

Thermo Scientific iCAP TQ ICP-MS

Simple and robust method development with Reaction Finder



Accurate elemental mass spectrometry is hindered by isobaric interferences coming from either isotopic, polyatomic or doubly charged species. This means that the results of a particular analysis, especially in regulated environments, are subject to more uncertainty than is desirable. The use of triple quadrupole technology allows the analyte signal to be isolated from interferences; however, the number of parameters needed to achieve an effective and sensitive determination means method development can be complex.

The Thermo Scientific™ Qtegra™ Intelligent Scientific Data Solution™ (ISDS) Software for the Thermo Scientific iCAP™ TQ ICP-MS includes Reaction Finder, a powerful tool that automatically selects the optimum collision/ reaction gas and final analyzer mass to reduce interferences for the best quality data with minimal user effort.

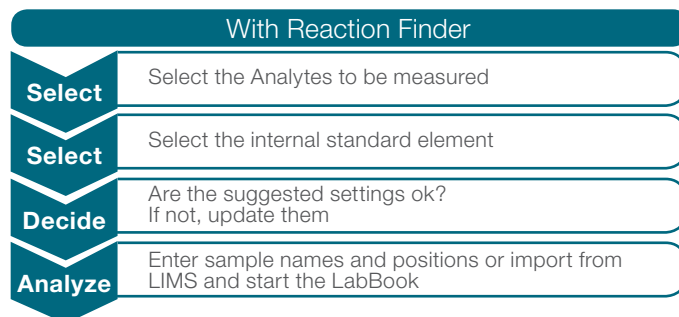
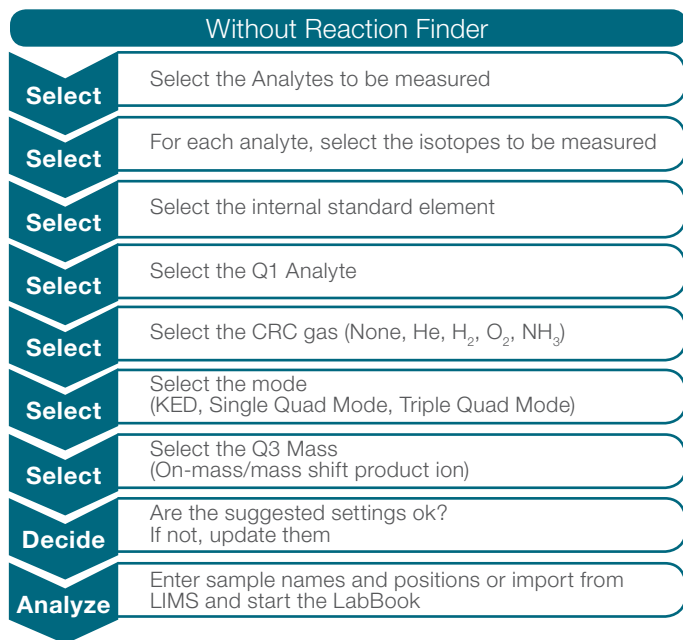
The iCAP TQ ICP-MS is a Triple Quadrupole (TQ) ICP-MS that effectively and efficiently reduces interferences on an analyte signal, greatly increasing accuracy and certainty in quantification.

The first quadrupole (Q1) filters the analyte and interfering species entering the collision/reaction cell (CRC). The CRC (Q2) is either pressurized with helium or a reactive gas. When using helium combined with Kinetic Energy Discrimination (KED) the polyatomic interferences are disrupted, removing the interference signal from the analyte signal (on mass mode).

Reactive gases either form a product ion with the analyte that is interference free (mass shift mode) or reacts with the interference to remove the interference signal from the analyte (on mass mode). The mass analyzer quadrupole (Q3) is either set to the original analyte mass (on mass analysis) or the product ion mass (mass shift mode).

To establish the best interference removal for the analyte to be quantified, the right combination of Q1 and Q3 masses must be chosen, along with the Q2 cell mode (collision or reaction gas). This demands a certain amount of expertise and knowledge to be able to choose those conditions efficiently. In addition to these factors, appropriate internal standards must be chosen with knowledge of how they will perform under the conditions chosen for the analyte.

Reaction Finder makes the decision easy for the operator by selecting the correct Q1 mass, Q2 mode and final Q3 mass for any chosen analyte. Reaction Finder is driven by an intelligent database (Reaction Editor) and automatically selects the best parameters based on the configuration of the instrument. The analyst simply selects the element for analysis and the software does the rest. The workflow below demonstrates how the process of method development is simplified using Reaction finder.



The iCAP TQ ICP-MS and Qtegra ISDS Software for:

- Powerful interference reduction for reliable and accurate quantification.
- Reduced complexity of TQ-ICP-MS method development.
- Faster method development for improved productivity.

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