



# Per- and Polyfluoroalkyl Substances (PFAS)

## WHAT IS ITRC?

The Interstate Technology Regulatory Council (ITRC) is a state-led, public-private coalition dedicated to reducing barriers to the use of innovative environmental technologies. ITRC represents over 700 individuals, across 50 states, working to produce guidance and training on innovative environmental solutions. Bringing together teams of state and federal regulators along with private, academic, and stakeholder experts, ITRC broadens and deepens technical knowledge and reduces barriers to expedient regulatory approval. Since 1995, the collective success of this coalition has generated huge benefits to the environment, inspired new technical innovations, and saved hundreds of millions of dollars.

ITRC is a program of the Environmental Research Institute of the States, managed by the Environmental Council of the States. This partnership is based on a commitment to protect and improve human health and the environment across the U.S.

## ABOUT PFAS IN THE ENVIRONMENT

Per- and polyfluoroalkyl substances such as perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS) are a large and complex class of anthropogenic compounds often referred to collectively as PFAS. PFAS have been widely used in numerous industrial and residential applications since the 1950's. Their stability and unique chemical properties are used to produce waterproof, stain resistant, and nonstick qualities in products. They are found in some formulations of aqueous film-forming foam (AFFF) used for Class B firefighting, metal plating baths, mining and oil surfactants, and a wide range of consumer products such as carpet treatments, non-stick cookware, water-resistant fabrics, and food packaging materials.

Certain PFAS are environmentally persistent and bioaccumulative, and are suspected to pose human health risks. The U.S. Environmental Protection Agency (EPA) categorizes the carcinogenic potential of PFOA and PFOS as *suggestive* based on peer-reviewed studies of the effects of long-term high-level exposures on laboratory animals and of long-term, high-level exposures on laboratory animals and some limited evidence in exposed human populations. Animal studies have also found effects on the liver, development, and immune system responses at environmentally relevant concentrations. Some human studies suggest links, but have not confirmed causality, between PFAS and certain human health outcomes such as cholesterol levels, birth weight, pregnancy-induced hypertension, kidney and testicular cancer, and immune system function.

The prevalence of PFAS compounds in the environment is becoming broadly recognized throughout the United States and globally. PFAS have been detected in a range of exposure pathways including surface water, groundwater, drinking water, sediment, fish, and more. Environmental sources include the widespread use of AFFF by the federal government and state and local emergency response facilities, primary manufacturing plants, intermediate manufacturing facilities, and waste disposal facilities. Discoveries of new sites in the northeastern parts of the U.S. indicate that PFAS may be potentially entering the environment through other sources as well.

## ITRC PFAS PROJECT: SPEARHEADING THE PFAS PROBLEM

One of ITRC's key strategies is to look ahead to future environmental challenges, and be ready to focus resources on developing innovative response solutions. The scientific community's understanding of PFAS

sources, environmental fate and transport, analytical methods, and remediation is growing rapidly. However, there is no central clearinghouse or scientific resource available that summarizes the latest science and emerging technologies in a manner that fits the varied needs of States and stakeholders contending with PFAS in the environment. As a result, ITRC proposes to fill that gap to produce the broad technical understanding necessary for informed and expedited decisions by regulators and policy makers. A resource of key technical and regulatory information will be valuable for stakeholders to be able to efficiently and effectively understand risk management strategies being developed for PFAS contamination.

The team's work will culminate in the production of a technical and regulatory guidance document, and Internet based training course addressing 4 key points:

### WHY NOW?

State regulators across the nation are finding themselves faced with PFAS exposure concerns. Citizens and political representatives demand immediate answers and assessments, requiring regulators to rapidly learn about PFAS compounds, and the magnitude of potential human and environmental exposure. Moreover, the EPA's recent establishment of health advisory levels for PFOA and PFOS at 70 parts per trillion has further focused public and regulatory scrutiny on PFAS, and demonstrates the need for a concise technical resource for regulators and other stakeholders. The team's work will further serve as a basis for how to discuss PFAS issues with the public and how to educate policy makers on the challenges posed by PFAS compounds.

- Explain in detail the current scientific knowledge regarding fate and transport, characterization strategies and methods, and remedial options.
- Provide links and sources to the pertinent scientific literature.
- Provide summaries of the physical and chemical characteristics of PFAS compounds, and their history of use and environmental sources.
- Provide a comprehensive technical and regulatory resource presenting stakeholders' points of views

Prior to the release of the Tech-Reg document and training course the team will produce a series of Fact Sheets. Each Fact Sheet will synthesize key information for one of the following core subjects:

- 1) Naming Conventions and Physical and Chemical Properties
- 2) Regulations, Guidance, and Advisories
- 3) History and Use
- 4) Environmental Fate and Transport
- 5) Site Characterization Tools, Sampling Techniques, and Laboratory Analytical Methods
- 6) Remediation Technologies and Methods
- 7) Aqueous Film-Forming Foams (AFFF)

### JOIN THE TEAM!

The PFAS Team began its work in January 2017! By joining the team, you will help write the guidance document and develop training to support improved decision making at PFAS sites.

To join, visit <http://itrcweb.org/Membership/TeamRegistration>.

## Team Leaders

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