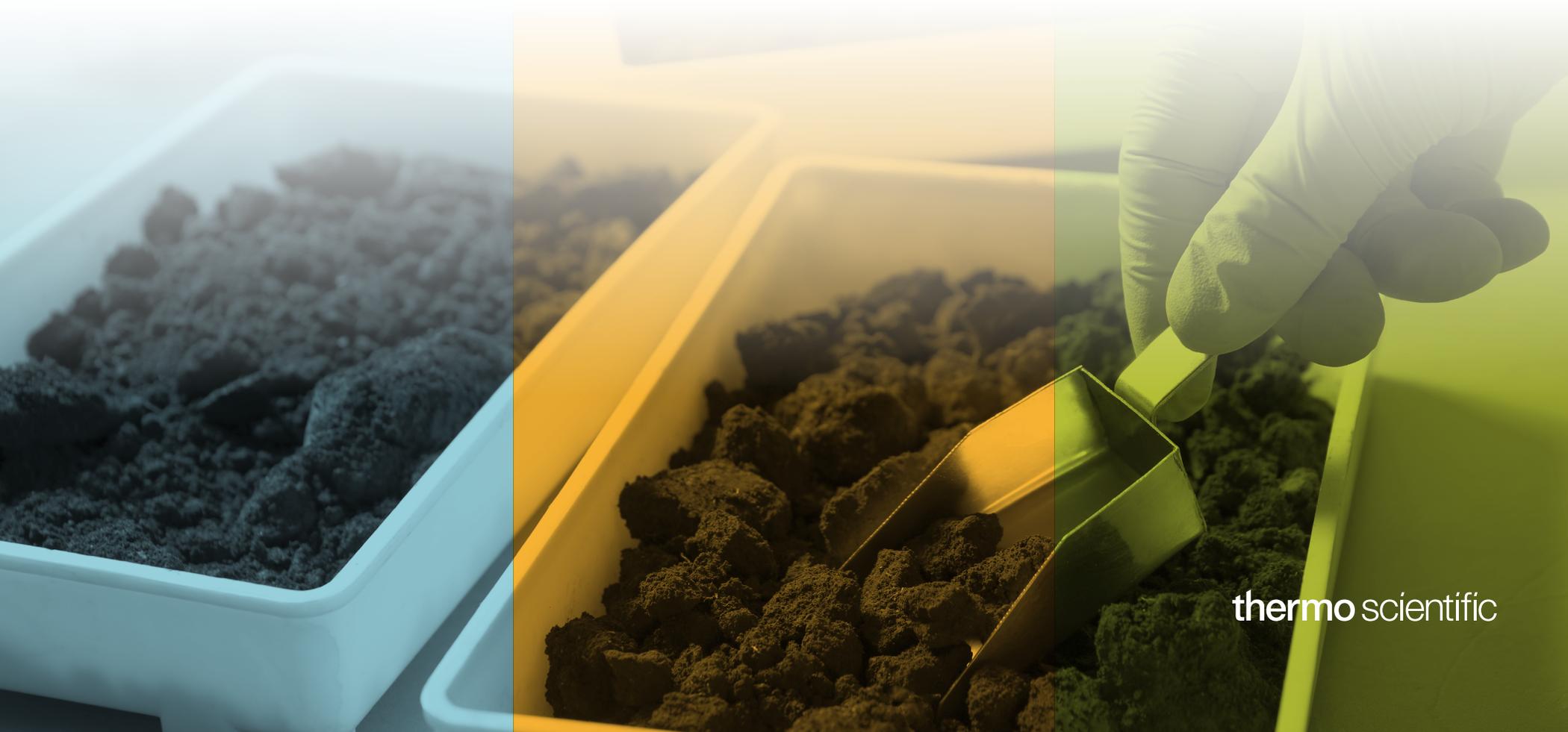**Thermo Fisher**
SCIENTIFIC

Sample preparation

Comprehensive workflow for solid and semi-solid samples

Sample preparation, liquid chromatography, and data analysis

thermo scientific

Thermo Scientific sample preparation LC workflow

Maximize the operational efficiency and profitability of your laboratory by combining true unattended sample-to-vial extraction and concentration with the productivity of liquid chromatographic analysis, and the reliable data processing of the Thermo Scientific™ Chromeleon™ Chromatography Data System (CDS).

Extract and concentrate sample

Accelerated solvent extraction

- Comprehensive and integrated workflow—seamlessly integrated sample extraction, in-cell cleanup, and concentration for effortless operation

- Improved throughput and efficiency—simultaneous extraction of four samples with faster concentration and artificial intelligence-driven endpoint detection

- Green technology—newly patented extraction method with gas assistance promotes solvent conservation for enhanced sustainability

- Streamlined walkaway solution—enhances data precision, reduces errors, and optimizes cost efficiency

Analyze sample

Liquid chromatography

- Unsurpassed retention time and peak area precision

- Dedicated tools for fast method development and validation with exceptional instrument robustness to maximize uptime

- Better throughput, improved sample characterization, and faster return on investment

- Higher detector sensitivity and lower baseline noise

- Dedicated kits and software solutions provide exceptional LC-MS performance

Report sample results

Chromeleon CDS

- One intuitive, easy-to-use software solution for gas chromatography (GC), liquid chromatography (LC), ion chromatography (IC), and mass spectrometry (MS) analyses—acquire, process, and report data with a single software system to boost laboratory efficiency

- Accelerate data processing and reporting with dynamic updating, customizable view settings, and smart tools built in

- Link to Thermo Scientific™ SampleManager™ LIMS software to manage the complete laboratory workflow

Sample preparation

The Thermo Scientific™ EXTREVA™ ASE™ Accelerated Solvent Extractor is a newly developed system based on many proprietary technologies, including gas-assisted solvent delivery and parallel accelerated solvent extraction. Designed with components to reduce PFAS background and shown to have equivalence with US EPA Method 1633A, this fully automated system combines extraction and evaporation capabilities in one instrument, providing true walk-away automation for unattended operations and high productivity to any laboratory. With accelerated solvent extraction, extractions can be completed in very short periods of time and with minimal amounts of solvent compared to other conventional sample preparation instruments and manual sample extraction techniques, such as Soxhlet and sonication.

EXTREVA ASE accelerated solvent extractor key benefits

From sample to vial in one fully automated workflow without the need for user interaction

- Flexible parallel and serial extraction using up to six solvents for optimal scheduling and efficiency in daily operations

- Fully automated extraction and concentration of up to 16 samples without the need for manual intervention

- Accurate and more reliable sample analysis through the reduction of PFAS components within the system

- Equivalent performance to EPA Method 1633A, providing confidence to perform accurate and reliable PFAS extractions and analyses

- Efficient optimization of extraction time and solvent consumption achieved through a newly patented gas-assisted solvent delivery system

- Convenient collection of extracts in vials and bottles for evaporation to dryness, or in user-friendly assemblies for direct concentration into gas or liquid chromatography vials

- Efficient sample tracking enabled by a 2D barcode reader for accurate and automated identification

- Concentration with fully automated end-point detection through artificial intelligence machine vision

➡ Learn more about the EXTREVA ASE system

Liquid chromatography-mass spectrometry (LC-MS) sample analysis

Today's scientists need to solve challenges to produce life-saving medicines and to improve the quality of our food and environment. This work deserves the best analytical tools available, allowing you to achieve your next scientific breakthrough, measure the previously unmeasurable, and deliver dependable, quality results. Designed with innovative technology and attention to fine detail, the Thermo Scientific™ Vanquish™ HPLC and UHPLC Systems are the most advanced LC instruments available. The Vanquish systems improve performance and repeatability with no trade-offs in quality, robustness, or ease-of-use. Regardless of which Vanquish HPLC or UHPLC system is used, chromatographers have every tool they need to solve the toughest analytical challenges with confidence.

When coupled with a Thermo Scientific™ Orbitrap Exploris™ Series Mass Spectrometer or a Thermo Scientific™ TSQ™ Plus Series Triple Quadrupole Mass Spectrometer, the system delivers the required robustness and sensitivity to fulfill the most demanding analytical requirements for targeted and untargeted environmental and food safety analysis.
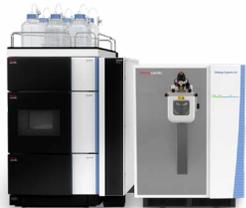
LC-HRMS key benefits

- Designed for operational simplicity, the Orbitrap Exploris series mass spectrometers set the new standard in instrument productivity and ruggedness

- Combine superior resolution and mass accuracy with a powerful suite of data analysis tools to provide accurate results for screening and quantitation, and to streamline method development and everyday testing

- Minimize time spent on calibration of different mass ranges and on maintenance, while delivering robust performance for laboratories testing a high volume of samples. Fast scanning and polarity switching decrease sample turnaround times.

- Allow both novice and experienced staff to analyze samples using ready-to-run method templates. Minimizes time spent on training using the common data-acquisition user interface shared by next-generation Orbitrap Exploris and TSQ triple quadrupole mass spectrometers.

- Resolve ions of interest from interfering ions with high mass resolution up to 480.000 (FWHM) at *m/z* 200

➡ **Learn more about the Orbitrap Exploris series systems**

LC-MS/MS key benefits

- Designed for operational simplicity, the Orbitrap Exploris series mass spectrometers set the new standard in instrument productivity and ruggedness

- Highest sensitivity and selectivity in the most challenging matrices and more data points with superior acquisition speeds and polarity switching times

- Novel ion optics, source design, and enhanced mass analyzers deliver superior robustness, reduce maintenance, and increase reproducibility

- Simple maintenance (no need to break vacuum) and intuitive calibration routines

- Customizable and application-specific instrument templates with easy and direct method importation

- Curated SRM information for more than 10,000 compounds from the Thermo Scientific™ mzCloud™ Mass Spectral Library

- Automated compound optimization

- SRM visualization and optimization with dwell time prioritization

➡ **Learn more about the TSQ Plus series systems**

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Data review and reporting

The TSQ Plus series systems, and the Orbitrap Exploris series LC-MS systems are fully controlled by Chromeleon CDS, which is built to streamline your path from injecting samples to final results. With integrated smart tools to streamline your workflows, you can consolidate your laboratory operations and achieve significant gains in efficiency and productivity.

Chromeleon CDS key benefits

- Benefit from Operational Simplicity™ features—simplify repetitive tasks and reduce errors with an intuitive, customizable, and easy-to-navigate user interface

- Minimize out-of-specification results with automated system suitability testing (SST) and intelligent run control (IRC), enabling more "right-first-time" analyses

- Increase productivity and reduce errors with Chromeleon eWorkflow™ procedures and streamline sequence creation, in as little as two clicks, to minimize training requirements

- Eliminate the need to export to other software packages and ensure no transcription errors with built-in report templates and a flexible Excel-style reporting module, enabling faster result review

- Achieve, maintain, and demonstrate compliance more easily with secure, administrator-controlled user access and permissions to enable compliance with GxP and 21 CFR Part 11

➡ Learn more about Chromeleon CDS

Learn more at **thermofisher.com/soil**

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