testing for life

PFAS

Per- and polyfluoroalkyl substances (PFAS) are a group of synthetic chemicals that have been widely used in various industrial and consumer products because of their unique properties, such as heat and chemical resistance, oil and water repellency and stability. PFAS have been recognized as emerging contaminants.

PFAS in the environment

One of the major sources of PFAS contamination is the use of firefighting foam (AFFF), which contains PFAS as key ingredients for effective firefighting and foam stability. The widespread use of firefighting foams in military, aviation and industrial fire fighting has led to widespread PFAS contamination in soil, groundwater surface water and even drinking water sources.

Risks and toxic effects

PFAS are recognized as emerging contaminants because of their persistence in the environment and harmful effects on the ecosystem and human health. PFAS accumulate in the body over time, making their adverse effects on human health - such as impaired immune response, reduced fertility, cancer and liver toxicity - of particular concern.

Legislation

The use and release of PFAS in firefighting foams is the subject of increasing regulation worldwide. In response to the potential adverse effects of PFAS on human health and the environment, several countries have established regulatory limits for PFAS in firefighting foams and other products, as well as in drinking water, groundwater and surface water.

In the European Union, PFAS are covered by the REACH Regulation (Registration, Evaluation, Authorization and Restriction of Chemicals), which requires the registration, evaluation and authorization of chemicals used in the EU.

The EU has already adopted regulations on PFOS, PFOA and C9-C14 PFCAs in firefighting foams. In addition, regulations are expected in 2023 on PFHxA (C6) and the whole group of PFAS.

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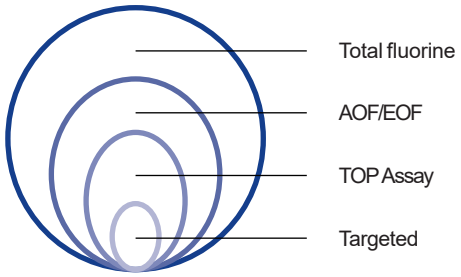
Analysis methods

PFAScontamination in the environment is an important problem that requires accurate and reliable analytical services.

Eurofins uses the latest analytical techniques and equipment to provide accurate and reliable results for the analysis of PFAS in various matrices. Results are reported in a timely manner and sample data are securely stored for future use.



Total Organic Fluorine Determination via Combustion Ion Chromatography (TOF-CIC)

This technique is used to quantify the total organic fluorine content in a sample, which is a good indicator of the mass of unknown PFAS. Using combustion and ion chromatography (CIC), a wide range of matrices can be analyzedfor total organic fluorine(TOF),total adsorbable organic fluorine (AOF) in water, or extractable organic fluorine (EOF)in solids.

Target Analysis via Liquid Chromatography-Tandem Mass Spectrometry (LC-MS/MS)

This is the most widely used technique for the analysis of PFAS. This technique is highly sensitive, specific and robust and allows the simultaneous detection and quantification of multiple PFAS compounds. Upon request, we can offer advanced versions of this method that include an expanded list of PFAS compounds. Our most recent development is the ability to demonstrate short PFAS chains. An example is of Trifluor- acetic acid, known among other things from the discharges in Dordrecht.

Total Oxidisable Precursor assay (TOP)

This technique is used to determine any presence of PFAS precursors in a sample hearing. Precursors are chemical intermediate products that are formed during the manufacture of other substances as end products.

In the targeted PFAS analyses, only a limited number of PFAS groups (mostly related to legislation) are measured. By chemically teoxidizing the PFAS precursors, precursors can be converted into PFAS components that are measured. With the development of the detectability of short PFAS chains, we offer even more insight into the total presence of PFAS.

For the TOP analysis, two analyses are always performed; first, a targeted PFAS analysis without a TOP assay, followed by a targeted PFAS analysis with a TOP assay. The difference between these two measurements provides insight into the amount of precursors, obviously taking into account the measurement uncertainty of both methods.

Analytical Services

Eurofins offers a comprehensive range of analytical services for PFAS in firefighting foams and in the environment, including:

Method development and validation

Eurofins has a team of experts skilled in developing and validating analytical methods for the analysis of PFAS. These methods are validated to international standards to ensure their accuracy and reliability.

Data interpretation and reporting

Eurofins provides detailed data interpretation and reporting to help clients understand the results and make informed decisions. Reports are easy to understand, concise and in accordance with relevant regulations and standards.

Leaching of PFAS

When soil contains PFAS,it is important to find out the extent to which these contaminants enter groundwater. Eurofins offers an analysis to investigate the leaching of PFAS components from soil. To do this, a combination of soil and clean water is agitated for 24 hours. Then these are separated and the water is analyzed with the Target PFASanalysis.

More information

Samples can be collected at the desired location or at a depot. Eurofins' logistic service can be reached at 0800-0991180 or logistiek@etbnl.eurofins.com.

For additional information regarding analyses, reporting, rates, delivery times, service and more, please contact the designated contact person or the customer service during office hours.

Note: Clear communication about expected levels of PFAS in your samples is essential for safe and successful sample analysis. Unexpectedly high levels of contamination in a sample can result in longer turnaround times, health risks to our personnel and costly damage to our equipment.

About Eurofins Environment Testing

Eurofins Environment Testing Netherlands is part of Eurofins Scientific and your partner for environmental testing. Our goal is to help you achieve your objectives. With efficient and qualitative analysis techniques we support your business processes. Our customer service is at your disposal with specialized knowledge and extensive experience. You can make use of our own packaging and logistics service. Our reliable couriers take care of sample transfer on site and transport the samples to the relevant laboratory the same day.

Eurofins Environment Testing Netherlands is committed to protecting the environment. With our products and services, we support the responsible use and minimization of substances harmful to humans and the planet. Examples include hormones, pesticides, dioxins and heavy metals. By reducing the usage of water, raw materials and energy, we contribute to sustainability. Our laboratories have developed special programs to minimize environmental risks, such a safe use of chemicals and waste disposal.

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