GERSTEL
MAKING LABS WORK

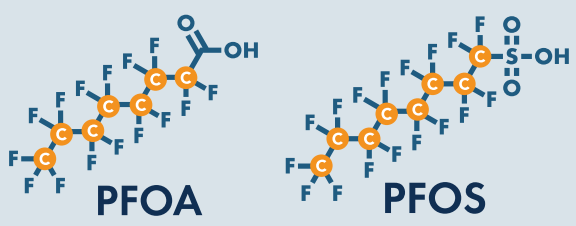
Per- and Polyfluoroalkyl Substances (PFAS)

What are PFAS?

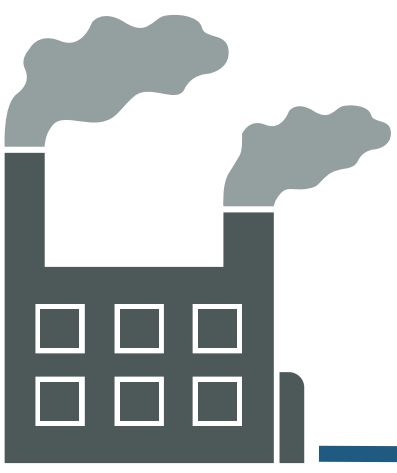
Per- and polyfluoroalkyl substances, or PFAS, are a group of man-made compounds consisting of multiple shared bonds between Carbon and Fluorine.

Carbon-Flourine Bond

The most studied types of PFAS



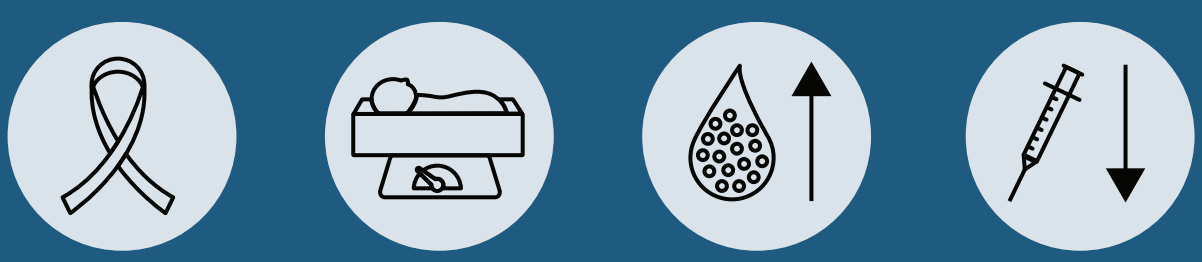
PFAS have been manufactured since the 1940s with heat, oil, and water-resistant properties, making them useful in modern conveniences, including:



Manufacturing Industry

With over 6,000 known PFAS, contamination occurs at various stages of production, product use, and industrial waste and waste sites.

Health Effects of PFAS



Environmental Impact and Analytical Methods

These "forever chemicals" do not naturally break down in the environment, but persist for decades if not centuries. To protect the environment and human health, many governmental regulations on PFAS testing are being introduced.

Where are you looking for PFAS?

PFAS in Water

Analytical Methods:

EU and US regulations

- ISO 21675
- ISO 25101
- DIN 38407-42
- US EPA 537.1
- US EPA 533
- US EPA draft method 1633

Solution:

Automated SPE prior to LC-MS/MS

PFAS in Air

Analytical Methods:

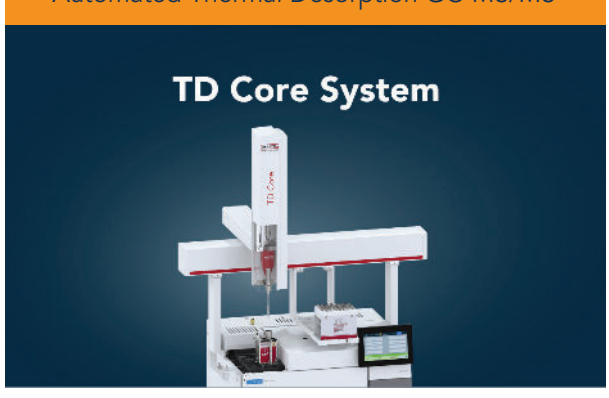
No official methods for volatile PFAS

- OTM-45 for exhaust stack emissions

ASTM and ISO non-governmental methods are currently in development

Solution:

Automated Thermal Desorption GC-MS/MS



For more information:

www.gerstelus.com/resources/what-are-per-and-polyfluoroakyl-substances-pfas/