aurora M90

- A new era in ICP-MS

Innovation with Integrity

ICP-MS

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

Bruker innovation, making ICP-MS easier

If you've ever wished that ICP-MS could be simpler, wish no more. The aurora M90 makes light work of it. No matter what your requirements, with a Bruker ICP-MS, you can tackle any application with ease.

Key benefits of aurora M90 include:

- Bruker's patented high-efficiency 90 degree ion optics and double off-axis quadrupole delivers exceptionally low background noise and unmatched sensitivity – at more than 1 million counts per second for 1µg/L.
- Tunable from normal to high sensitivity, the aurora M90 is perfect for both routine and research-grade applications – Flexibility at your fingertips.
- The aurora M90 delivers industry leading detection limit performance. Collision/reaction interface (CRI) technology makes setup of complex cell systems a thing of the past. Simply turn on the gas flow to remove interferences. It's that simple.
- Featuring the only all-digital ICP-MS detector, covering more than nine decades of dynamic range in pulse counting mode, the aurora M90 delivers fast and accurate multi-element analysis from ultra-trace to major levels in a single measurement.

Let Bruker Quantum work for you

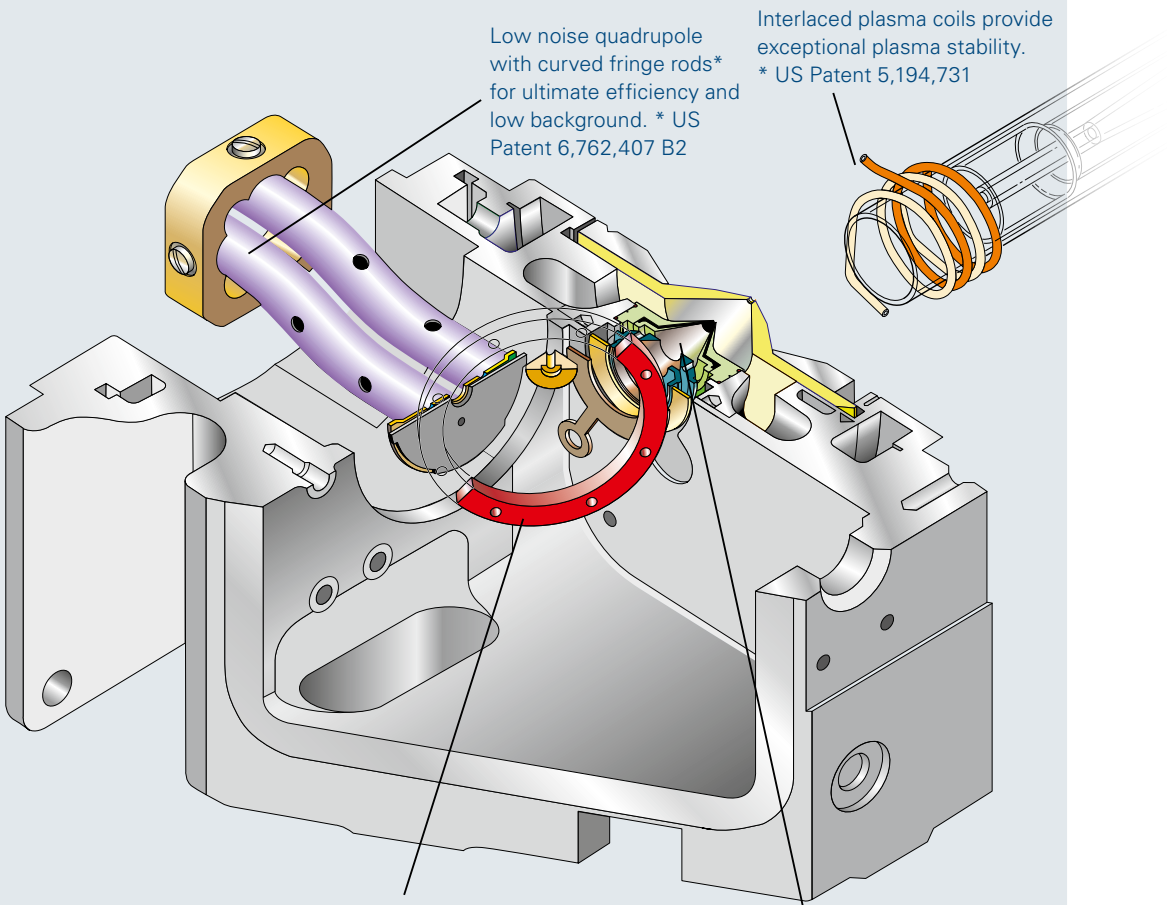
If your goal is to spend less time creating methods and optimising conditions, and more time running samples, Bruker Quantum software delivers. Enjoy accurate results in less time with an intuitive yet flexible user interface that takes the hard work out of ICP-MS.

- With auto-tuning of all instrument parameters, you can spend less time on instrument setup and more time on sample analysis. Saving you valuable time and money.
- Fully automated, aerosol dilution extends the high dissolved solids tolerance of your ICP-MS allowing you to directly analyze challenging samples without additional sample preparation.

Innovation you can trust

- Patented 90 degree ion mirror and low noise double off-axis quadrupole provide industry leading sensitivity and background for lowest detection limits.
- New and improved Collision Reaction Interface (CRI II) provides even simpler and more effective removal of trouble–some interferences for interference-free analysis of your samples.
- Robust, high-efficiency plasma system and patented Interlaced Coils break down your toughest sample matrices, reduce matrix effects, and minimize ion energy spread for maximum sensitivity and stability.
- All-digital extended range detector – means fewer dilutions, and longer detector lifetime for greater productivity and lower running costs.

Our 90 Degree Reflecting Ion Optics Revolutionizes ICP-MS Performance



Fast, Flexible, Interference-Free Analysis

Bruker is proud to bring you CRI II, now even simpler to use and more effective at removing troublesome interferences from your sample analysis.

The CRI injects helium (He) and hydrogen (H_2) collision and reaction gasses directly into the plasma as it passes through the orifice of the skimmer cone.

This innovative approach suppresses interferences before the analytes are extracted into the ion optics.

It's that simple!

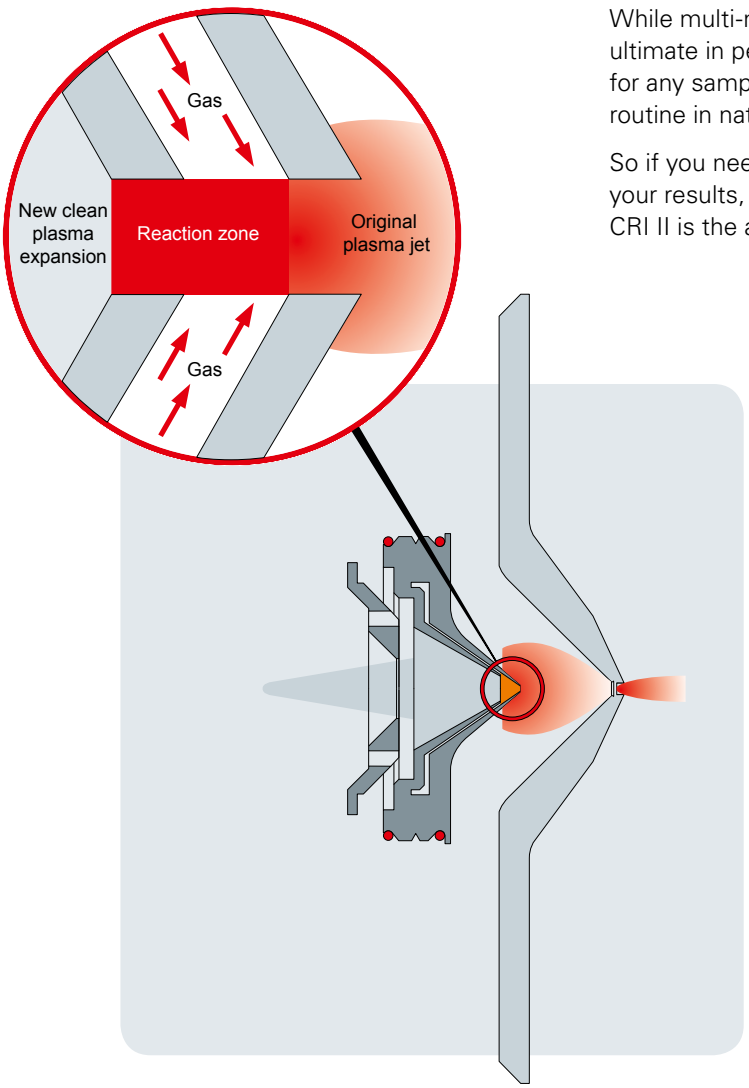
- No need for expensive or corrosive gasses such as ammonia or methane, so laboratory costs are reduced.
- No additional cleaning as CRI forms part of the cone interface, making this interference management system maintenance-free.

Choose your analysis mode

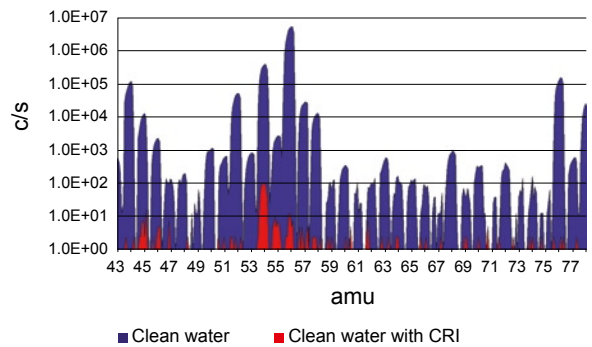
CRI II universal analysis mode provides fast and accurate results for samples routinely encountered across the wide range of environmental and industrial monitoring processes.

While multi-mode delivers the ultimate in performance and flexibility for any sample type including those less routine in nature.

So if you need absolute confidence in your results, no matter what the sample, CRI II is the answer.



Mass scan with and without CRI



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

The solution to your application needs

With a vast range of options to choose from, Bruker has the solution to your application. Choose from

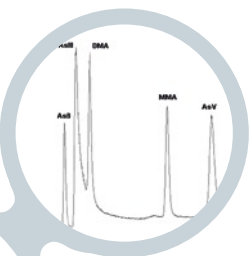
- CRI II for fast, accurate interference-free analysis of your samples.
- High sensitivity interface. Ideal for research applications on non-interfered isotopes, pushing your detection capability to levels never seen before.
- Make simple work of your most challenging samples. Upgrade to the inert vacuum pump system for low maintenance, high performance ICP-MS operation.
- Clean room package is suited to applications in the semiconductor industry and provides an inert and contamination-free environment for ultra-trace analysis.
- Application-specific sample introduction systems for routine analysis of geochemical and petrochemical samples.
- A range of autosampler and productivity-enhancing accessories provide you with fast, unattended operation of your ICP-MS.
- The nitrox 500 accessory allows online addition of nitrogen or oxygen gas to the plasma. Add nitrogen to lower your detection limits on key elements like As and Se. Add oxygen for routine analysis of organic solvents.
- Fully-integrated speciation options for the analyst wanting to know more about their samples.
- The aurora M90 is compatible with a wide range of laser ablation systems providing you with solution-free analysis.

Clean room package helps semiconductor labs attain clean room conditions for ultra-trace analysis.

All PFA sample introduction kits allow direct analysis of samples containing free HF acid.

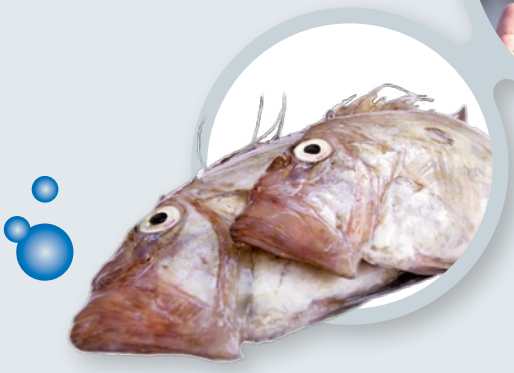
Choose from a range of accessories to meet your sample handling requirements.

Boost the performance of your aurora M90 by adding the nitrox 500.



Fully-integrated HPLC interface makes light work of speciation applications.

The Benchmark in Analytical Performance



Quickly and reproducibly reduce interferences

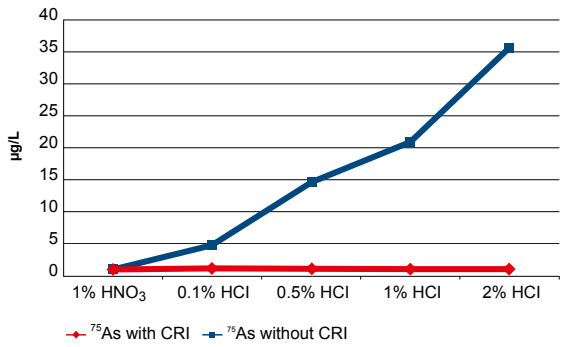
With CRI II you can quickly switch from CRI to non-CRI, or between different collision and reaction gases.

Multi-mode delivers the ultimate in performance and flexibility for any sample.

Determination of As in Cl containing samples

Use CRI II in H_2 mode to remove the ArCl interference when determining As in high chloride containing samples like blood, serum and urine.

1 µg/L As in HCl matrix

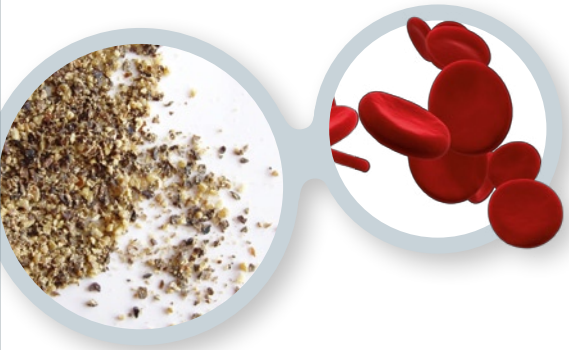


Comparison plots showing 1 µg/L spike recoveries for ^{75}As without correction equations. ArCl interferences are removed, allowing accurate trace level quantification of As.

	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 II.

Unrivalled Performance



Maximum dynamic range for food samples

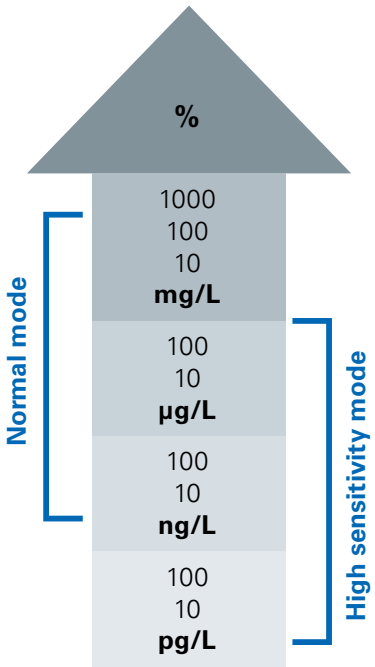
Determine toxic, essential and nutritional elements in a single, all-digital measurement for optimum accuracy and precision.

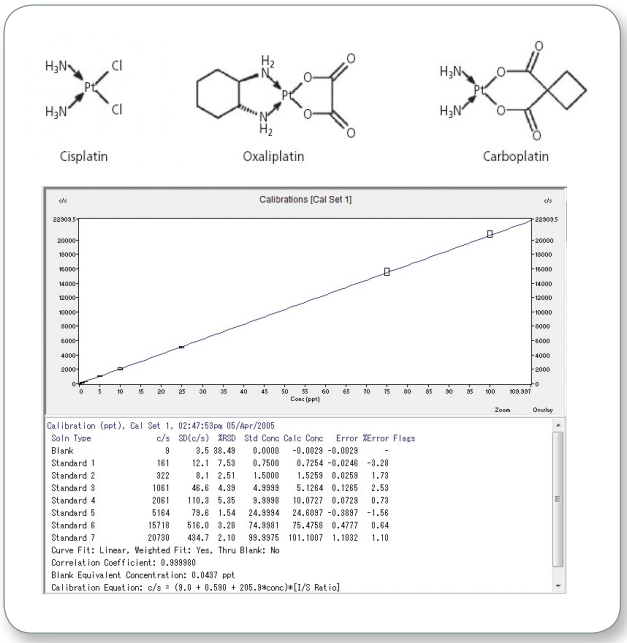
Element	Units	Measured	Certified
^{24}Mg	mg/kg	513	500
^{39}K	mg/kg	3128	3100
^{44}Ca	mg/kg	422	410
^{56}Fe	mg/kg	39.0	40.7 ± 2.3
^{75}As	mg/kg	0.024	(0.023)
^{78}Se	mg/kg	0.026	(0.025)
^{114}Cd	mg/kg	0.0270	0.0284 ± 0.0014
$^{206\text{-}8}$Pb	mg/kg	0.182	0.187 ± 0.014

Above, certified and measured values for brown bread reference material BCR-191 showing accurate measurement from ultra-trace to major levels.

Unequalled high sensitivity performance

The aurora M90's unique high sensitivity mode opens up a world of new possibilities in research.





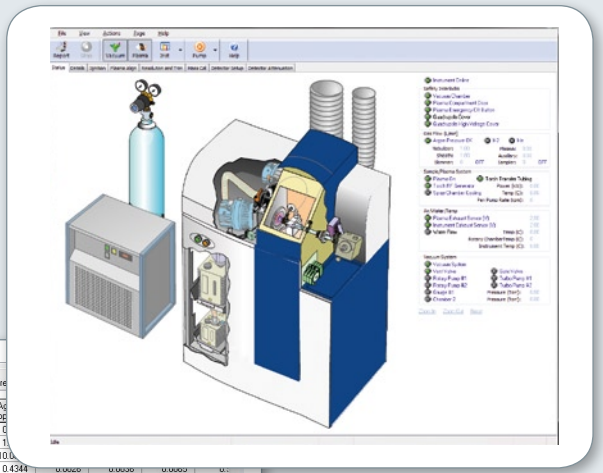
Achieve levels of detection never seen before in ICP-MS. Above, a typical calibration for ^{194}Pt in chloroplatinin acid in the ng/L to sub-ng/L range used in the determination of pharmacologically active Pt tracers of anti-cancer drugs.

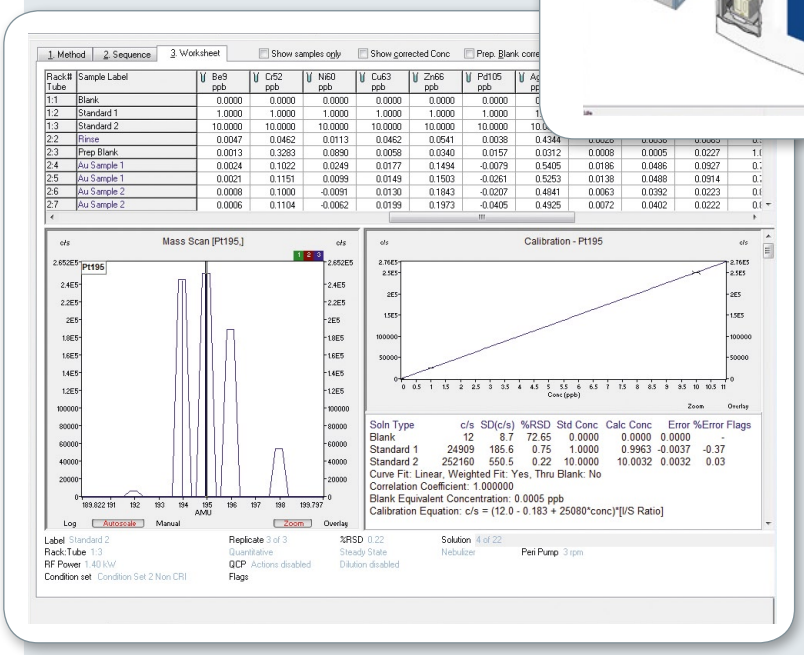
Setting the Benchmark for Ease-Of-Use

Bruker Quantum software

Bruker redefines ease-of-use with our Web-integrated ICP-MS worksheet software. Quantum 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. Including auto-optimization for Aerosol Dilution, Bruker Quantum makes light work of your most difficult samples.

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.

Bruker Quantum 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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