Trace-level sensitivity

now well within your reach.

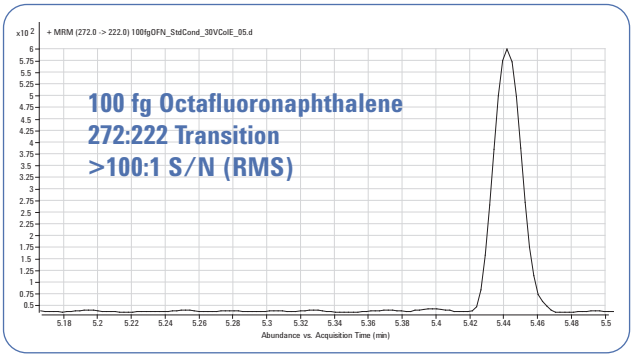
The New Agilent 7000A Triple Quadrupole GC/MS

Powerful, reliable quantitation of target compounds in complex matrices.

Agilent's 7000A Triple Quadrupole GC/MS combines the reliability of the best selling 5975C Series GC/MSD with the superior sensitivity and selectivity of Agilent's Triple Quadrupole mass spectrometer design.

Industry-leading sensitivity and selectivity

Features of the 7000A Triple Quadrupole GC/MS include a modular mass analyzer that incorporates Agilent's proprietary solid inert ion source, proven quartz quadrupoles, advanced collision cell design, and a new high signal-to-noise Triple-Axis Detector. This powerful combination provides better MS resolution, exceptional spectral integrity, ultra low noise, and femtogram level sensitivity, helping you meet the demands for trace level analytes in complex matrices such as food, body fluids, environmental and others.



Shattering the barriers of sensitivity: In this example, the Agilent 7000A Triple Quadrupole GC/MS detected 100 fg of Octafluoronaphthalene at greater than 100:1 signal-to-noise ratio.

The speed you need for maximum productivity

Designed from the ground up, the 7000A Triple Quadrupole GC/MS provides routine, high performance, high-throughput operation. Its advanced MassHunter Workstation software and fast acquisition of up to 500 Multiple Reaction Monitoring (MRM) transitions per second allow you to automatically identify more targets in a single method, so you can process more samples in less time.

Clean, stable operation

The 7000A Triple Quadrupole GC/MS is built upon Agilent's proprietary gold-plated hyperbolic quartz quadrupole analyzer, which can be heated to 200° C with no detectable dimensional change, remaining highly stable and clean even with the most dirty samples. This means time-consuming cleaning of quadrupoles is not required and your system tune and method performance stays rock solid.

A trusted technology

The core components of the Agilent 7000A Triple Quadrupole GC/MS are based on Agilent's flagship 5975C Series GC/MSD, which combines unequaled analytical capabilities with industry-leading sensitivity and MRM performance.

And because the 7000A Triple Quadrupole GC/MS harnesses the power of a proven platform, your existing GC/MSD workflow can be maintained for many applications.

Our measure is your success.

Why GC/MS technology delivers greater selectivity for low level detection in complex matrices.

A key strength of mass spectrometry is the selectivity provided by the uniqueness of each mass-to-charge ratio; it is also proportional to spectral resolution, which is typically equal to unit mass resolution.

In the case of **single quadrupole** GC/MS, if the matrix contains a coeluting compound that produces the same m/z as the target ion, it creates an interference that cannot be eliminated by a single quadrupole analyzer. Consequently, ion ratios will be skewed, and quantitation can be erroneously high.

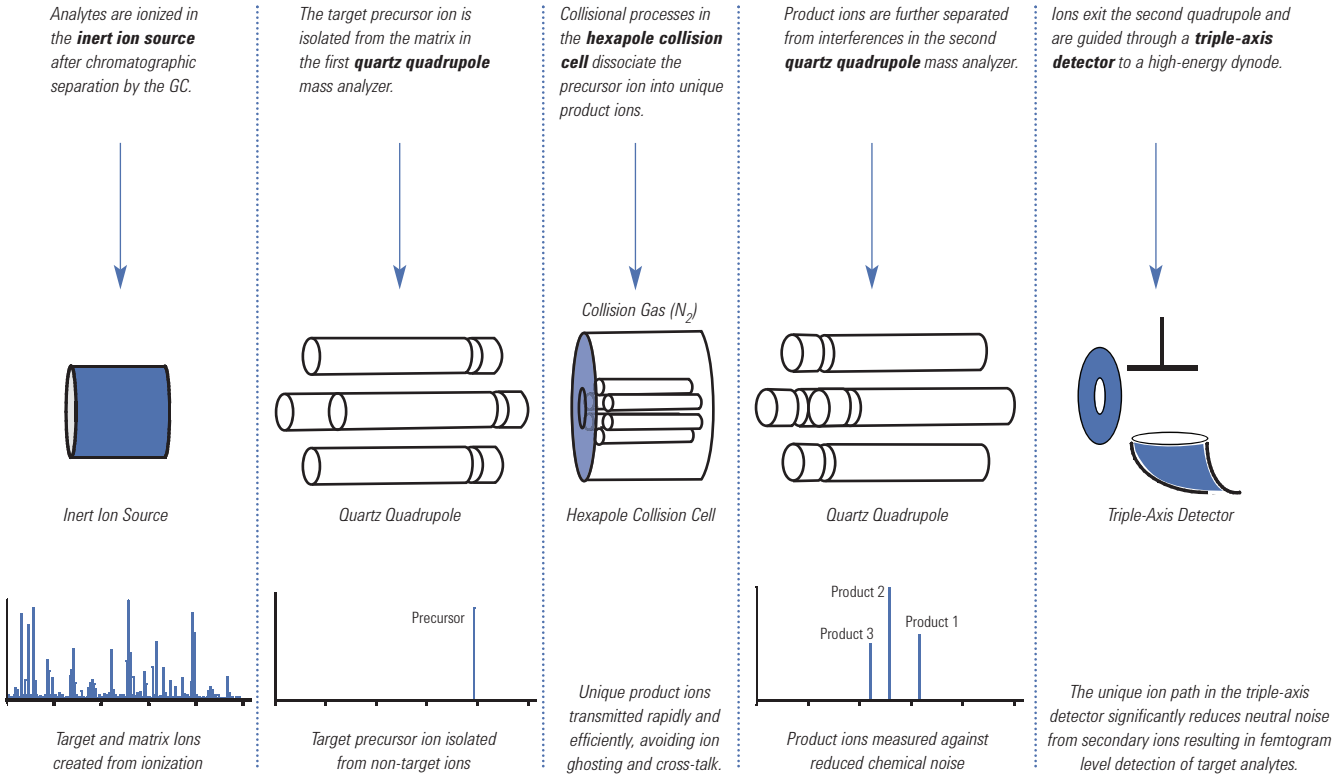
With **triple quadrupole** GC/MS in MRM mode, it is the combination of **(1)** unit mass resolution in the first quadrupole with, **(2)** the uniqueness of dissociation products created in the collision cell, and **(3)** unit mass resolution in the second quadrupole that results in greatly enhanced selectivity – even if the target analyte and interference produce the same *precursor ion*.

As an example of selectivity in complex matrices, consider the analysis of pesticides in food.

When you inject a food extract into a single quadrupole GC/MS system, retention time and spectral information are used to confirm the presence of a pesticide. However, the spectra might also contain ions of other materials (such as organics or trace contaminants from sample prep) that elute at the same retention time.

But with triple quadrupole GC/MS, the precursor ion continues into the collision cell, where it is dissociated with nitrogen to create *product ions*. Product ions associated with the target analyte are allowed to pass to the detector, while product ions associated with chemical noise are filtered out in the second quartz quadrupole.

The Agilent 7000A Triple Quadrupole GC/MS: How it works

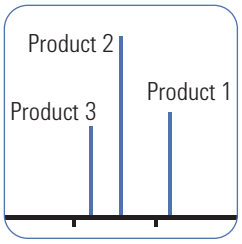


Designed for reliability, high performance, and productivity.

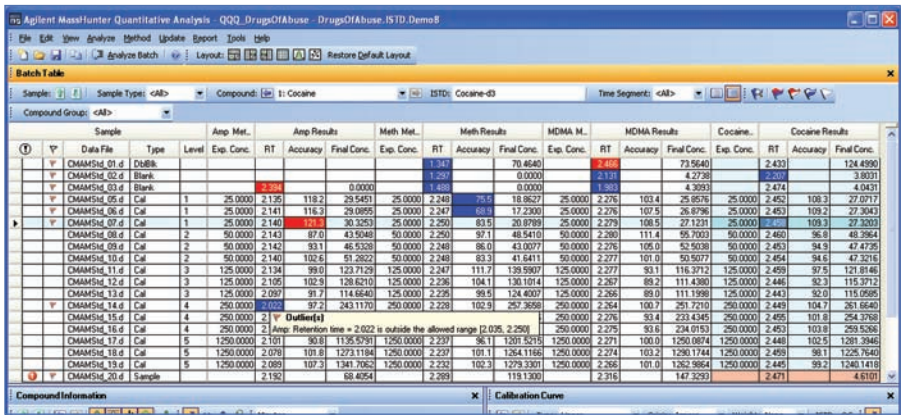
For decades, Agilent has led the industry by engineering the world's most trusted and proven GC/MS solutions. And our 7000A Triple Quadrupole GC/MS reflects years of innovation with features such as:

Clean, reliable source performance: Agilent's inert "Stay-Clean" dual filament ion source design increases uptime and extends your maintenance intervals – especially when analyzing "dirty" samples.

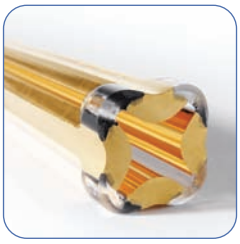
A high performance triple-axis detector that uses an ion guide and shield to position a triple-channel electron multiplier doubly off-axis from the analyzer exit. This optimized path increases the signal and eliminates noise from energetic neutrals.



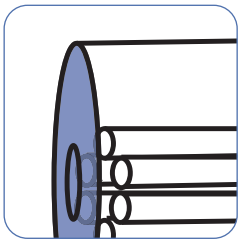
A fast, reliable autotune function that tunes the source, mass analyzer, and detector for ion transmission, mass axis calibration, mass resolution, and detector gain versus voltage. You can also save your autotune settings with your method to ensure repeatable performance.



MassHunter Workstation Software: Agilent's intuitive and powerful instrument control, data acquisition, and data analysis tool that can be customized for specialized tasks.



A gold-standard quadrupole design with exceptional dimensional stability: Temperature changes up to 200° C will not alter the quartz dimensions of Agilent's single-piece, gold-plated analyzer. This high-temperature stability ensures superior mass analyzer performance and also allows maintenance-free operation – even with complex, high boiling samples.



Patent-pending collision cell design: The linear acceleration design of Agilent's 7000A Triple Quadrupole GC/MS is optimized for high-speed performance without ion ghosting or cross-talk. In addition, speeds of up to 500 MRM per second allow you to determine more compounds per ion group, while a wide mass bandwidth optimizes sensitivity by eliminating the need to tune on your compound.

Take your lab to the next level of performance with Agilent's 7890A GC:

the perfect partner for our 7000A Triple Quadrupole GC/MS.

Agilent's **7890A GC** features advanced chromatographic capabilities, powerful productivity features, and real-time self-monitoring capabilities such as:

- **Fifth-generation electronic pneumatics control and digital electronics** that set a new standard for retention time locking precision and repeatability.
- **Rapid oven cool down, powerful backflush, advanced automation, and faster oven ramps** let you get more done in less time – at a lower cost per sample.
- **Autosampler options for even more versatility and productivity –** including Agilent's 7683 Series Automatic Liquid Sampler, and the flexible CTC CombiPal.

Meeting your toughest demands for quality and quantity

The Agilent 7000A Triple Quadrupole GC/MS combines the reliability and ruggedness of our 5975C GC/MSD with the femtogram-level selectivity of a triple quadrupole. So you no longer have to adapt research instruments to suit your lab's daily workflow.

This breakthrough system is the ideal choice for labs that require maximum sensitivity, along with minimal requirements for system maintenance.

A portfolio of solutions from the leader in GC/MS technology

- Agilent J&W Ultra Inert Capillary GC columns are the only GC columns individually tested for inertness and bleed against Agilent's demanding test probe mixture to ensure consistent column performance and results.
- Agilent quality consumables – including our new portfolio of MS-certified supplies, certified caps and vials, long-life inlet septa and gas purifiers – that help you to increase your uptime and achieve rapid, reliable results that stand up to scrutiny.
- Customized application assistance that can equip you to solve specific measurement problems and implement leading-edge technologies such as test automation, wireless communication, and network analysis.

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