



810/820 MS

- ICP Mass Spectrometers

Your Partner in ICP-MS Solutions



Bruker continues to find new and novel ways to meet your changing needs. As a leader in elemental analysis you can be assured that when you buy a Bruker ICP-MS, you're buying more than just an instrument. You're buying a relationship with one of the most respected and experienced instrument companies in the world.

● ICP-MS: It's never been Easier

Choosing an ICP-MS has never been easier

If you've ever wished that ICP-MS could be simpler, wish no more. The Bruker 810-MS and 820-MS make ICP-MS effortless. No matter what your requirements, with a Bruker ICP-MS, you can tackle any application with ease.

Ease-of-use features of the Bruker 810-MS and 820-MS include:

- Fast switch-over. Bruker's patented collision/reaction interface (CRI) system makes setup of complex reaction cell conditions a thing of the past. Simply turn on the gas flow to remove interferences. It's that simple. (820-MS only)
- Auto-optimization. Take the guesswork out of ICP-MS. With auto-tuning of all instrument parameters, you can spend less time on instrument setup and more time on sample analysis.
- Great software. The ICP-MS Expert software provides one-step optimization and method development. And it makes standard preparation easy; it can instruct you on what solutions to make and how to make them.

With two ICP-MS models, the choice is yours

Core to both the 820-MS and 810-MS, Bruker's patented high-efficiency 90 degree ion optics and double off-axis quadrupoles deliver exceptionally low background noise and unmatched sensitivity – at more than 1 million counts per second for 1µg/L.

The 820-MS features Bruker's novel collision reaction interface (CRI) system, which provides simple, routine removal of troublesome spectroscopic interferences. The result is faster, more flexible interference-free analysis without the worry of complex multipole or scanning quadrupole ion guides, or cells. And, by coupling auto-tuning of all instrument parameters, including CRI gases, instrument productivity is greatly enhanced.

For samples that don't require CRI, the 810-MS is an ideal instrument with industry leading sensitivity for trace and major elemental analysis.



The Benchmark for Analytical Performance

When you require ease-of-use and the ultimate in analytical performance, the 810-MS and 820-MS deliver.

- Unique and patented collisional interface/extraction optics minimize interferences, providing reliable, routine, trace level quantification.
- Optimized sample introduction system, including computer-controlled Peltier-cooled spraychamber, reduces interferences and improves stability.
- Robust, high-efficiency plasma system and patented Turner Interlaced Coils break down the toughest sample matrices, reduce matrix effects, and minimize ion energy spread for maximum sensitivity and stability.
- Patented 90 degree ion mirror and low noise double off-axis quadrupole provide industry leading sensitivity and background.
- All-digital extended range detector – more than nine decades of dynamic range in pulse counting (digital) mode. Ease-of-use, fewer dilutions, and a guaranteed one year detector lifetime mean greater productivity and lower running costs for your laboratory.
- Bruker’s ICP-MS series takes your laboratory to the leading edge of laser ablation performance (LA-ICP-MS), providing a solution for the direct analysis of challenging solid samples.
- A range of accessories to further expand the productivity and capabilities of the new ICP-MS series are available. Options like the Clean Room Pack, Productivity Pack and SPS3 autosampler, provide solutions for your most demanding applications.

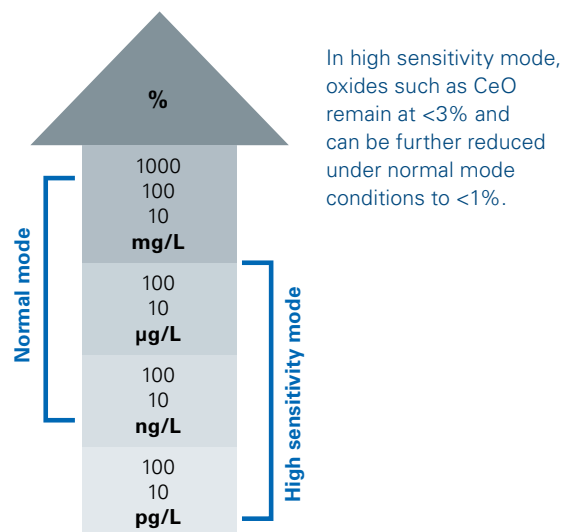
- Fully integrated LC-ICP-MS using Galaxie chromatography software and ICP-MS Expert software, making elemental and molecular speciation easy.

Feature	810-MS	820-MS
Collisional interface	●	●
Optimized sample introduction	●	●
Interlaced coils	●	●
90 degree ion mirror	●	●
All-digital detector	●	●
LA-ICP-MS	●	●
LC-ICP-MS	●	●
Collision/reaction interface (CRI)	○	●
Clean Room Pack	○	○
Productivity Pack	○	○

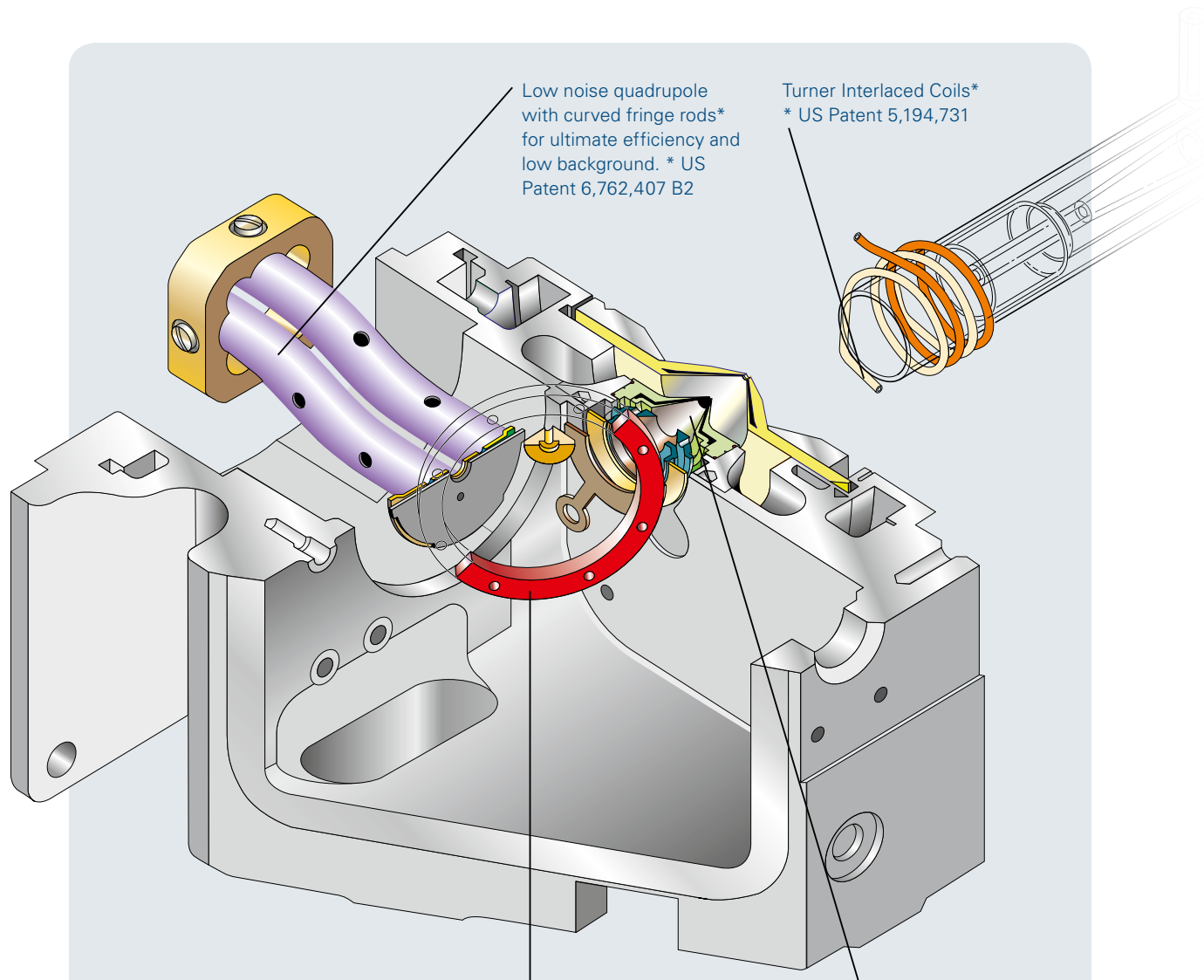
● Standard feature ○ Optional feature

Isotope/Species	Typical Hot Plasma Performance
⁹ Be	> 50 million cps/mg/L
¹¹⁵ In	> 1000 million cps/mg/L
²³² Th	> 500 million cps/mg/L
CeO ⁺ /Ce ⁺	< 3%

Industry leading sensitivity, patented Turner Interlaced Coils, and 27 MHz plasma combine to deliver the remarkable performance of the Bruker ICP-MS.



● Our 90 Degree Reflecting Ion Optics Revolutionizes ICP-MS Performance



Low noise quadrupole with curved fringe rods* for ultimate efficiency and low background. * US Patent 6,762,407 B2

Turner Interlaced Coils*
* US Patent 5,194,731

The ion mirror* reflects the ion beam through 90 degrees, focusing the analyte ions into the quadrupole with the highest possible efficiency.

By keeping photons and neutrals away from the mass analyzer, the ion mirror greatly reduces background signal.
*US Patent 6,614,021 B2

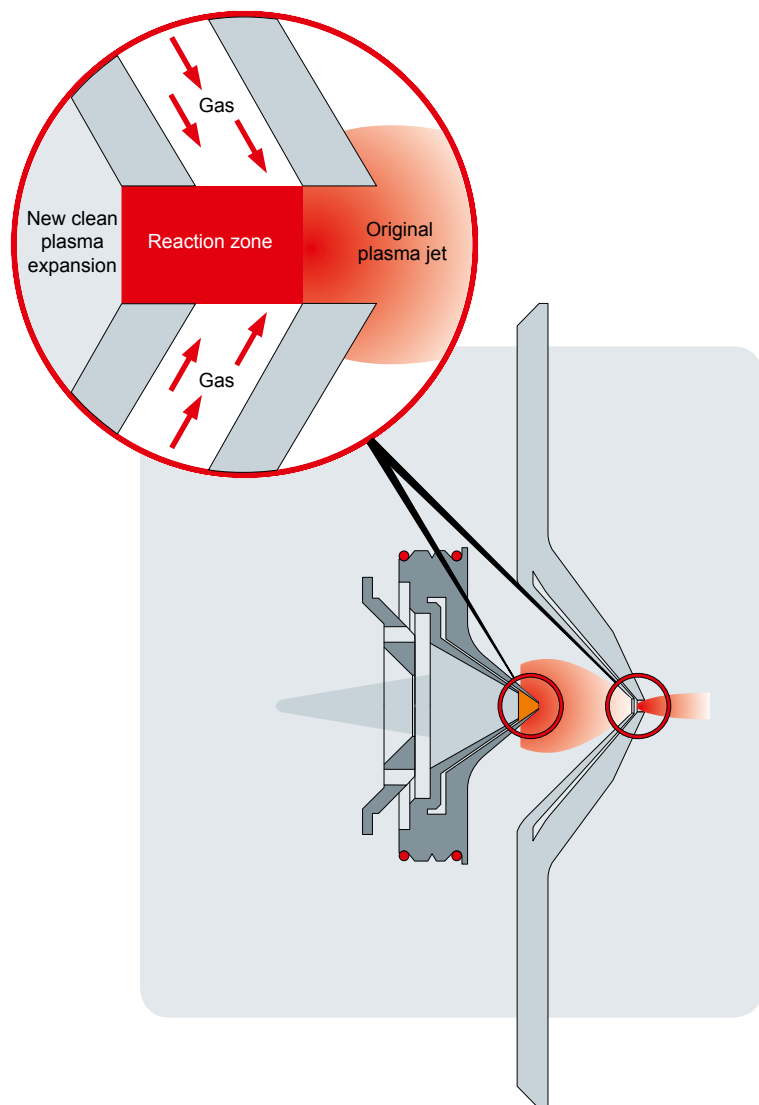
820-MS collision/reaction interface* (CRI) provides fast, flexible, interference-free analysis.
*US Patent 7,329,863 B2

Fast, Flexible, Interference-Free Analysis

Determine the toughest analytes in any sample without interferences

How does CRI work?

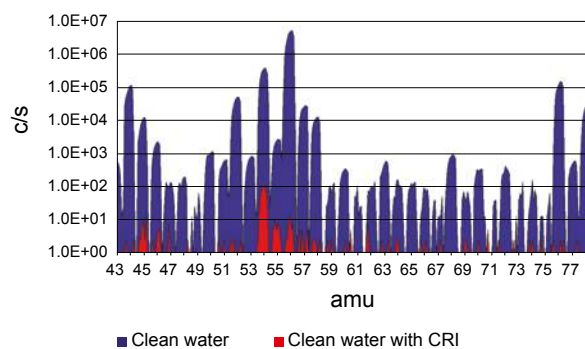
The collision/reaction interface (CRI) injects helium (He) and hydrogen (H₂) collision and reaction gases directly into the plasma as it passes through the orifice of the cones.



This innovative approach suppresses interferences before the analytes are extracted into the ion optics. It's that simple!

- No need for corrosive or expensive gasses, such as ammonia and methane.
- Setup and analysis are fast and easy as there are no complex multipole ion guides.
- The CRI reaction is not confined to a cell, so you can quickly switch from CRI to non-CRI mode, or between different collision and reaction gases.

Mass scan with and without CRI



Dramatically reduce or eliminate troublesome plasma and sample matrix based interferences, using CRI.

● Innovation You Can Trust

Determination of As in Cl containing samples

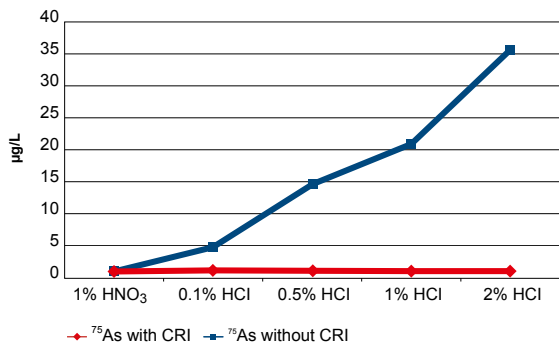
Use CRI in H₂ mode to remove the ArCl interference when determining As in samples ranging from drinking water to seafood to soil.

Quickly and reproducibly reduce interferences

With CRI you can quickly switch from CRI to non-CRI, or between different collision and reaction gases.

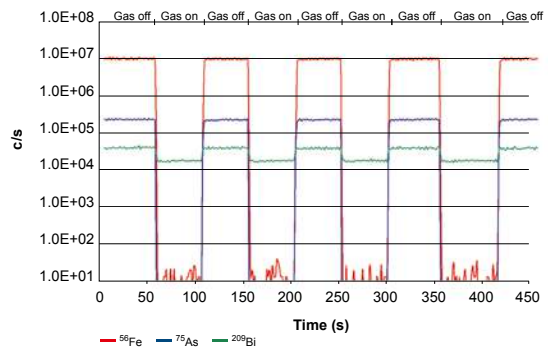


1 µg/L As in HCl matrix



Comparison plots showing 1 µg/L spike recoveries for ⁷⁵As without correction equations. ArCl interferences are removed, allowing accurate trace level quantification of As.

Time scan with and without CRI - 1% HCl



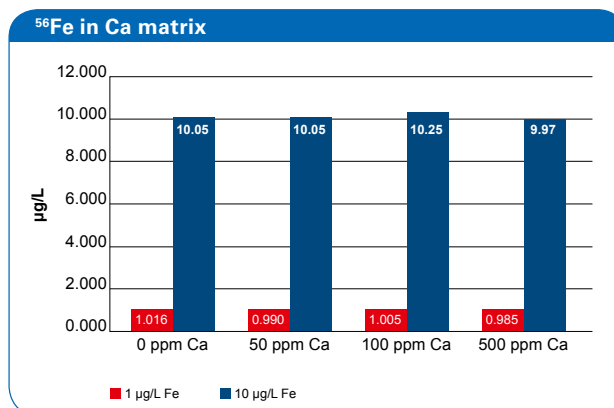
With CRI, ⁴⁰Ar¹⁶O and ⁴⁰Ar³⁵Cl interferences on ⁵⁶Fe and ⁷⁵As respectively are reduced by over six orders of magnitude with minimal effect on the ²⁰⁹Bi spike sensitivity.

● Unrivalled Performance



Removing Ca interferences from Fe

With CRI you can easily remove CaO interferences when detecting low levels of Fe in a wide range of samples. This makes it ideal for environmental applications.



Recovery of low level Fe in various calcium concentrations shows that CRI effectively removes both ⁴⁰Ca¹⁶O and ⁴⁰Ar¹⁶O interferences.

Ultimate accuracy for biological samples

Remove As, Se, V and Cr interferences in challenging biological samples such as blood, serum and urine with ease and confidence.

	Certified range µg/L	Measured value µg/L
²⁷ Al	13 – 21.2	20
⁵¹ V	0.27 – 0.37	0.29
⁵² Cr	0.42 – 0.78	0.42
⁵⁶ Fe	404 – 460 mg/L	420 mg/L
⁷⁵ As	1.4 – 2.2	1.8
⁷⁸ Se	74.4 – 85.2	77.2
^{206, 207, 208} Pb	26.2 – 29	27.6
²³⁸ U	0.16 – 0.18	0.17

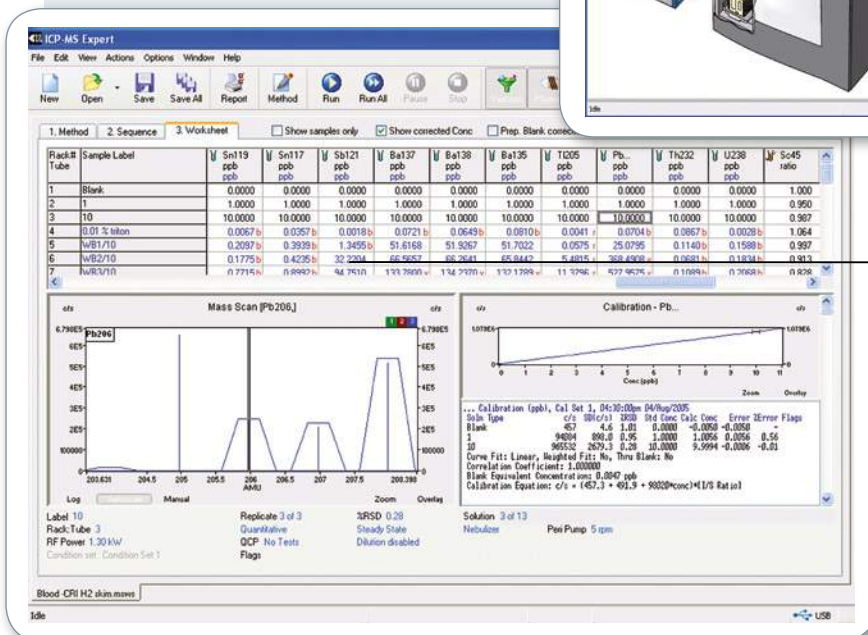
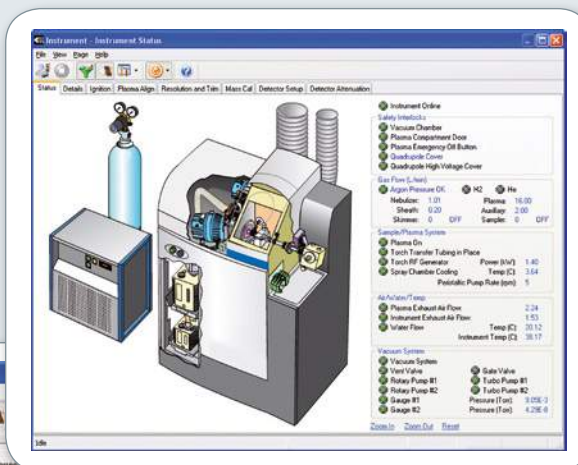
Obtain accurate results in complex biological matrices. Above, certified and measured values for Reference Whole Blood Seronorm WB1 show that trace and major levels can be determined with accuracy and confidence using CRI.

● Setting the Benchmark for Ease-Of-Use

ICP-MS Expert software

Bruker redefines ease-of-use with our Web-integrated ICP-MS worksheet software. ICP-MS Expert features a range of automated options, including setup and initialization routines, such as plasma alignment, mass calibration and resolution tests. Bruker's AutoMax makes method development easy by automating all ion optics, nebulizer and plasma settings for optimum results.

The dynamic Instrument Status window provides a quick visual check of the status of all system components. It is an excellent diagnostic tool that maximizes instrument up time.



Each worksheet cell provides all the results you need – including concentrations, intensities, statistics, replicate readings and graphical mass scans.

ICP-MS Expert switches automatically between multiple method condition sets within a single sample, giving optimum performance for specific element suites, without having to re-run samples.

Chemical Analysis Solutions

Laboratory gas chromatography systems



The 400 Series consists of two gas chromatographs and an associated range of analyzers and solutions designed for leading applications. These systems allow chemists and engineers to employ standard methods and/or high quality trace sample analysis, in the petrochemical, agrochemical and environmental industries.

The 450-GC is a highly affordable and powerful analytical instrument that offers robust operation in an easy-to-use package. The system gives users a broad choice of injectors, detectors, switching and sampling valves up to three channels. The high resolution color touch screen is intuitive and supports local languages. The Bruker 430-GC offers the same outstanding performance as the 450-GC but in a compact, single channel package that occupies about half the bench space of conventional multi-channel GC.

Triple quadrupole mass spectrometer

The Bruker 320-MS GC/MS stands at the forefront of configurable triple-quadrupole mass spectrometer systems. It offers: femtogram sensitivity, 10 – 2000 Da mass range, and a wide array of chromatographic and ionization configurations to uniquely match your needs - all in less than 72 cm. (28 in.) of linear bench space! In minutes, the 320-MS can be changed from EI to CI modes of operation. Easily, the 320-MS is the most sensitive, robust, and flexible triple-quadrupole MS system currently available.

For research use only.
Not for use in diagnostic procedures.



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