Thermo Fisher SCIENTIFIC

Sample preparation

Extract more efficiently and confidently with walkaway automation from sample to vial

EXTREVA ASE
Accelerated Solvent Extractor

thermo scientific

All-in-one sample extraction, in-cell cleanup, and evaporation to set you free

Manually preparing samples from solid and semi-solid matrices is a costly, error-prone, and time-consuming process. The expense of solvents and supplies, combined with the significant time needed for setup, extraction, and cleanup, quickly adds up. Chemists often spend up to 60% of their time on manual extractions—time that could be better spent on other priorities. Errors frequently go unnoticed until after analyses are complete, leading to wasted samples, increased costs, and frustration. The Thermo Scientific™ EXTREVA™ ASE™ Accelerated Solvent Extractor, shown to have equivalent performance to US EPA Method 1633, offers a fast and automated solution that streamlines sample preparation and enables efficient PFAS extraction and/or concentration.

Now there is a solution for this vital step in your analytical workflow. The EXTREVA ASE accelerated solvent extractor is the first automated instrument to deliver true walkaway sample-to-vial sample preparation, making it the perfect partner for your chromatography. Designed with components that reduce PFAS background, this system ensures cleaner and more reliable results. Without user intervention, this all-in-one system seamlessly performs sample extraction, in-cell cleanup, and evaporation of four samples in parallel. As a result, you get reproducible and efficient parallel extractions that cut manual sample preparation steps from hours to minutes, increase productivity, minimize errors, and dramatically reduce solvent use to meet laboratory sustainability and cost goals.

Increase sample preparation productivity

The EXTREVA ASE system prepares more samples with less hands-on time, freeing staff to work on other priorities and increasing sample throughput.

Extraction only

- 128 samples per 8h/384 samples per 24h (any application)

Extract and evaporate

- 48 samples per 8h/144 samples per 24h with the PAH application
- 60 samples per 8h/180 samples per 24h with the OCP application

All-in-one sample preparation sets you free

The EXTREVA ASE system automatically extracts and concentrates samples in one seamless integrated operation, eliminating the need to manually move sample extracts to another device for solvent evaporation.

Enhanced walk-away solution decreases hands-on time

The system minimizes hands-on sample preparation tasks, enabling staff to focus on other time-critical tasks such as data analysis, leading to faster turnaround times.

Reduced PFAS components for cleaner results

The EXTREVA ASE system is built with components that minimize PFAS background, ensuring accurate and more reliable sample analysis.

Meets EPA Method 1633 requirements

The system has been shown to have equivalent performance to EPA Method 1633, providing confidence in its ability to perform accurate and reliable PFAS extractions and analyses.

Parallel extraction boosts productivity

One EXTREVA ASE system can perform four parallel sample extractions, substantially increasing throughput and efficiency.

Green technology reduces solvent use and costs

In most cases, the patented gas-assisted extraction mechanism reduces solvent consumption to between 5 and 100 mL per sample.

Automation enhances accuracy and consistency

Full automation improves recoveries and reproducibility while substantially reducing errors. Unlike humans, automated systems are ideal for performing the same tedious task repeatedly, with minimal errors.

Provides method flexibility and optimization

Up to six different solvents can be used, during extraction and rinse steps. Precise flow control optimizes methods.

Facilitates data tracking and ensures data integrity

The system tracks sample information and extraction parameters using a 2-D barcode reader, recording the data on the instrument.

Speed and efficiency leads to productivity at last

Access the next level of a fully automated work flow with the Extreva ASE

The EXTREVA ASE system is the first to deliver an authentic walk away, sample to flexible vial workflows. When sample preparation is complete, simply cap the vials and place them in the autosampler for chromatographic analysis.

Simply use the Thermo Scientific™ Dionex™ ASE™ 350 Extraction cells that you're familiar with on the Extreva ASE.

To maximize productivity and minimize carryover:

- Extract, evaporate, and concentrate four samples in parallel using four separate ovens arranged in independent flow paths.
- There is no need to manually move samples to an evaporator, nor to use more than one instrument.

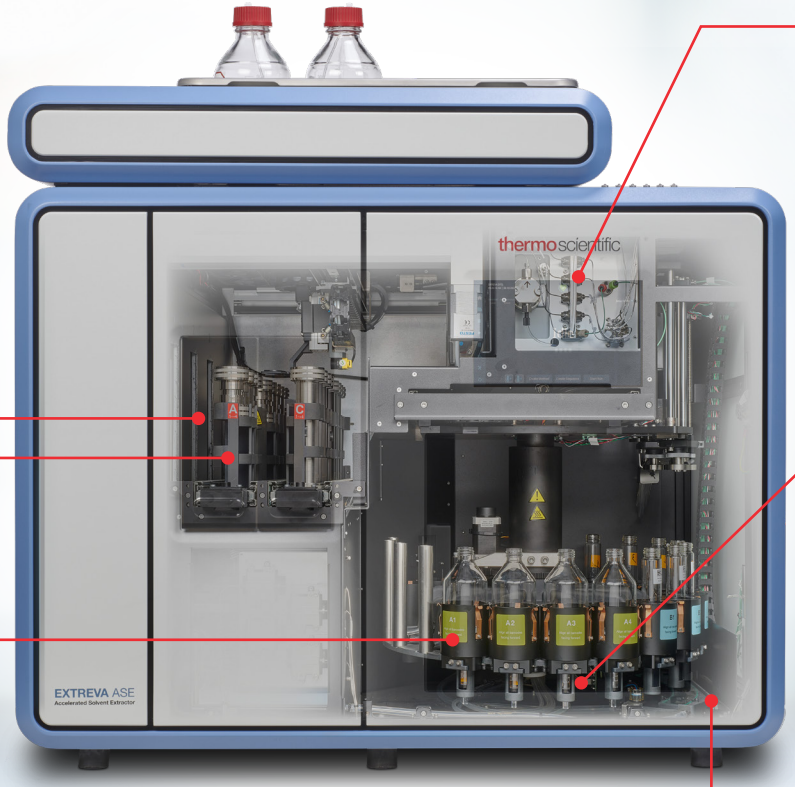
Gas assisted dynamic extraction:

- Reduces the amount of solvent used.
- Enhances method optimization with precise flow control.

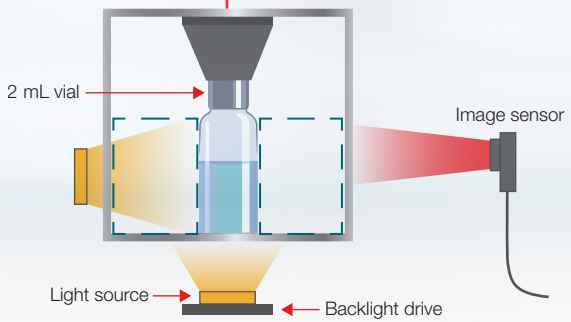
To expedite evaporation:

- Use nitrogen and vacuum simultaneously, and apply gentle heating if desired.
- Ensure the vacuum is set at a low level to prevent the loss of semi-volatile compounds.

Fully control the EXTREVA ASE system with an intuitive and efficient front panel touch screen, providing easy access to system settings and real-time data.



Ensure data integrity throughout your analytical workflow by automatically recording and saving all sample extraction parameters in the EXTREVA ASE system, reducing manual documentation. Use 2-D barcoding for electronic tracking of all extraction steps, from sample cell to vial. Quickly retrieve data from the EXTREVA ASE system control panel.



Smart end-point detection automatically stops evaporation once the desired volume in the autosampler vial is reached, eliminating the need to constantly monitor samples during concentration. Using machine learning, this feature independently stops evaporation in each channel at a user-specified volume.

Next-generation accelerated solvent extraction exceeds your application needs

The EXTREVA ASE system simplifies the workflow for extraction and concentration, offering walkaway, worry-free operation for preparing solid and semi-solid samples like soils, biosolids and food. Automation through Extreva ASE reduces variability from manual sample preparation, ensures reproducible results, and makes the entire workflow faster, safer, and easier.

Applications for the EXTREVA ASE system

Applications ideally suited to the EXTREVA ASE system include environmental monitoring, food safety testing, and pharmaceutical QA/QC. The addition of ASE preparation materials enhances your workflow with better sample drying and in-cell cleanup.

Environmental monitoring

- Per- and ployfluoroalkyl substances (PFAS)
- Persistent organic pollutants
- Polyaromatic hydrocarbons (PAHs)
- Polychlorinated biphenyls (PCBs)
- Dioxins, furans, brominated flame retardants (BFRs), and pesticides

Food and beverage safety testing

- Pesticides
- Food contaminants
- Fat and lipid analysis
- Food packaging extractables and leachables

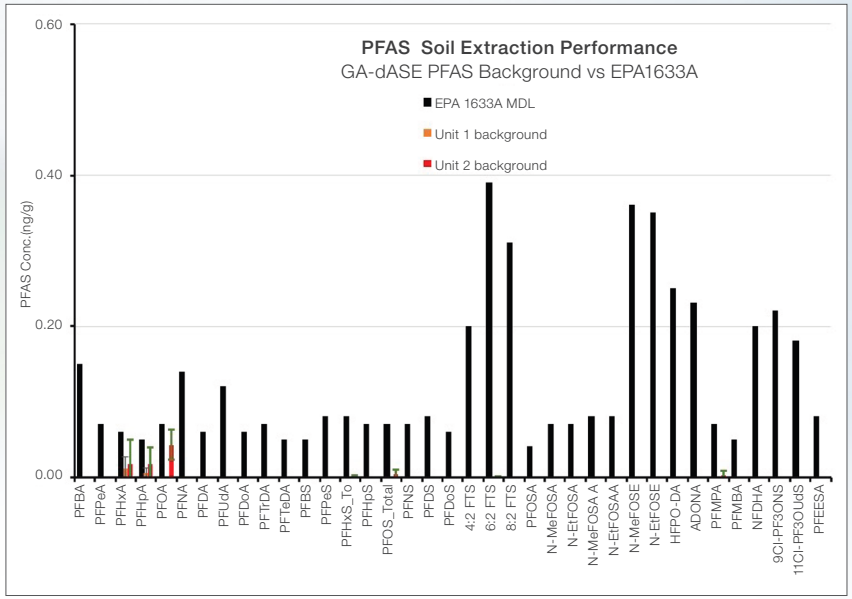
Pharmaceutical/Biotech

- Drug substance contact and packaging materials
- Extractables and leachables

Why accelerated solvent extraction?

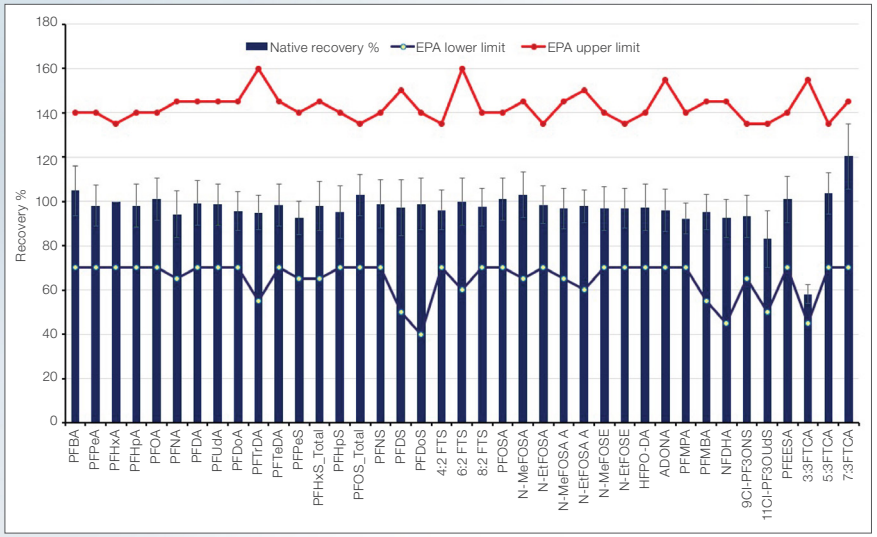
The elevated temperature used during the ASE process increases the efficiency of the extraction of analytes from the matrix. The increased pressure keeps the solvent liquid, even as the temperature surpasses its boiling point. The lower solvent viscosity improves analyte diffusion into the solvent, making extraction faster and more efficient. Coupled with reduced PFAS system components, this workflow supplies a cleaner extract for subsequent separation and detection of sample analytes during chromatographic analysis, leading to more accurate results across multiple applications.

PFAS background from EXTREVA ASE system

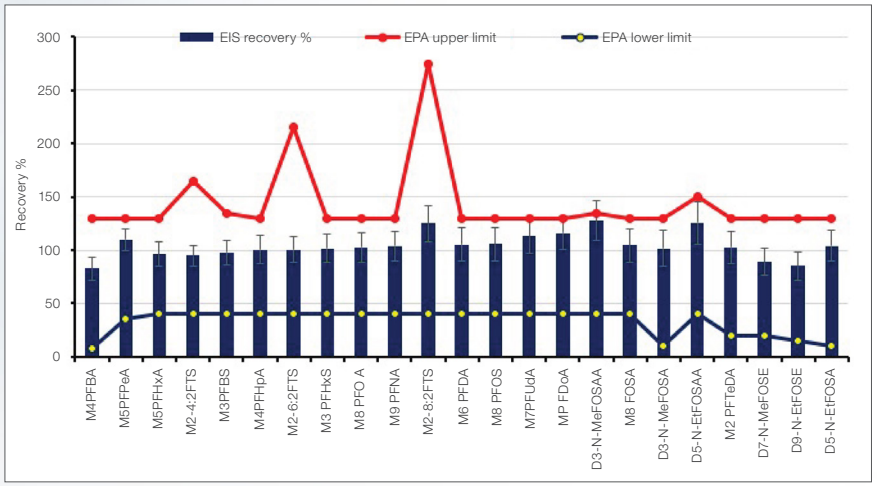


Modified GA-dASE system PFAS background concentration (ng/g) plotted against US EPA1633A MDL. PFAS background concentrations are well below US EPA1633A MDL.

Initial precision and recovery (IPR) for soil



Analyte recoveries from spiked soil samples (n=5) compared to upper/lower limit of US EPA1633A for initial precision and recovery (IPR) study.



EIS recoveries in spike soil samples compared to US EPA 1633A upper/lower limits.

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