



Thermo Scientific iCAP Q ICP-MS



Gain more performance  
**experience more  
simplicity**

**Thermo**  
SCIENTIFIC



# Thermo Scientific iCAP Q ICP-MS

Simple to use, easy to maintain, superior performance

Maximize productivity and extend your analytical capabilities. Whether you need to perform efficient routine analysis or ground-breaking research, the **Thermo Scientific™ iCAP™ Q ICP-MS** helps you to accomplish more.



## Complete elemental analysis from sub-ppt to ppm levels

Gain complete confidence with accurate results. Solve analytical challenges and future proof your lab with a modular system and seamless integration with a wide variety of autosamplers and peripherals. Enjoy minimal maintenance thanks to our intelligently engineered design.

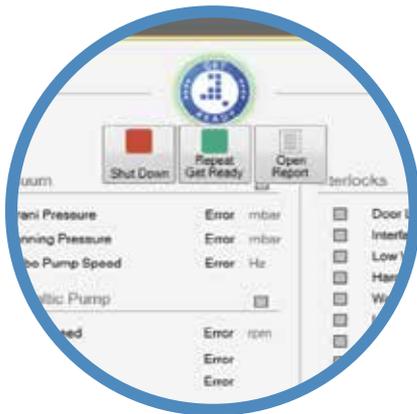
Whether analyzing sub-ppt to ppm levels in challenging matrices, characterizing compounds, or detecting nanoparticles, with the iCAP Q ICP-MS you are prepared for any task.



Plasma camera collects HD images of the plasma during all stages of operation, for clear visibility of sample introduction.

## Expect more performance

- Achieve adaptable analysis: boost instrument performance with a flexible interface design.
- Optimize interference removal: innovative QCell with flatapole technology.
- Rely on robust plasma operation: analyze even 100% acetonitrile, at over 1 mL/min.
- Reach the lowest levels of detection: enabled by breakthrough technology.



One click "Get Ready" procedure enables simple, consistent setup with Thermo Scientific Qtegra ISDS Software.

## Experience more simplicity

- Enjoy fast and easy operation: change sample introduction components in under two minutes.
- Gain total accessibility: with one turn of a handle, the full interface is immediately accessible - change cones in 60 seconds.
- Work to a minimal lab-space requirement: compact footprint, advanced heat management for exceptional mass stability and reduced operational costs.
- Reproduce any set-up with ease: "Get Ready" feature ensures consistent results with a single click.

Bench height,  
open-access sample  
introduction system

Easy connect components,  
intuitive assembly and a  
self-aligning injector for  
reproducible set-up  
every time.





# Experience the simplest possible method development and maximum productivity with smart design features

Thanks to its compact design you can free up valuable lab space with the iCAP Q ICP-MS. Side and front access to all connections allows the instrument to sit right against the wall, for quick maintenance and less downtime. **When it comes to resources, the iCAP Q ICP-MS won't lose a drop.**

## Even lithium and beryllium can be accurately measured at sub ppt concentrations in Helium Kinetic Energy Discrimination (He KED) mode... what else can you achieve?

Maintain high sensitivity, even in KED mode. The high transmission of the flatapole equips you to measure low mass analytes down to sub-ppt levels.

Analyze the entire mass spectrum in one universal He KED measurement mode. Thermo Scientific proprietary QCell technology, with flatapole low mass cut off, produces powerful interference reduction with high ion transmission.

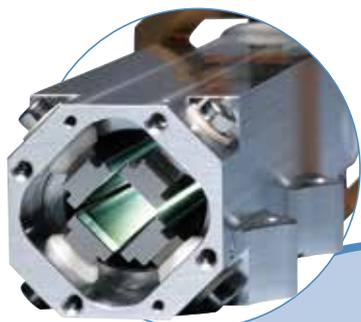
Unique low mass cut off removes interfering precursors and ensures no interferences are reformed in the cell which produces superior Background Equivalent concentrations and lower Limits of Detection.

## Increase productivity with simplified methods and one universal measurement mode for all analytes.

Achieve the best detection limits and rise to any challenge.

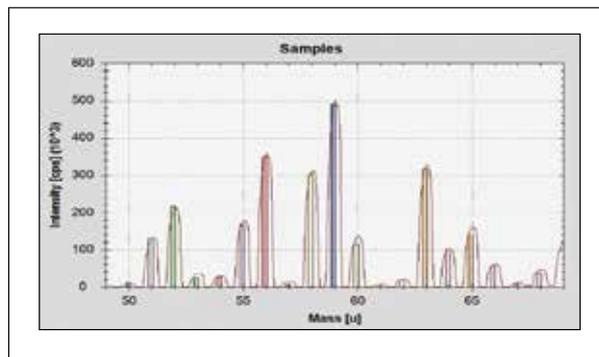
For ultra challenging applications, the iCAP Q ICP-MS Qcell gives you the flexibility to use reactive gases. This way, you can target specific interference removal for challenging analytes such as sulfur, titanium and chromium.

Ask for the demonstration of interference removal with He KED mode during installation.

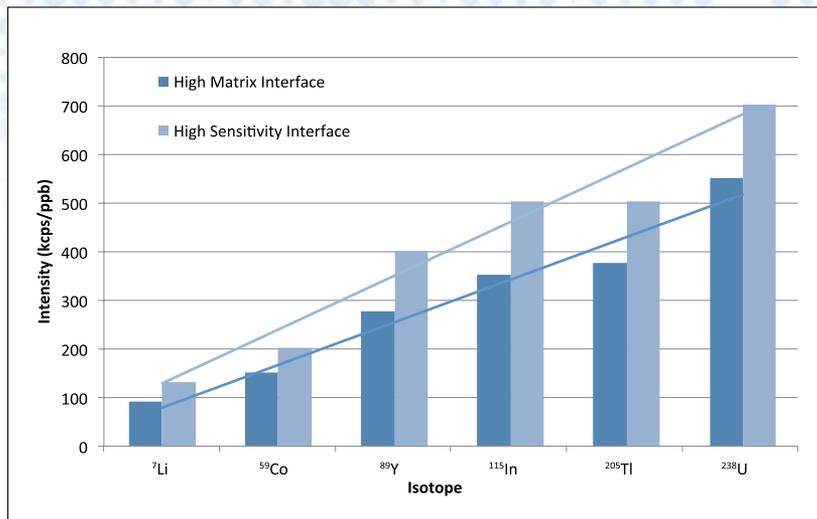


### Unique flatapole technology

Offers powerful interference reduction for simple and accurate analysis.

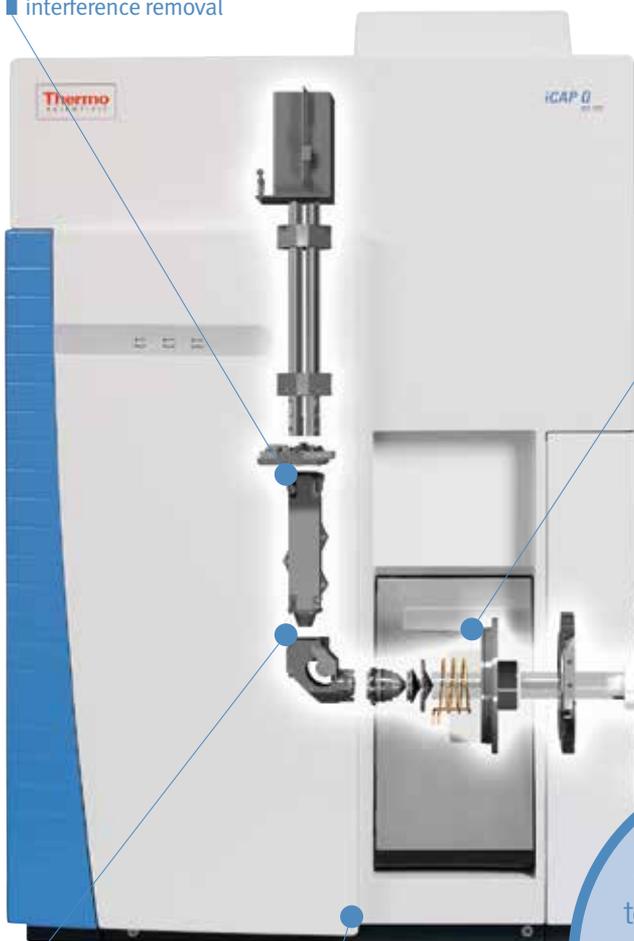


Universal interference removal with He KED, molecular interferences from the matrix are effectively removed whilst maintaining high analyte sensitivity (typically > 40 kcps/ppb Co).



Typical sensitivity of the iCAP Q ICP-MS. Tailor your instrument performance, thanks to cleverly designed inserts, one for higher matrix tolerance and one to increase sensitivity.

Ensure highest data accuracy with the non-consumable QCell; it delivers the flexibility of powerful He KED and reaction cell chemistry for full confidence in interference removal



High plasma stability even in 100% organic solvents and low ion energy spread for optimal ion focusing, transmission and sensitivity

Enable quick and error-free maintenance, thanks to quick connect sample introduction system components

- Ensure maximum tolerance during routine analysis of high matrix samples with our unique interface design. Run large batches without signal drift. Your quality control samples easily stay within the measurement criteria.
- Boost sensitivity even further and push detection limits to lower levels, thanks to unique insert technology.
- Improve limits of detection with minimized memory effects from the interface, and reduced background equivalent concentrations.
- Optimized temperatures across the entire cone improve resistance to sample deposition, while cutting down the frequency of cleaning.

Zero maintenance RAPID lens for efficient removal of neutral species and optimum ion focusing and transmission

Innovative vertical design of the analyzer provides an ultra compact footprint, saving on valuable lab space

Unattended operation: the end to sample backlogs

Leaves operators free to work on other tasks thanks to extended periods of analysis without intervention.





# Laboratory Optimization

Cultivate an environment where lab teams can achieve more

Less training required for your team. **Full autotune features, autodilution and powerful QA/QC analysis** make ICP-MS more intuitive than ever with the iCAP Q ICP-MS. Connect peripheral devices in minutes, thanks to an open-access, sample introduction area.

## Expanded capabilities simplified

Simply and reproducibly configure your instrument to the task at hand with bespoke sample handling kits and additional mass flow controllers.

Automating the laboratory workflow to your needs is easy thanks to a wide range of compatible autosamplers and discrete sampling valves: close connectivity maximizes productivity, software integration ensures simplicity.

Simple coupling kits, a wide range of Qtegra ISDS Software plug-ins and a bench height, open geometry sample introduction area ensure quick and seamless integration of peripheral devices.

## Argon Gas Dilution

Simple solution for direct analysis of high matrix samples at % level concentrations. Meaning, two core advantages for you: more simplicity, as there is no need for manual dilution of samples and less matrix build up on the interface leads to longer intervals without maintenance.

## Autodilution

Higher throughput, lower maintenance and autodilution reduce time and cost.

The ESI prepFAST 2 Autodilution System is fully integrated for seamless operation and control. Autodilution enables calibration from a single stock and automatic dilution of samples that are too high in concentration or matrix. Reduce errors and save time with automated sample preparation and intelligent software. Let the Thermo Scientific™ Qtegra™ Intelligent Scientific Data Solution™ (ISDS) Software make all the right decisions to run samples under optimal conditions, leaving you free to focus on instruments that need more attention, or on pressing research.

Get the most out of your iCAP Q ICP-MS

With tailor-made solutions for every application.



Productivity is significantly enhanced as autodilution does it all for you.

The **Thermo Scientific Qtegra Intelligent Scientific Data Solution (ISDS) Software** delivers quality and drives productivity. The platform is intuitive and easy to use for routine, high throughput applications, yet offers all the flexibility required for the most demanding applications.

### Ease of Use and lowest cost per sample

Simple workflows minimize the steps needed to perform a task. This frees up operator time for more important tasks. The "Get Ready" feature takes your system from stand-by to ready for analysis through a fully automated process - saving time and ensuring consistent performance.

With just five clicks, create a LabBook and start an intelligent workflow with a fully integrated QA/QC protocol.

With minimal QA/QC failures, we are driving down the cost per sample for your laboratory.

### Data Handling and Data Management

LIMS integration and automated reports and export minimize user actions from sample to results. Tailor the output of your results with flexible formatting of reports. Get the information you need, when you need it.

Trust Qtegra ISDS Software to securely manage your data and provide full accessibility from a wide range of sources.

### Integrating peripherals

Qtegra ISDS Software plug-in architecture means you can connect many industry standard autosamplers and sample preparation devices.

This ensures the hardware meets the needs of the application.

### Compliance

Qtegra ISDS Software provides all the features you need to comply with regulatory requirements:

- 21 CFR Part 11 Environment Support.
- Data security and access control.
- Compliance management.

### Even reports and calculations are prepared automatically

Data is easier than ever to manage and your analysts won't need to monitor it proactively. iCAP Q ICP-MS hardware and Qtegra ISDS Software are a formidable team when integrated. User actions are completely minimized from receipt of sample, right through to final results.



## Thermo Scientific Qtegra ISDS Software

Common ICP software platform reduces training requirements, makes adoption of new instrumentation faster and easier, and allows for increased flexibility for modern multi-technique laboratories.

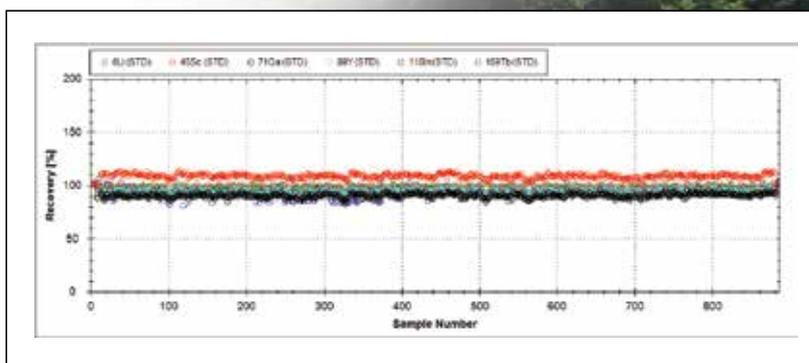


# In Action: Food, Pharmaceuticals, Environment, Clinical

Gain total confidence in your results: comply with global regulations and legislation

## Environmental and Water Analysis

Make environmental compliance simpler and help minimize regulatory risks with the iCAP Q ICP-MS. With high throughput, the ability to handle complex matrices and combined workflow solutions, your environmental laboratory will be highly productive while meeting legislation requirements with ease.



Internal standard recovery over 15 hours of uninterrupted analysis according to EPA Method 200.8.

## Faster throughput

Minimum downtime and far-reaching capabilities mean even the busiest laboratories can work faster, whilst being confident about compliance.

Meet demanding legislation with multi-elemental analysis via a single operation mode and universal interference removal.

# More certainty with speciation

Species information is critical in food, pharmaceutical and environmental analyses. Provide confident, accurate answers with IC-ICP-MS, thanks to integrated data evaluation and a metal free speciation system.

## Food Safety

Verify isotopic fingerprints with custom criteria and a suite of integrated Quality Control tests. Assess risk accurately using fully integrated speciation capabilities with zero contamination from metal-free Ion Chromatography Systems.



Simultaneously measure essential and toxic elements for food authentication.



Dedicated reporting templates and intelligent software are combined with integrated features that support 21 CFR Part 11 compliance.

## Pharmaceutical Compliance

Analytical performance to comfortably meet the most challenging pharmaceutical regulatory levels for elemental impurities, including limits from International Conference on Harmonization (ICH guideline Q3D) and the U.S. Pharmacopeial Convention (USP chapters 232, 233 & 2232).

Designed to comply with the most rigorous data audit and security measures, Qtegra ISDS Software is FDA 21 CFR Part 11 ready and comes with full IQ/OQ procedures for simple implementation in GxP regulated environments.

## Clinical Accuracy

Detect the smallest traces of toxic elements. The iCAP Q ICP-MS gives you the sensitivity needed for the lowest detection even in complex matrices. Auto-optimization of QCell operation modes means accuracy with unmatched performance.



## The need for nanoparticle characterization is growing steadily

To enhance food and environmental research, speed is pivotal to single particle ICP-MS (spICP-MS) The iCAP Q ICP-MS is fast, highly sensitive and efficient for accurate nanoparticle size characterization, even in the most challenging samples.



# In Action: Geoscience, Semiconductor, Nuclear, Materials

Rely on solutions that perform exactly as you need,  
in the toughest conditions

## Geoscience Exploration

Analyze rock digests with minimal drift,  
thanks to a high matrix interface, for long  
term sampling. Maximize your return on  
investment with intelligent design,  
ease-of-use and common software.

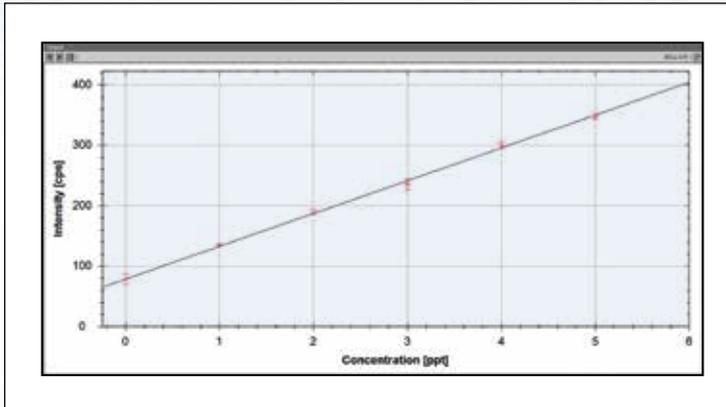


Rely on optimal  
interface properties  
with unique and tailored  
insert technology.



## Laser ablation for expanded research capabilities

Integrated laser ablation systems offer the best  
spatial and depth characterization of solids.



< 1 ppt LOD of calcium. Detect even the lowest levels of contaminants in process chemicals with the most sensitive interface and an inert sample introduction system.

## Semiconductor Application

Increase lab productivity with stable and robust hot to cold plasma switching. For the most challenging applications, benefit from maximum flexibility with high performance QCell technology. Utilize a robust plasma (even in volatile organic solvents), thanks to a unique free running generator.

## Materials Analysis

Increase throughput, reduce maintenance and free up analyst time with fully integrated, discrete sampling valves and intelligent dilution for automated sample preparation.



Simplify your metal analysis with turnkey solutions.

## Nuclear

Master advanced isotopic detection. iCAP Q ICP-MS unique RAPID lens offers low background and highest signal to noise ratios. QCell technology collisional focussing ensures optimal sensitivity and abundance sensitivity performance.



Detect precise isotope ratios through plasma stability and highest quality quadrupole technology.



# We manage your instruments so you can focus on the science

To improve your laboratory's efficiency, you should be focused on your work, not managing instrument service. When you buy a Thermo Scientific analytical solution, you gain the peace of mind that comes from being backed by a global team of service experts committed to your long-term success.

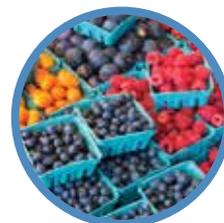
## iCAP Qa

The Thermo Scientific iCAP Qa ICP-MS is a reliable 24/7 multi-elemental workhorse, incorporating all of the class-leading reliability and ease-of-use features unique to the iCAP Q ICP-MS range. Ideal for upgrading from AAS or ICP-OES; the entry level iCAP Qa ICP-MS combines simplicity and ease-of-use with high-throughput capability.



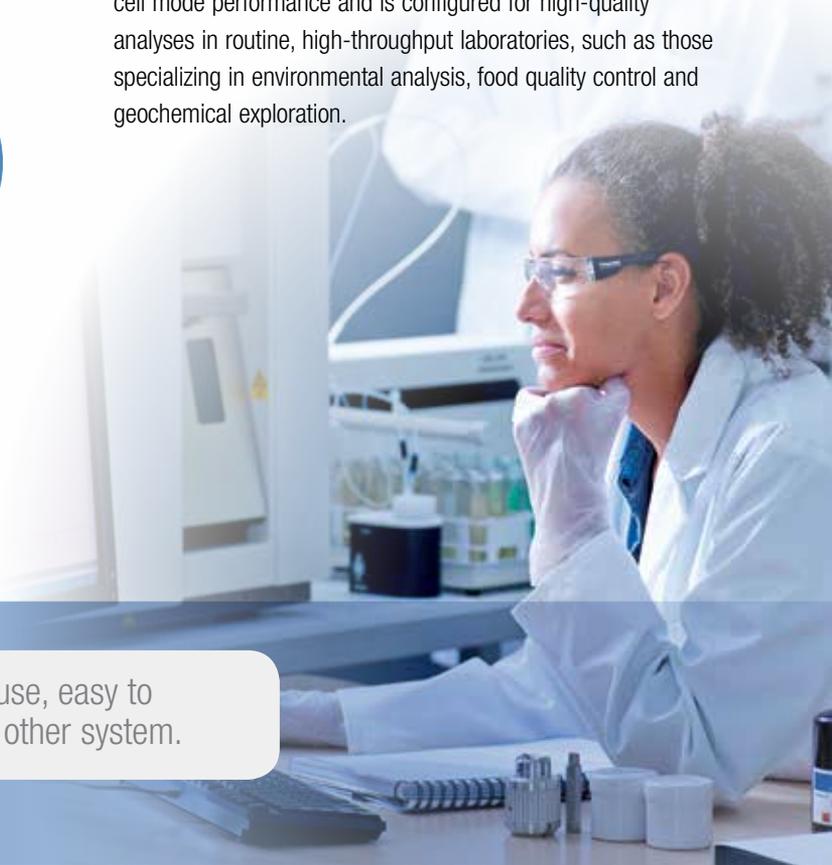
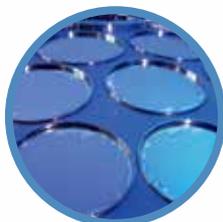
## iCAP Qc

Providing powerful multi-elemental analysis in a compact footprint, your laboratory portfolio can be expanded with this workhorse analyzer, while the user-friendly platform software will make the move to ICP-MS seamless. The Thermo Scientific iCAP Qc ICP-MS offers uniquely reliable cell mode performance and is configured for high-quality analyses in routine, high-throughput laboratories, such as those specializing in environmental analysis, food quality control and geochemical exploration.



## iCAP Qs

The top performer in the iCAP Q ICP-MS range; this analyzer provides the ideal solution for facilities where the most sensitive detection levels, accuracy and precision are required. For demanding applications such as ultratrace analysis in the semiconductor industry, the iCAP Qs ICP-MS combines ultimate performance with ultimate flexibility.



**Award winning ICP-MS.** Simple to use, easy to maintain and more sensitive than any other system.

[www.thermoscientific.com/TraceElemental](http://www.thermoscientific.com/TraceElemental)

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