

Thermo
SCIENTIFIC

Finding
ANSWERS
before you even
know the questions.



pesticide analysis



Always what's next.

Food safety standards change. They evolve.

Which often means what was once the lower end of a permissible pesticide residue level, may be the upper end tomorrow.

But what if there was a way to future-proof your lab?

Whether searching for answers to targeted or non-targeted applications. Whether your lab is built for regulatory, research or compliance.

And what if the instrumentation used for your pesticide residue determinations — even the most minute — would serve your lab not only today but tomorrow as well?

That's the innovative concept behind the Thermo Scientific portfolio offering you'll see on the following pages.

It's a concept that can save laboratories the cost of constantly re-equipping. It's a concept that can protect lives.

Thermo Fisher Scientific. Helping labs and the world stay ahead of the curve.



Always what's next.



Sample



LIMS



Integrated Informatics

Applications
Library Resource



Analysis



Pesticide
Explorer Collection

**Powerful
workflow
solutions for
ever-evolving
pesticide
residue
analysis.**

Thermo Scientific Pesticide Analysis Solutions

What you need for what the world demands. Sample input to data output, we have you covered from GC-MS to LC-MS to IC-MS. The instrumentation, the software, the applications, the columns, the consumables. Pesticide Analyzers for a customized system for pesticide residue analysis, everything designed to go beyond standard standards because so much rides on everything you do. Not just minimizing the risk of recalls and saving bottom lines, but safeguarding lives as well.



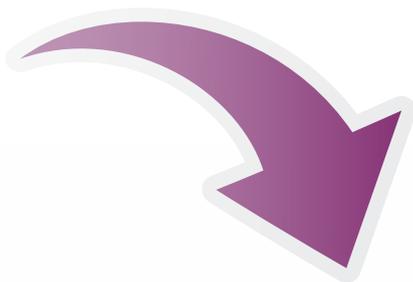
QuEChERS



Sample Extraction and Clean-up products



Accelerated Solvent Extraction Technique



GC Amenable Pesticides
GC Columns and Consumables



LC Amenable Pesticides
LC and IC Columns and Consumables



Simultaneous Targeted and Non-Targeted Analysis



Q Exactive GC HRAM Orbitrap GC-MS/MS system

Targeted Quantitative Analysis



TSQ Series GC-MS/MS systems
TSQ 8000 Evo Pesticide Analyzer system
TSQ Duo triple quadrupole GC-MS/MS system

Targeted Quantitative Analysis



TSQ triple quadrupole LC-MS/MS systems
TSQ Endura triple quadrupole LC-MS/MS system
Quantiva triple quadrupole LC-MS/MS system

Simultaneous Targeted and Non-Targeted Analysis



Q Exactive Focus hybrid quadrupole-Orbitrap LC-MS/MS system

Ionic Pesticides



Dionex IC-MS/MS system

TraceFinder Software



Instrument and Data Management

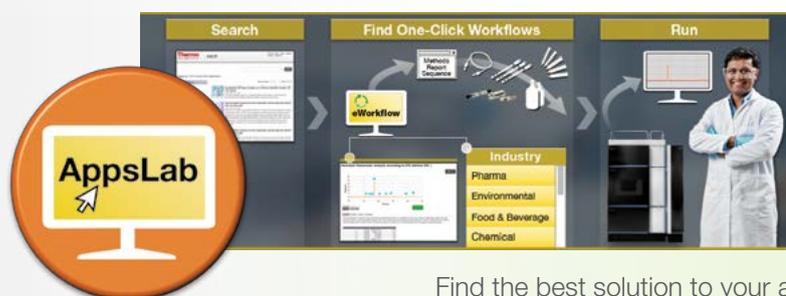


Chromeleon CDS Software



Sample preparation and consumables that simplify pesticide analysis and improve throughput.

No matter what you need, our sample preparation products reduce lab time and repetitive functions, as they provide consistency and accuracy of results. You'll find a broad range of manual and semi-automated QuEChERS Dispersive solid phase extraction products and SPE consumable solutions. As well as systems for automated solvent extraction, SPE and evaporation to cover even the most challenging pesticide extractions from food matrices. Coupled with customized solutions including our exclusive Pesticide Explorer Collection, TSQ 8000 Evo Pesticide Analyzer and AppsLab Library of Analytical Applications, you'll find setting up and running the most demanding pesticide separation easier than you think.



Applications Library Resource

Find the best solution to your application challenges for pesticide analysis and easily download one-click workflows for use with the Thermo Scientific™ Dionex™ Chromeleon™ Chromatography Data System. Just search>filter>download>run.

thermofisher.com/appslab





QuEChERS

Our QuEChERS kits provide a quick, easy, rugged and cost effective sample preparation process for extraction of multiple pesticides from a range of different food types. It's an essential technique in achieving confidence in the highly regulated field of food safety and pesticide analysis.

thermofisher.com/quechers



Accelerated Solvent Extraction

Thermo Scientific™ Dionex™ ASE™ 150 and 350 Accelerated Solvent Extractor systems provide walk-away automation that allows you to extract samples overnight. There are no matrix limitations, and pesticides can be extracted from high-fat low-moisture samples or high-water content samples.

thermofisher.com/ASE



LC Columns and Consumables

Simplify and improve your pesticide analysis results with Thermo Scientific HPLC columns. Available in particle sizes and column designs to meet all separation needs, they improve resolution, enhance sensitivity, and deliver faster analysis with consistent performance.

thermofisher.com/lc-columns



GC Columns and Consumables

Find unrivalled GC column performance for multi-residue pesticide analysis with proven consumables for optimum system performance and reliability.

thermofisher.com/gc-columns



You're completely covered with gas, liquid and ion chromatography separations.

Successful detection, identification and quantitation of pesticide residues starts with successful separations. Some classes of pesticides are more amenable to separation by gas, liquid or ion chromatography, while others can be separated using multiple techniques. Whatever the method, our food safety experts offer support and guidance to determine which solution best meets your needs today and covers you for the future.

Chromatographic Separation Guide			
	Ion Exchange	Gas	Reversed Phase
Acetamides		●	
AMPA	●		●
Azoles		●	
Carbamates		●	●
Dicarboximides		●	
Endothalls	●		
Glyphosate	●		●
Imidazolinones			●
Nicotinoids			●
Organochlorines		●	
Organonitrogens		●	●
Organophosphates		●	●
Phenoxy Acid Herbicides			●
Phenylurea Herbicides			●
Pyrethroids		●	
Triazines		●	●
Triazoles			●
Diquat / Paraquat	●		



TRACE 1310
Gas Chromatography system

Boost productivity, accelerate response times and lower your total cost of ownership with the Thermo Scientific™ TRACE™ 1310 Series GC system. Combining versatility and exceptional GC and GC-MS performance, it's an ideal choice for pesticide laboratories at any stage. This system features a full touch screen for instrument control, status monitoring and on-instrument methods development. With its instant connect injectors and detectors, you can change modules in minutes to reconfigure for a different workflow, develop new methods and minimize instrument downtime.

thermofisher.com/trace-1310



Always what's next.



Vanquish UHPLC system

Designed with innovative technology and fine detail, the Thermo Scientific Vanquish™ UHPLC system delivers a new standard in UHPLC. More results with better separations and easier interaction simultaneously, without compromise. This fully integrated system features high sample capacity for high-throughput workflows, industry-leading pumping performance, amazingly low signal-to-noise and linearity and much more. All in a system driven by our uniquely versatile Chromeleon CDS software.

thermofisher.com/hplc-uhplc



**Dionex ICS-5000+
HPIC system**

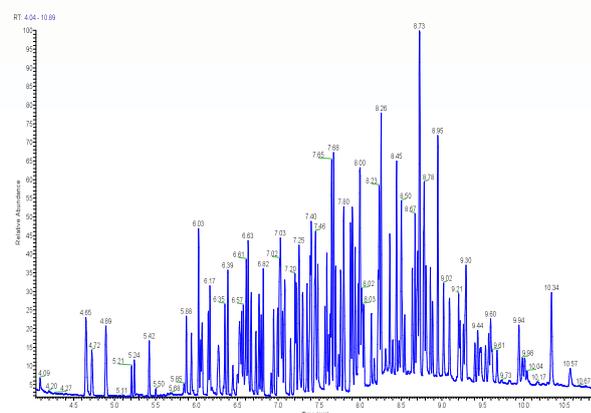
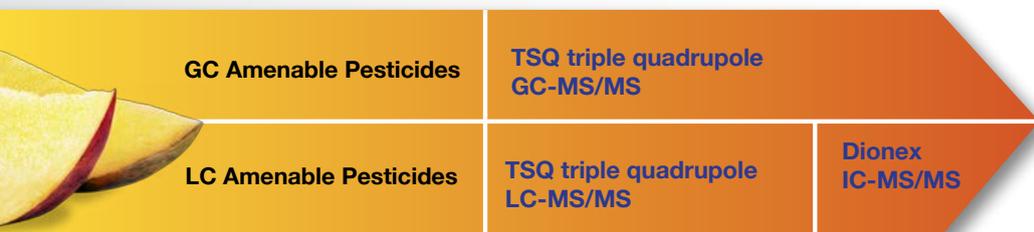
Ion chromatography (IC) excels in analyzing ionic and polar pesticides, often challenging to gas and liquid chromatography. As the IC innovator and technology leader for over 30 years, you can feel confident you're getting the best in Thermo Scientific™ Dionex™ HPIC™ systems, consumables, service and support. They'll help any lab achieve best-in-class resolution, speed and sensitivity.

thermofisher.com/ICS-5000

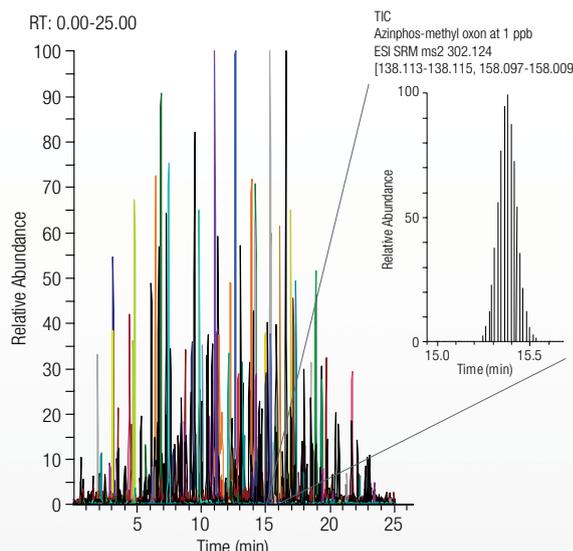


Simplify Targeted Pesticide Residues Analysis today and tomorrow.

Setting the standard for sensitive, specific quantitation and identification of targeted compounds, Thermo Scientific triple quadrupole GC, LC and IC-MS/MS systems combine superb sensitivity and selectivity with outstanding productivity and reliability. Equip your lab to efficiently meet ever-evolving challenges as you help safeguard the global food supply.



144 Pesticides in Baby Food < 11 min by GC-MS/MS



250 pesticides in onion matrix at 1 ppb analyzed in a single run by LC-MS/MS





Pesticide Explorer Collection

Our Pesticide Explorer Collection includes all the workflow components you need for successful method set-up and data analysis. Consumables, LCMS hardware, software and built-in instrument and data processing methods — pre-configured and tested — are all right here, from your single source supplier.

thermofisher.com/PesticideExplorer



TSQ 8000 Evo triple quadrupole GC-MS/MS systems

The Thermo Scientific™ TSQ™ 8000 Evo Pesticide Analyzer and the TSQ Duo are customized systems for pesticide residue analysis. These comprehensive systems are designed to ease the implementation and management of multiresidue pesticide methodologies, regardless of the method complexity or experience level of the user, by employing preloaded GC-MS/MS and Data Processing methods. The Pesticides Analyzer includes high-performance consumables configurations, step-by-step customized method walkthroughs, a 600+ Pesticide Compound Database and Smart software tools to ensure method optimization.

thermofisher.com/qqq-gc-ms



TSQ triple quadrupole LC-MS/MS systems

Thermo Scientific™ TSQ Endura™ and TSQ Quantiva™ LC-MS systems provide LODs and LOQs unrivaled in their class. Each offers rugged and reliable operation 24/7, regardless of sample type or matrix complexity. And with an easy to use interface that takes the worry out of method development and operation. The result? You can now spend more time thinking about your analysis and less time worrying about instrument set-up and operation.

thermofisher.com/qqq-lc-ms



Dionex IC-MS/MS system

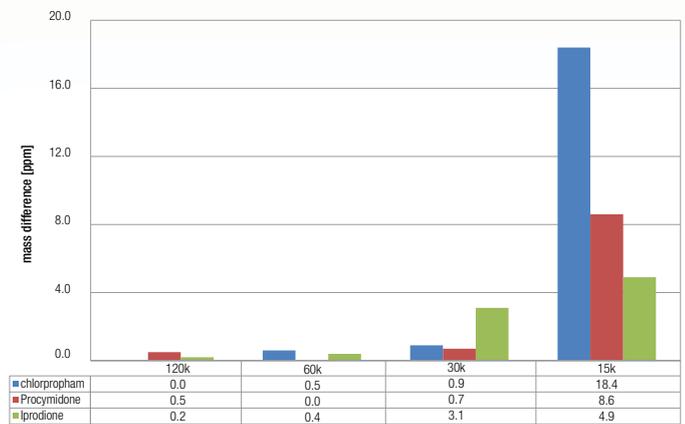
The Dionex IC-MS/MS system offers unmatched retention and chromatographic resolution provided by high capacity ion chromatography complement the detectability, selectivity and identification capabilities provided by TSQ triple quadrupole mass spectrometry for ionic and polar pesticides.

thermofisher.com/ICS-5000



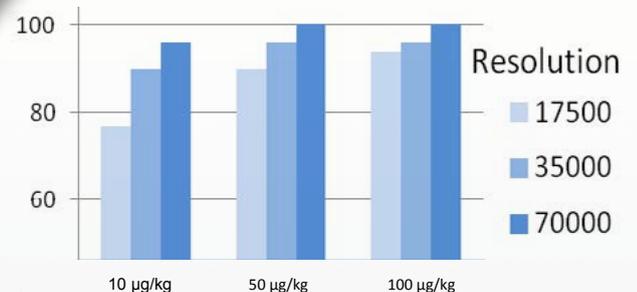
The gold standard by which future targeted and non-targeted systems will be judged.

The remarkable Q Exactive Quadrupole-Orbitrap high resolution accurate mass (HRAM) family of mass spectrometers produce data that can be used for highly sensitive and selective quantitation, as well as for in-depth non-targeted analysis. Built-in databases designed for food safety analyses make quantitation and targeted as well as non-targeted analysis from a single data set absolutely seamless. Additionally, they'll give you the option to reanalyze data at a future date without the need for sample reinjection.



Effect of resolution (specified @ m/z 200) on mass accuracy for pesticides in leek samples at 10 ng/g. Acquisition at 15k yields false negative results based upon identification criteria.

GC Amenable Pesticides	Q Exactive GC Orbitrap GC-MS/MS system
LC Amenable Pesticides	Q Exactive Focus LC-MS/MS system



Influence of resolution (fullscan) on detection rates of pesticides at different concentrations in green tea matrix



Always what's next.



Q Exactive GC-MS/MS system

The Thermo Scientific™ Q Exactive™ GC system represents the first ever combination of capillary gas chromatography and high-resolution/accurate-mass (HRAM) Orbitrap mass spectrometry. A formidable combination that provides the most comprehensive characterization of samples and the highest confidence in pesticide residues testing, identification and quantitation.

The system is easy to use and provides unparalleled selectivity and linearity even with the most complex of matrices with the quantitative performance of a GC triple quadrupole MS combined with the high precision, full-scan high-resolution/accurate-mass capability that only Orbitrap technology can offer.

thermofisher.com/QExactiveGC



Q Exactive Focus hybrid quadrupole-Orbitrap LC-MS/MS system

The sensitivity, selectivity, flexibility and ease-of-use provided by hybrid quadrupole-Orbitrap mass spectrometers has genuinely set the standard for screening and quantitation, identification and confirmation of targeted and untargeted compounds. The Thermo Scientific™ Q Exactive™ Focus hybrid quadrupole-Orbitrap LC-MS makes this power accessible to food safety labs challenged by increasing sample numbers and constrained by strict budgets. It simplifies method development, saving time and decreasing costs while reliably delivering unsurpassed results.

thermofisher.com/QE-focus

Exceptional software to power your lab into the future of pesticide analysis.

Simplify method development, automate data acquisition and ensure the greatest possible information is extracted from every piece of data with our superbly intuitive, application-specific software solutions.

Thermo Scientific Integrated Informatics



Laboratory Information Management Systems (LIMS)

LIMS offers a secure environment for the management of batch relationships between raw ingredients, finished products and the results of pesticide analysis in the laboratory. The features provide full traceability of sample data for auditing compliance in a regulated environment helping food producers rapidly identify and withdraw any potentially contaminated foods.

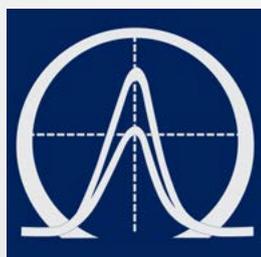
thermofisher.com/informatics



Chromeleon CDS software

Chromeleon CDS software unifies workflows for chromatography and routine quantitative MS analysis, providing full integration of our gas chromatography (GC)-MS/MS, ion chromatography (IC)-MS/MS and liquid chromatography (LC)-MS/MS instruments. Quickly and easily process and report chromatography and MS data in one application. Run your analyses in an enterprise environment, from method creation to quantitation and library-based compound identification.

thermofisher.com/Chromeleon



TraceFinder software

Our Thermo Scientific™ TraceFinder™ software is an easy-to-use, workflow-driven software package for laboratories performing quantitation, targeted and non-targeted analysis using GC-MS and LC-MS. Specifically designed for HRAM analysis, TraceFinder software increases productivity with powerful method development, simplified data acquisition, comprehensive data review and extensive reporting features including custom report options.

thermofisher.com/tracefinder

Always what's next.



Everything you need to ensure your success in pesticide analysis – now and beyond.

That's what we provide you and your laboratory. Start-to-finish workflows to help regulatory, food monitoring and testing laboratories meet the challenges of today and the future requirements of tomorrow in pesticide residue testing. From sample input to data output, we help you and your organization comply with future regulations the world will no doubt face. It's a single provider solution that reduces start-up time costs, and provides compelling productivity and a host of efficiency enhancements. So you get the job done as you protect your investments now and well into the future. Start-up laboratory or established laboratory, adding new analytical capabilities or setting the next standards in keeping our food supply chain safe, we have you covered. Regardless of staff or laboratory expertise, our solutions are designed to make it easier to obtain reliable, unambiguous, high-quality test results. All from a single, trusted supplier. Thermo Fisher Scientific.

Always what's next.

www.thermofisher.com/pesticideanalysis



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