The vast majority are innocuous.
- There is evidence, albeit inconsistent, that these substances may be carcinogenic and have adverse effects on the human immune system. However, the Centers for Disease Control and Prevention [describes](#) the health effects as “uncertain,” and that “more research is needed to assess the human health effects of exposure to PFAS.”
- Since 2017, more than \$2.45 billion has been paid through mass litigation settlements involving PFAS based on inconclusive science. The EPA concluded there is “suggestive” evidence of the carcinogenicity of PFOS (perfluorooctane sulfonic acid) and PFOA (perfluorooctanoic acid) in humans. In 2017, the International Agency for Research on Cancer (IARC), a division of the World Health Organization, concluded that PFOA is “possibly carcinogenic to humans.” The National Toxicology Program (NTP) concluded that both PFOS and PFOA should be “presumed to be an immune hazard to humans” based on a high level of evidence that the two compounds suppressed the antibody response from animal studies and a moderate level of evidence from studies in humans. The Center for Disease Control (CDC) is content that the evidence is not sufficient to condemn either PFOS and PFOA, and states on its website that “[more research is needed](#) to assess the human health effects of exposure to PFAS.”



Timeline

1940s-1950s: Scientists develop perfluorooctane sulfonic acid (PFOS) and perfluorooctanoic acid (PFOA), two PFAS used in stain- and water-resistant products, protective coatings and firefighting foams.

1970s: Studies find PFAS in the blood of occupationally exposed workers.

1990s: Reported trace quantities in the blood of the [general human population](#).

2003: 3M Corporation, the principal worldwide manufacturer and sole U.S. manufacturer of PFOS, announced a voluntary phase-out of PFOS, PFOA and related precursors.

2008: 3M completes phase-out.

2020: EPA publishes action plan on PFOS and PFOA.

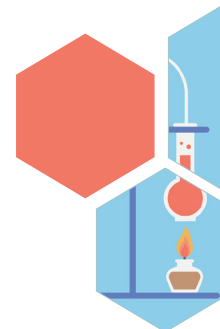
How PFAS is regulated in the U.S.

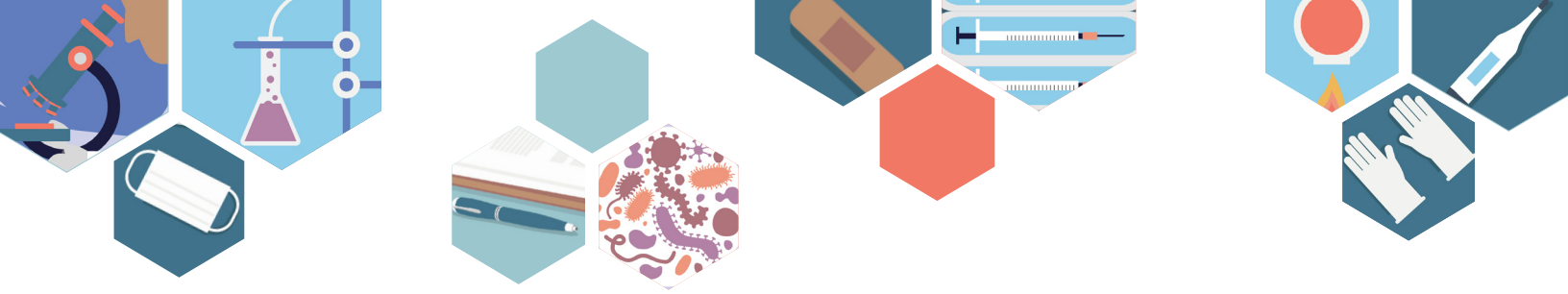
PFOS and PFOA were in production prior to the inception of the U.S. Environmental Protection Agency (EPA) and the relevant pieces of legislation under which it derives authority: the Safe Drinking Water Act of 1974 (SDWA) and the Toxic Substances Control Act of 1976 (TSCA).

TSCA, as enacted in 1976, dictated that all existing chemicals (it listed 62,000 of them) were considered to be safe for use and subsequently “grandfathered” in. TSCA also gave the EPA authority to investigate the risks posed by a chemical before going into production.

Additionally, the EPA can also regulate any chemicals that pose an “unreasonable” risk to human health or the environment and, under extreme circumstances, the EPA reserves the right to ban a chemical. This has only been done with five compounds: PCBs, CFCs, dioxin, asbestos and hexavalent chromium. The EPA’s power is restricted by the following caveat: it can only order safety testing and regulation after evidence is presented demonstrating a chemical poses a risk of harm. Consequently, the EPA has only required testing for about 200 of the more than 84,000 chemicals now registered for production or distribution within the U.S.

In 2016, TSCA was amended by the Frank R. Lautenberg Chemical Safety for the 21st Century Act. The Act mandated the EPA to evaluate existing chemicals (those already grandfathered in) with clear and enforceable deadlines. All chemicals must now be assessed against a risk-based safety standard.





Having concluded there is suggestive evidence of the carcinogenicity of PFOS and PFOA in humans, the EPA in 2019 published a [72-page plan](#) outlining:

- Actions the agency has previously taken with respect to PFOS and PFOA.
- Methods of reducing exposure.
- Efforts to identify contaminated regions and water supplies.
- The cost-effectiveness of different methods for removing PFAS from contaminated areas.

On Feb. 26, 2020, the EPA press office released an update on their action plan, which included:

- A preliminary determination to regulate PFOA and PFOS in drinking water.
- A supplemental proposal to ensure new uses of persistent long-chain PFAS chemicals in surface coatings cannot be manufactured or imported into the United States without notification and review.
- A new validated method to accurately test for 11 additional PFAS in drinking water.
- Interim recommendations for addressing groundwater contaminated with PFOS and PFOA, providing guidance for federal cleanup programs.
- \$4.8 million in funding for research on managing PFAS in agriculture.

The Center's Focus

The Center for Truth in Science seeks to determine if there is conclusive, consistent scientific evidence that demonstrates a link between exposure to PFAS and the development of cancer or other chronic illnesses.

The Center also seeks to examine the potential economic impact of government-imposed limits or bans on the use of PFAS.

