



Thermo Scientific iCAP TQe ICP-MS

Redefining triple quadrupole ICP-MS
with unique ease of use

iCAP TQe ICP-MS

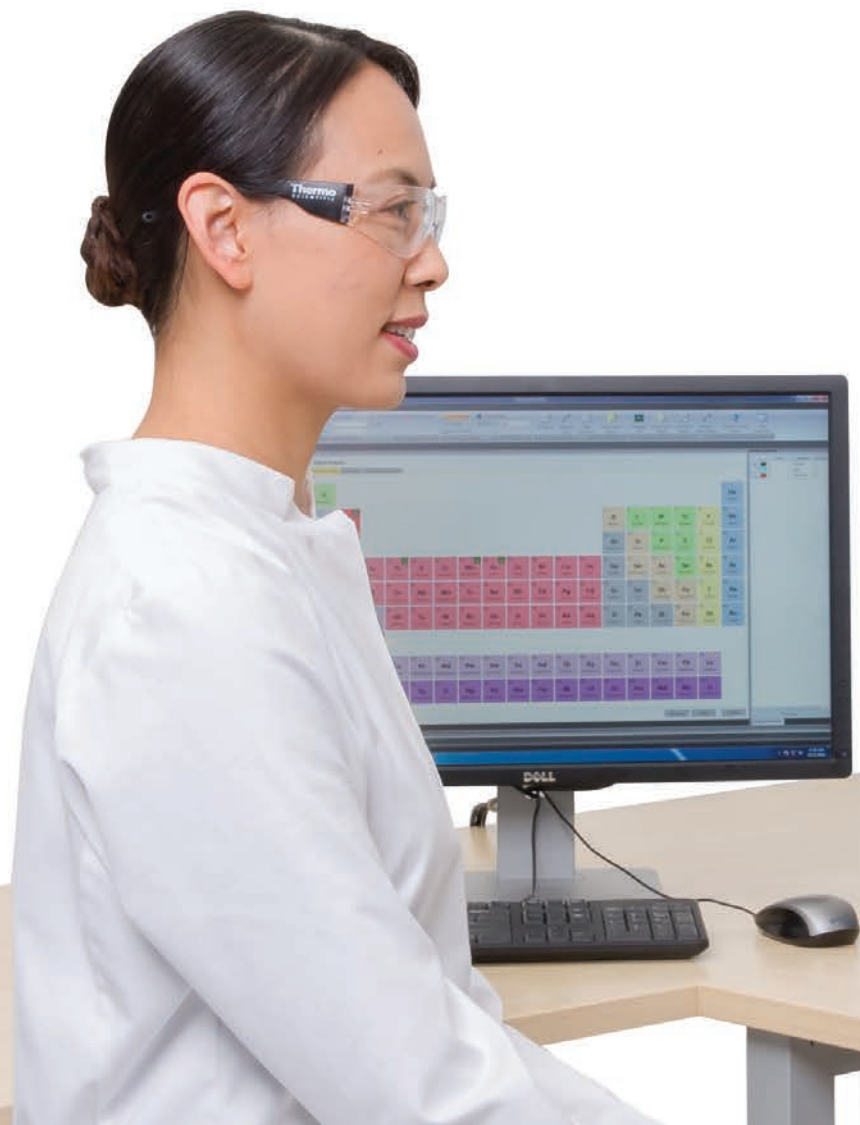
Overcome unexpected interferences, reduce detection limits for critical contaminants and improve data quality

Leverage superior interference removal using triple quadrupole (TQ) ICP-MS for uncomplicated analysis with incredible accuracy. Expand your applications and enhance your laboratory efficiency with this breakthrough technology, which is so easy to use that it can be operated by any analyst.

- Reaction Finder method development assistant enables you to tackle challenging matrices without complex, time-consuming method development
- Common Thermo Scientific™ Qtegra™ Intelligent Scientific Data Solution™ (ISDS) software platform allows analysts to switch easily between ICP techniques
- Minimal installation and bench space requirements

The Thermo Scientific™ iCAP™ TQe ICP-MS is the optimal solution for future-proofing elemental analysis in your laboratory, explore developing markets, increase productivity and meet the requirements of evolving legislation.

- Right-first-time analysis with powerful interference removal, even in the toughest matrices
- Reduced re-runs in the daily workload with assured accuracy and repeatability
- Maintained flexibility of single quadrupole (SQ) mode for less challenging analyses



For applied testing

Robust and easy to use, the iCAP TQe ICP-MS is a compact and low maintenance instrument. Daily analysis is elevated to a new level and the high matrix tolerance and exceptional interference removal, even in challenging sample matrices, open up new applications. Simplified operation from Qtegra ISDS software means operators do not need to be specialists.

For research

Improved interference removal leads to the lower detection limits that are essential for new scientific breakthroughs. Find out what is possible with the advanced performance of TQ-ICP-MS technology.



Inside TQ technology

Highly effective interference removal for accurate and reliable results

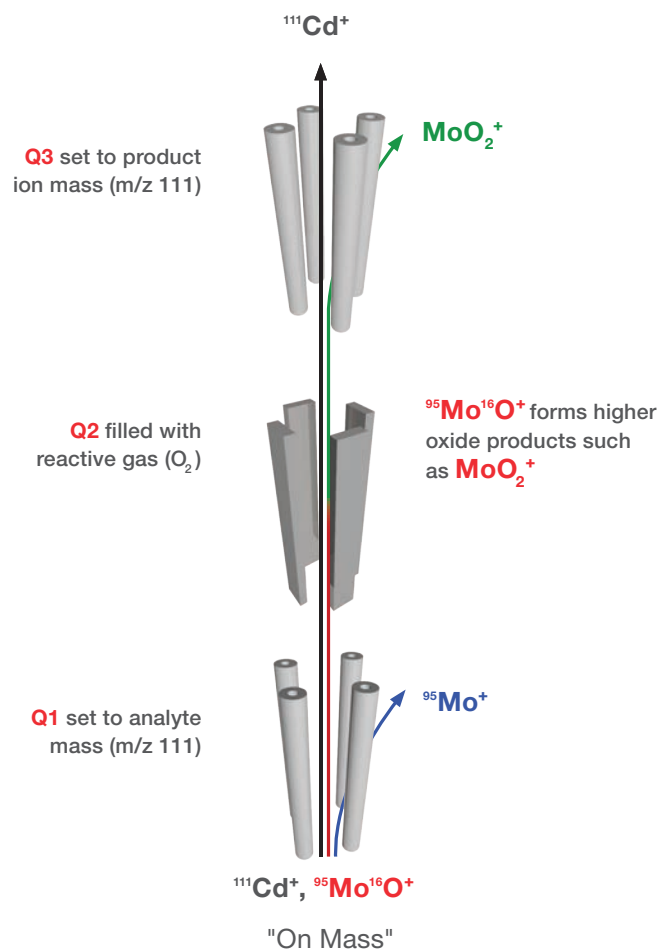
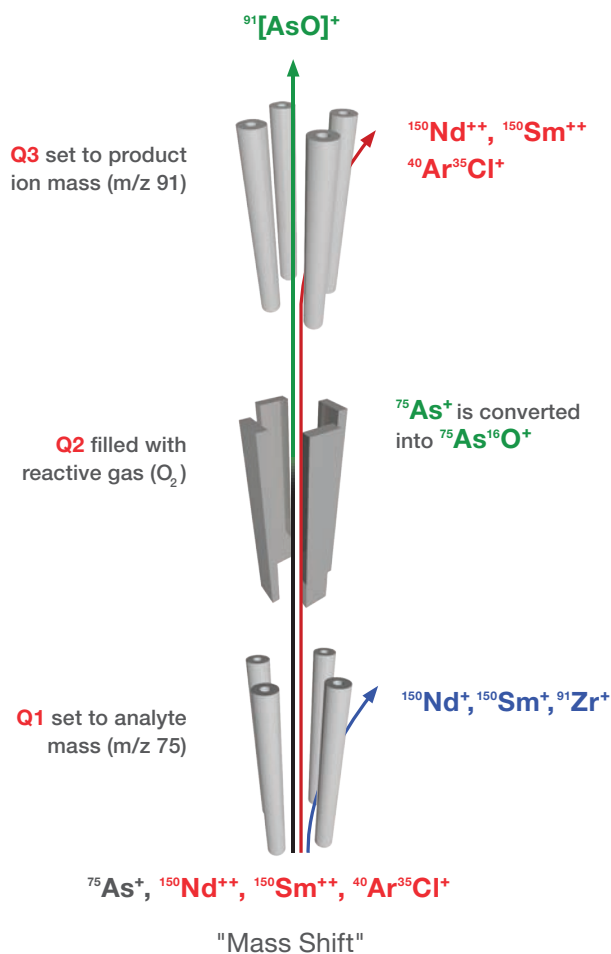
- The iCAP TQe ICP-MS achieves consistent interference removal regardless of the sample composition using just helium and oxygen as the collision/reaction cell gases. This simplifies operation and eliminates the need for special gas installation in the laboratory.
- If SQ analysis is required, switching between preset Kinetic Energy Discrimination (KED) mode and TQ modes is possible in a single sample analysis for rapid and reliable results.
- The Reaction Finder Method Development Assistant dramatically simplifies method development. No requirement for advance knowledge of complex reaction chemistry is necessary – Reaction Finder does it for you!

Let Reaction Finder select the right mode for your analysis

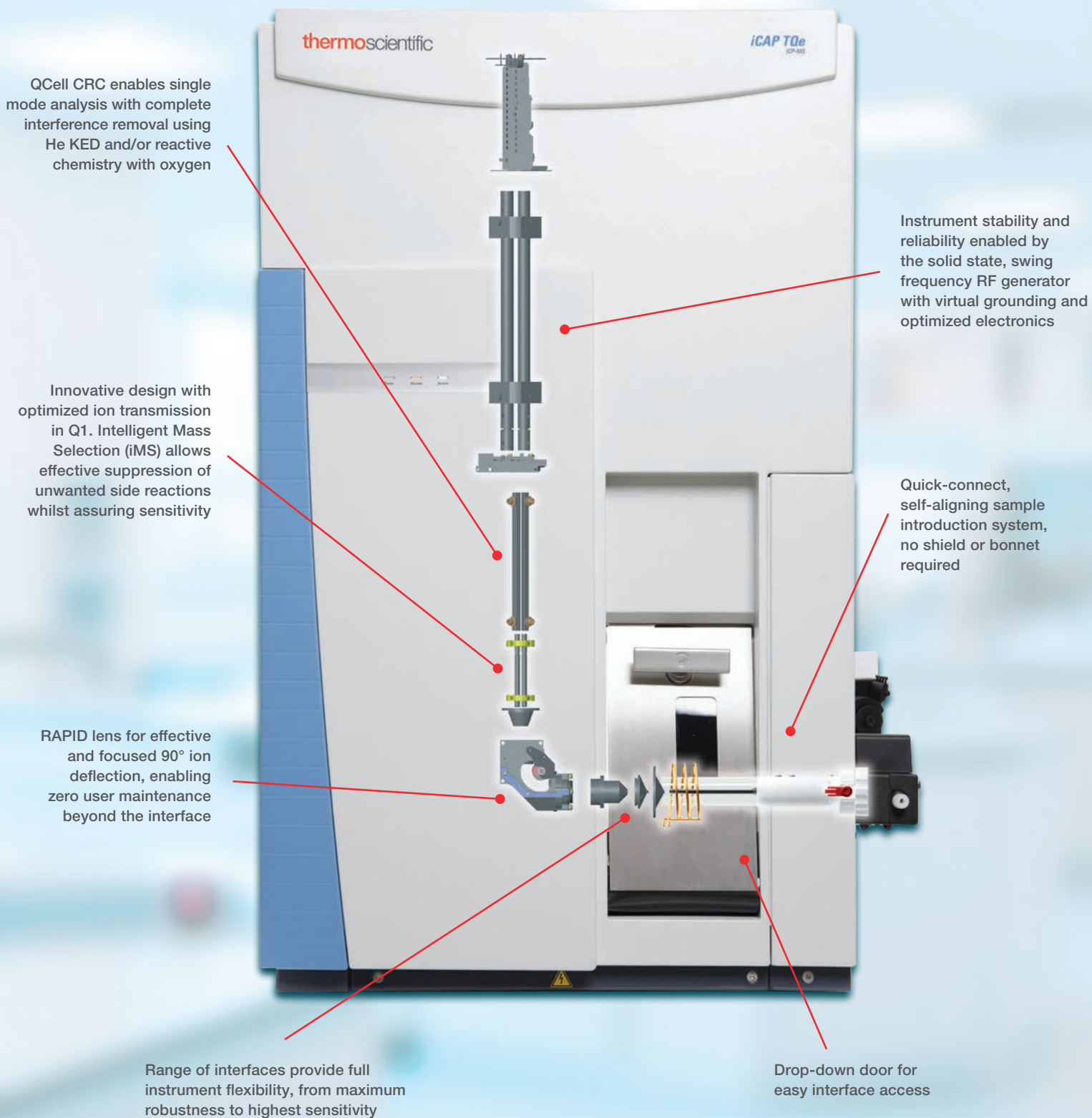
SQ mode: Comparable to SQ-ICP-MS instruments, Q1 transmits all masses

TQ on mass mode: Q1 and Q3 set to the same mass

TQ mass shift mode: Q1 and Q3 set to different masses



Technology at a glance



Ultimate ease of use

Qtegra Intelligent Scientific Data Solution Software

Intuitive, cross-platform software enables easy and straightforward operation, from plasma ignition to data acquisition and from reporting to routine maintenance. Get up and running in just five clicks!

Reaction Finder Method Development Assistant

Streamline your workflow with Reaction Finder. Use this intuitive feature to achieve optimal interference removal for your target analytes via intelligent measurement mode selection.

- Removes the complexity from TQ technology
- Automatically selects the isotope, reaction gas and product ion
- Dramatically decreases method development time
- Enables accessibility to all users
- Provides the confidence of accurate data

Intelligent data assessment

With the sheer volume of data generated in busy laboratories, result-dependent decisions cannot wait for manual data assessment. Qtegra ISDS software includes an intuitive set of tools (e.g., flexible Quality Control (QC) rules, analysis specific limits) to aid in data visualization, interpretation and fully automated run control.

Enhance your productivity through automated sample handling, managed within the simple interface of Qtegra ISDS software. Routinely tackle advanced applications with hyphenated techniques to expand your application capabilities.



LIMS integration

Qtegra ISDS software includes full integration with laboratory information management system (LIMS) software. Complete analysis descriptions can be directly imported into Qtegra ISDS software, eliminating additional user input, and full results (both analytical as well as metadata) are immediately available after analysis for rapid turnaround of results.

1. Choose method template for analysis
2. Import sample information
3. Perform analysis
4. Automatically export results

Comprehensive regulatory compliance

Full system qualification, comprehensive audit trails and integrated regulatory tools in the Qtegra ISDS software enable simplified system validation and performance qualification, total data security and audit assurance.

Autodilution

Fully integrated control of auto dilution peripherals in Qtegra ISDS software, delivering error-free prescriptive and intelligent dilution options.

Speciation

The ChromControl plug-in for Qtegra ISDS software provides control of chromatography systems for automated sample analysis in a single software. Additionally, dedicated chromatographic data processing and compound quantification features deliver simple and reliable speciation analysis.



Applied analytical testing

Be ready to meet the most demanding challenges in protecting our future

Environmental health

The iCAP TQe ICP-MS is a powerful solution for accurately quantifying trace analytes in the most challenging environmental matrices. Avoid unwanted interruptions to the daily workplan with a combination of SQ and TQ interference removal modes.

Food safety





Remove uncertainty from food safety analysis and be prepared for future legislation with speciation and nanoparticle characterization capabilities. Even the most challenging matrices are no obstacle for the iCAP TQe ICP-MS, ensuring reliable elemental analysis to support production of safe, high quality food and beverage products.

Pharmaceutical compliance

Comply with confidence. Meet global regulatory standards, including FDA, U.S. Pharmacopeia chapters <232>/<233>, and ICH Q3D, and explore new areas such as extractables and leachables using the superior detection capability of the iCAP TQe ICP-MS.

Clinical accuracy

Advance your clinical research with total confidence provided by superior interference removal. Use Reaction Finder to determine the appropriate measurement mode for your specific application and easily obtain accurate results. Perform robust and rapid analyses, even with small volume or complex matrix samples, such as blood and urine.

Analyte	Challenge	Solution	Benefit
 Arsenic	Abundant chlorine-based polyatomics and doubly charged interferences of samarium and neodymium	Only TQ technology eliminates all these potential interferences	Greater confidence in results Significantly improved sensitivity and detection limit* Reliable ultra-trace analysis in every sample matrix
 Selenium	Intense argon-based polyatomics on the most abundant isotope (selenium-80); doubly charged interferences of gadolinium		
 Cadmium	Higher concentrations of molybdenum, naturally occurring in a variety of foods, may lead to false positives		
 Mercury	Even low levels of tungsten can lead to incorrect results for this critical contaminant, due to formation of tungsten oxide interferences		

*Compared to the use of He KED mode on a single quadrupole ICP-MS



Industrial applications

Advance developments in metals, materials and chemical production

Metallurgy

Optimize geochemical exploration and mining profitability with accurate quantitation of trace elements and impurities essential to metallurgy research and industrial production. Confidently measure bulk and spatial distributions with laser ablation.

Material science

Ensure product quality and accurately determine impurities in raw materials for industrial applications. The iCAP TQe ICP-MS is the robust solution required to analyze complex samples quickly and accurately.

Chemicals

Directly measure impurities in aggressive mineral acids or organic solvents with the ultra-low detection limits delivered by high performance triple quadrupole technology. The robust plasma ensures reliable analysis in the toughest of matrices.

Energy production

Effectively monitor the fracking process or determine the ageing state and degradation of energy consumables. The iCAP TQe ICP-MS easily provides the required detection power.

Take on new challenges with significantly reduced detection limits

Eliminate mathematical correction and interference correction solutions from your workflow

Leverage single mode analysis using triple quadrupole ICP-MS for full interference removal and accelerate sample turnaround times



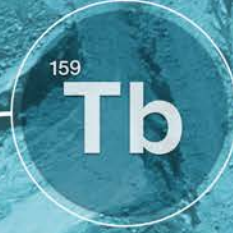
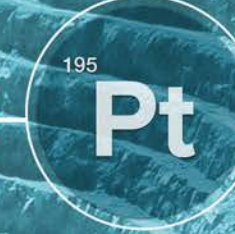
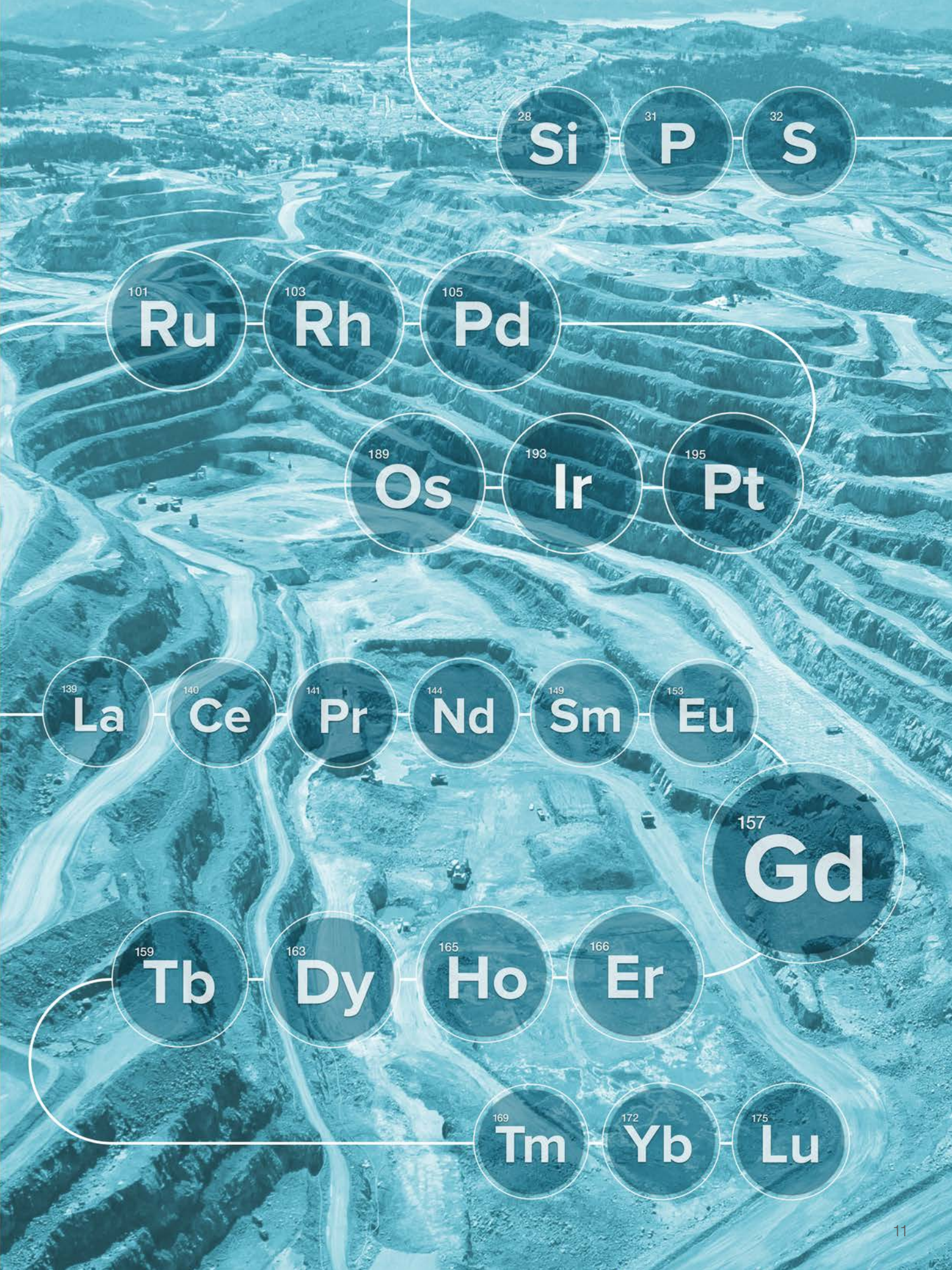
**Reduced sample
turnaround times**



**Increased
throughput**



**Increased return
on investment**



thermo**scientific**

Thermo Scientific™ iCAP™ Qnova Series ICP-MS

For easy, powerful and routine SQ-ICP-MS and TQ-ICP-MS analysis.



Find out more at thermofisher.com/TQ-ICP-MS

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