



Analytical Testing

Complete PFAS solutions for routine environmental laboratories

Automated. Reliable. Built for real lab life.

Smarter Sample Preparation for Environmental Testing

EFOX Series + Dispersive Liquid-Liquid Microextraction (DLLME) delivers a complete PFAS workflow designed for high-throughput environmental testing laboratories.

From automated sample preparation to flexible LC separation, confident detection, and intuitive software — every element is engineered to meet laboratory requirements while reducing operational burden.

DLLME delivers rapid, high-efficiency extraction, pre-concentration and clean-up of trace contaminants from complex matrices — using minimal solvent volumes. How it works: An extraction solvent is dispersed into the sample with the aid of a disperser solvent, forming a fine emulsion that maximizes analyte contact. Target compounds rapidly partition into the extraction phase, which is then separated and can be analyzed directly.

Automated sample prep. Flexible separation. Confident detection. Simple software.



The reality of PFAS in environmental labs

PFAS analysis isn't challenging because of the instrument.

It's challenging because of the workflow surrounding it.

Routine environmental laboratories must manage:

- High daily sample volumes
- Diverse matrices (drinking water, groundwater, surface water, wastewater, soil extracts)
- Strict regulatory frameworks and reporting requirements
- Limited staff and training capacity
- Constant risk of contamination, failed batches, and re-analysis

The 3 S's That Define Workflow Success



These are the elements that determine whether a PFAS workflow is robust, defensible, and sustainable under regulatory scrutiny.

Our workflow philosophy

In regulated PFAS analysis, the mass spectrometer is not the hero.

It is the detector.

Even the most advanced MS alone cannot correct:

- Poor extraction efficiency
- Inconsistent clean-up
- Inadequate chromatographic separation
- Complex or error-prone software

The Thermo Scientific™ EFOX Series Approach

- Out-of-the-box workflows for routine environmental testing
- Proven LC-MS ecosystems designed for compliance
- Automation to reduce variability
- Scalable configurations that grow with market demands

A gloved hand in a white lab coat is holding a clear glass test tube, tilted slightly. The background is a blurred image of water with a reflection of a light source, possibly a sunset or sunrise. A series of curved lines in shades of blue and green sweep across the bottom of the page, connecting the '3 S's' section to the EFOX Series section.

**EFOX Series
+ DLLME**
is a complete
workflow supporting
end-to-end
solutions



Sample preparation DLLME automation

The most critical step, controlled

DLLME automation addresses the largest source of PFAS variability: manual sample preparation.

Key capabilities

- Fully automated PFAS extraction using Thermo Scientific™ TriPlus™ RSH SMART Autosampler
- Only one manual step
- Batch flexibility from 2 to 54 samples
- Two samples prepared in approximately 18 minutes
- Extremely low solvent consumption
- No SPE cartridges
- Extraction, clean-up, and concentration in one workflow
- Suitable for a wide range of environmental matrices
- Green, cost-efficient, and scalable

Why it matters for environmental labs

- Reduces analyst-to-analyst variability
- Minimizes contamination risk
- Improves reproducibility and defensibility
- Stabilizes downstream LC-MS performance

[Learn more about DLLME](#)



Separation Thermo Scientific™ Vanquish™ Duo UHPLC System

Designed for compliance or throughput — you choose

Configuration 1: Dual-column confirmation

- Built-in confirmation on different column chemistries
- No re-analysis required
- Single data file
- Increased confidence

Configuration 2: Flexibility mode

- Optimized column chemistries and mobile phases
- Combine two different methods
- Single data file

Clean DLLME extracts reduce matrix interference, enabling reliable, reproducible separations even under accelerated conditions.



Detection Regulatory confidence, your way

Two compliant detection strategies

Thermo Scientific™ TSQ Altis™ Plus EFOX Edition Triple Quadrupole Mass Detector

- Established, trusted platform
- Excellent quantitative performance
- Advanced scan modes for enhanced selectivity

Thermo Scientific™ Orbitrap Exploris™ EFOX Mass Detector

- Full-scan HRAM detection
- Minimal method development
- Retrospective analysis capability
- Future-ready for emerging PFAS
- Designed for routine use — not research complexity

**One workflow.
Two compliant paths.**



Data Analysis Thermo Scientific™ Chromeleon™ software

Where compliance meets efficiency

- Unified instrument and data control
- Guided workflows for routine users
- Simplified training
- Clear, traceable data processing

**If software slows the lab,
compliance suffers. Chromeleon
software keeps workflows moving.**

[Discover Chromeleon
software for PFAS](#)

- Built for regulated routine laboratories
- Reduces manual work and human error
- Minimizes method development
- Increases throughput without compromising performance
- Scalable for future regulatory demands

**PFAS analysis
doesn't need to be
complex. It needs
to be designed
properly.**





 Learn more at thermofisher.com/environmental-testing

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