

thermo scientific



Automated, high-throughput LC-MS solutions for water and beverage analysis

TriPlus RSH EQuan 850 Autosampler



ThermoFisher
SCIENTIFIC

Ensure water and beverage safety

Improve productivity

Simplify assay development

Perform non-targeted and unknown screening

Achieve lower limits of detection for targeted screening and quantitation

The Thermo Scientific™ TriPlus™ RSH EQuan 850 Autosampler provides turn-key liquid chromatography-mass spectrometry (LC-MS) solutions for the analysis of trace contaminants in environmental water, drinking water, and beverage samples.

Exposure to pesticides, pharmaceuticals, personal care products, endocrine disruptors, and perfluorinated compounds in water is a significant health concern. As our understanding of these hazards increase, lower limits of detection (LODs) become critical. With the emergence of potential new contaminants, laboratories performing water and beverage analysis will be challenged to quickly detect and quantify both targeted and nontargeted contaminants.

Traditional LC-MS methods require time-consuming and expensive sample preparation and method development prior to sample analysis. The TriPlus RSH EQuan 850 system for LC-MS automates many of the sample preparation steps, reducing preparation time and the possibility of human error. When combined with Thermo Scientific™ TraceFinder™ software, analytical methods and report formats can be selected from an extensive list of preconfigured options, making data acquisition, analysis, and reporting remarkably simple.



PESTICIDES



PHARMACEUTICALS



PERSONAL CARE PRODUCTS



ENDOCRINE DISRUPTORS

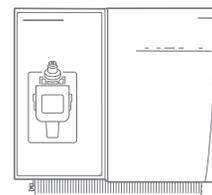


PERFLUORINATED COMPOUNDS

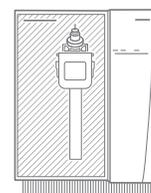
Configure an ideal system



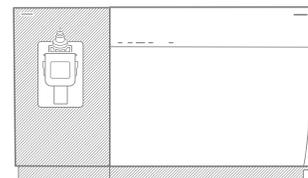
The modular TriPlus RSH EQuan 850 system can be configured in multiple ways—single stack, multiple stacks, mass spectrometer on the left, mass spectrometer on the right—to fit a wide range of laboratory requirements.



Thermo Scientific™ TSQ™ Series Triple Stage Quadrupole Mass Spectrometer



Thermo Scientific™ Orbitrap Exploris™ Series Mass Spectrometer



Thermo Scientific™ Orbitrap IQ-X™ Tribid™ Mass Spectrometer

The TriPlus RSH EQuan 850 system coupled to two Thermo Scientific™ Vanquish™ Flex ultra-high-pressure liquid chromatograph (UHPLC) pumps can be equipped with all Thermo Scientific Mass Spectrometer products as shown on the right.

Improve laboratory productivity

To increase laboratory productivity, the TriPlus RSH EQuan 850 system for LC-MS employs an innovative online sample preparation method. It uses column switching to automate sample preconcentration and analysis. Samples as large as 20 mL, or as low as 1 μ L, can be directly injected, saving valuable time.

Rather than spending days on offline sample preparation, samples are loaded onto a TriPlus RSH EQuan 850 system, concentrated, and analyzed, yielding results in a fraction of the time. In addition, online sample preparation reduces loss of sample and analytical variability due to human error.

The TriPlus RSH EQuan 850 system for LC-MS offers the flexibility of switching between conventional HPLC and very large injection volumes without the need to replumb or exchange injector tools by hand between experiments. Switching of injection volumes can be automated for unattended or overnight operation, increasing system flexibility and productivity.

Available concentration columns for EQuan analysis

20 \times 2.1 mm, 12 μ m Thermo Scientific™ Hypersil GOLD™ C18-like column for a wide variety of compounds

20 \times 2.1 mm, 5 μ m Hypersil GOLD C8 Offers similar selectivity to Hypersil GOLD, but with less retention

20 \times 2.1 mm, 12 μ m Hypersil GOLD aQ Retention of polar compounds in highly aqueous samples

20 \times 2.1 mm, 12 μ m Hypersil GOLD PFP Can offer alternative selectivity in reverse-phase applications

20 \times 2.1 mm, 5 μ m Hypersil GOLD Phenyl Alternative selectivity for aromatic and moderately polar analytes

20 \times 2.1 mm, 7 μ m Thermo Scientific™ Hypercarb™ Exceptional retention of very polar compounds

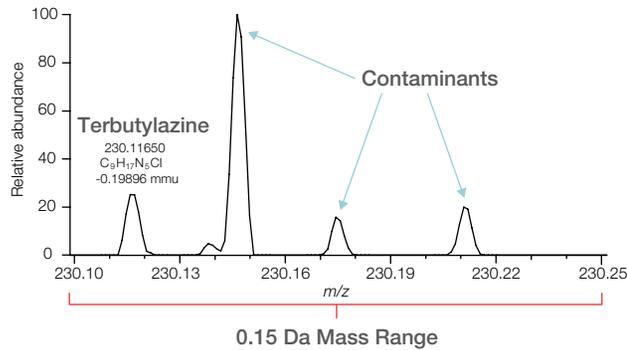
20 \times 2.1 mm, 5 μ m Thermo Scientific™ BioBasic™ AX Weak anion exchange column

20 \times 2.1 mm, 5 μ m BioBasic SCX Strong cation exchange column



The Vanquish Flex UHPLC pump enables fast separations of complex mixtures over an expansive range of flow rates and pressures.

Targeted or non-targeted screening, quantitation, and confirmation

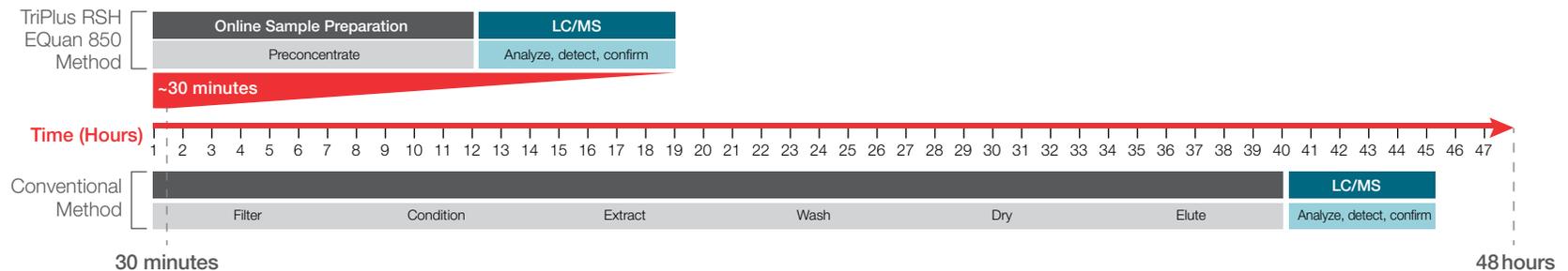


Without HRAM, the three contaminant peaks shown here would not have been resolved from the analyte terbutylazine—leading to a false negative or false positive result depending on the intensity of the contaminants.

The TriPlus RSH EQUan 850 system can be equipped with any Orbitrap Exploris mass spectrometer, bringing together the strengths of triple quadrupole and Orbitrap mass analyzers and providing simultaneous quantitative measurement and qualitative confirmation. High-resolution, accurate-mass (HRAM) MS data minimizes interference of isobaric matrix components for more accurate quantitation. At the same time, full-scan HRAM MS/MS data ensures the highest possible confidence in every ID.

The high-resolution, accurate-mass capabilities of the Orbitrap Exploris 120 mass spectrometer make it ideally suited for nontargeted screening and quantitative experiments. Full-scan data with mass resolution of up to 120,000 for structural confirmation

- Mass accuracy to <1 ppm with EASY-IC calibration
- Accurate confirmation of all compounds, including isobaric pesticides
- Full-scan data collects all ions present in the sample
- Data can be analyzed retrospectively for non-targeted contaminants without the need to rerun the samples



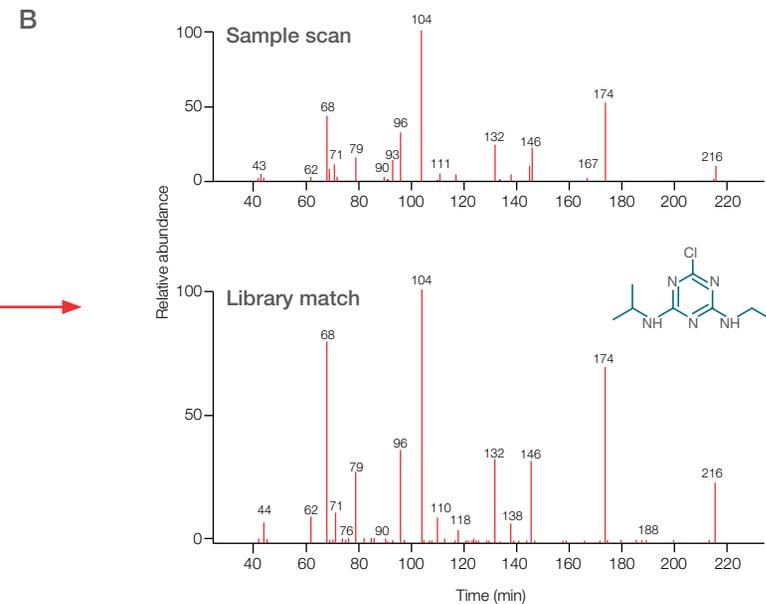
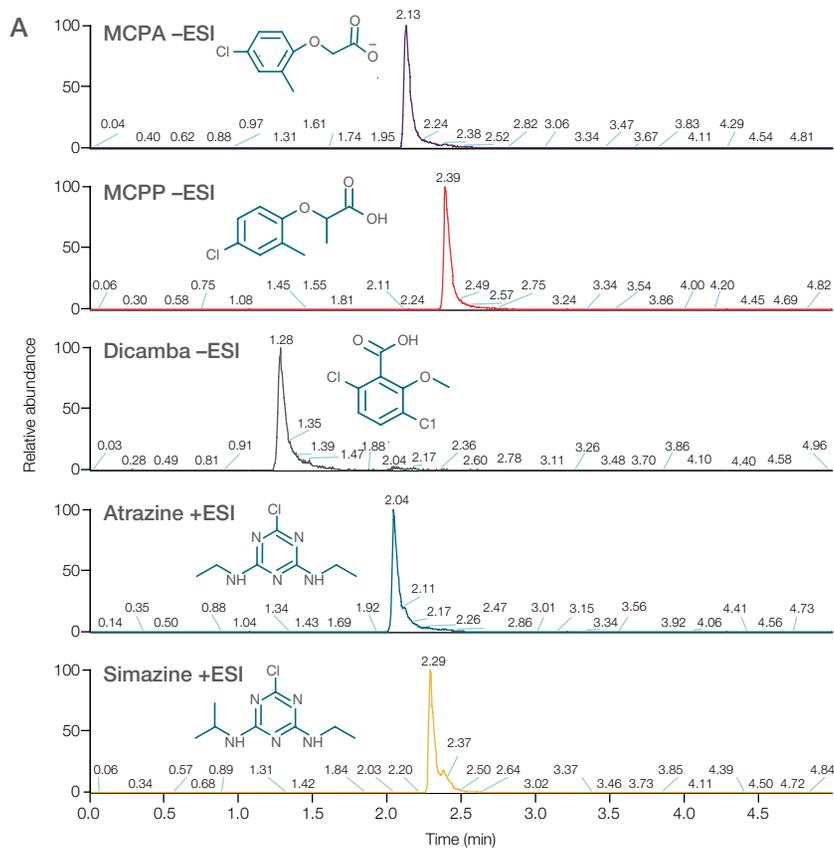
TriPlus RSH EQUan 850 systems can reduce analysis times from hours to minutes.

Targeted screening and quantitation



The TriPlus RSH EQuan 850 systems with TSQ series triple stage quadrupole mass spectrometers provide the proven specificity and sensitivity of selected-reaction monitoring (SRM) for targeted screening and quantitative experiments. The TSQ Series mass spectrometers offer exclusive technology benefits such as high-resolution selected-reaction monitoring (H-SRM) and quantitation-enhanced data-dependent MS/MS (QED-MS/MS). Using the

H-SRM scanning mode for sample analyses provides excellent analyte specificity and improved limits of quantitation (LOQs). Using QED-MS/MS, quantitation followed by simultaneous structural confirmation becomes routine, facilitating multi-residue screening of beverage and water samples. The TSQ Series triple stage quadrupole mass spectrometers also offer fast scan speeds and positive/negative polarity switching for enhanced productivity.



(A) H-SRM followed by QED-MS/MS in the same chromatographic run provides simultaneous quantitation and structural confirmation in multi-residue screens. (B) Sample scan (top) and library match (bottom) showing confirmation of atrazine.



Almanac web-based monitoring and management

Stay connected to your science. See how the Thermo Scientific™ Almanac™ application can help you get the most out of your instruments.

thermofisher.com/almanac



Technical and online support: peak performance for your instruments

Helping you keep your instruments running at peak performance is our goal. Whether you're looking for an instrument manual or spare parts, want to submit a repair request, or check on the status of your warranty or service contract, we have every support option you're looking for.

thermofisher.com/technicalresources



Protecting your investments: unparalleled laboratory services

Unity™ Lab Services provides a single source for integrated lab service, support, and supply management. Our customized service offerings and world-class service experts have the flexibility and experience to address your laboratory's needs. We provide a complete portfolio of services and support solutions designed to help you improve productivity, reduce total cost of ownership, and ensure performance throughout your laboratory.

unitylabservices.com

Thermo Scientific Orbitrap Exploris mass spectrometers

thermofisher.com/OrbitrapExploris

Thermo Scientific TraceFinder software

thermofisher.com/TraceFinder

Thermo Scientific Vanquish HPLC and UHPLC systems

thermofisher.com/Vanquish

Find out more at thermofisher.com/EQuan850