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Trusted Answers

Testing PFAS Contamination in Water: Getting it Right the First Time and Every Time

PFAS: Should we worry?

Per- and polyfluoroalkyl substances (PFAS) are a large family of manmade chemicals valued for their range of properties. They are among the most persistent contaminants in the environment, making control and clean up extremely difficult.

PFAS

Water safety regulations for PFAS are evolving rapidly. To stay compliant, it's important to keep up with the evolving limits, testing methods, and compound lists.

Testing is your front line for limiting exposure.

But it comes with challenges:

- **How to detect parts-per-trillion concentrations**
- **How to prevent contamination during sampling and analysis**
- **How to adapt to fast-changing compound lists**

So, what are the directives you need to know?

Once PFAS have entered the water cycle, they can move easily between:

European Union (EU)

The EU takes a precautionary, class-based approach, focusing on total PFAS limits and ecosystem protection with coordinated, pan-European directives.

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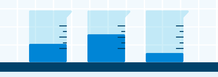
Did you know?

Even trace amounts of PFAS can interfere with lab results, so labware and sampling gear, optimized for PFAS testing, are now best practice in most accredited testing protocols.



Key regulatory agencies

European Commission and Member State regulators

What's covered

- Drinking water under the EU Drinking Water Directive (DWD) EE 2020/2184
- Surface waters and ecosystems under the Water Framework Directive (WFD) 2000/60/EC defining requirements up to 2027 and Environmental Quality Standards Directive (EQSD) 2013/39/EU
- Wastewater and sediment via integrated environmental legislation

Enforcement

Member states implement the directives through national laws and river basin management plans, with EU oversight to ensure consistency and compliance.

United States of America (USA)

The USA takes a compound-by-compound approach, emphasizing testing precision and federal enforcement through defined methods and cleanup programs.

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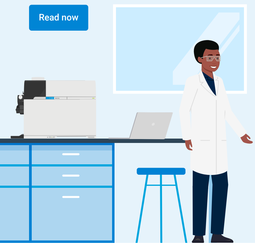

Key regulatory agency

U.S. Environmental Protection Agency (EPA)

What's covered

- Drinking water under the Safe Drinking Water Act (SDWA)
- Nonpotable water, including surface, ground, and wastewater
- Soil and biosolids regulated under broader environmental programs

How it works

- EPA sets enforceable limits for PFAS in drinking water through National Primary Drinking Water Regulations (NPDWR)
- Standardized EPA testing methods guide monitoring across different water types
- Goal to ensure accuracy and comparability across laboratories

Enforcement

- EPA and state agencies require monitoring, reporting, and remediation
- Failure to comply can trigger penalties, mandated cleanups, and legal liability for polluters

China

China's 15th Five-Year Plan aims to strengthen supervision and quality in environmental protection, imposing strict requirements on institutions for PFAS and other chemicals.

China currently mandates drinking water quality standards governing two PFAS compounds (PFOA and PFOS) under GB Standard 5749-2022.

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The challenge for organizations is where complexity meets compliance

Global PFAS regulations change frequently, with every update adding new layers of technical and compliance complexity for organizations responsible for water quality.

Multiple methods and matrices

Different water types are susceptible to different substances and can require different testing approaches.

Performance-based versus prescriptive

While the U.S. EPA mandates prescribed methods and instruments, the EU regulates by performance—setting risk-based detection limits for each priority pollutant—delivering potable-water requirements that are equally rigorous, and in some matrices more stringent.

Ultralow detection limits

PFAS may have to be detected in the parts-per-trillion range, requiring sensitive instrumentation, meticulous sample, and PFAS optimized sampling, prep, and analytical equipment.

Be proactive on PFAS with Agilent

- **Specialized solid-phase extraction cartridges and cleanup columns**
- **Sample containers and filtration materials optimized for PFAS analysis**
- **Chemical standards and certified reference materials**
- **Full kits for EPA 1633, 533, and 8327 workflows**
- **Sample prep, instruments, and software optimized for PFAS testing and methods optimized for PFAS analysis**

See our startup kits

Overcoming regulatory challenges, together:
End-to-end workflows and support for PFAS analysis

Find out more

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