

NOTHING
INTERFERES
WITH PERFORMANCE



NexION 2200 ICP-MS





ICP-MS That Never Settles

Today's analytical testing laboratories performing trace-elemental analyses are under pressure to handle varied sample types and matrices. For maximum uptime, instrumentation needs to be reliable and easy to use and maintain. At the same time, these labs need to keep operational costs under control – while they're becoming more conscious of sustainability concerns.

Everything starts with delivering accurate and repeatable results. Superior interference removal, extremely low detection limits, and outstanding background equivalent concentrations (BECs) are key – and ICP-MS is their technique of choice.

Enter the NexION® 2200 ICP-MS from PerkinElmer, your trusted partner in ICP-MS for four decades. The NexION 2200 system builds on our strong tradition of reliable, easy-to-use, low-maintenance instrumentation, delivering uncompromised performance, accuracy, and repeatability.

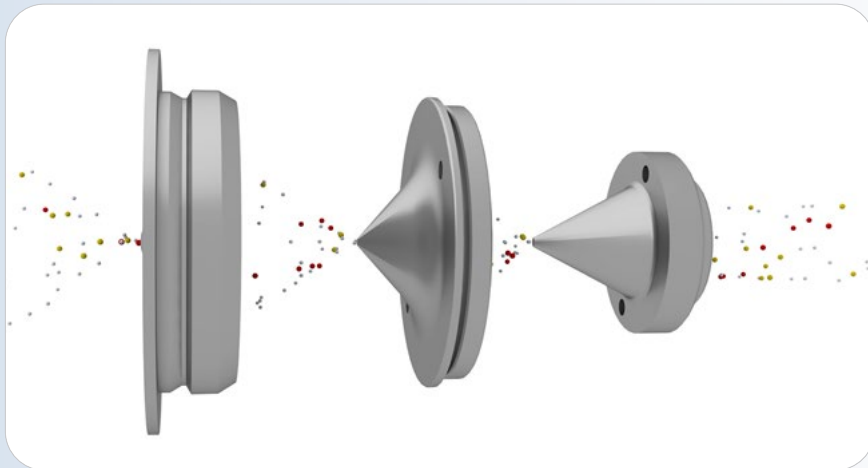
The NexION 2200 system's unique three-quad design, combined with novel and proven technologies, come together to deliver outstanding sensitivity, superior interference removal, and unmatched matrix tolerance, making it your trusted, go-to solution for trace-elemental analysis.

40 Years of Innovations in ICP-MS

Performance Without Compromise: Powerful Flexibility

In response to the demand for lower and lower detection requirements, the NexION 2200 ICP-MS features a second-generation **Triple Cone Interface** with proprietary **OmniRing™** technology, delivering unprecedented flexibility to handle a variety of applications without needing different inserts or lenses, as on other commercial ICP-MS systems.

By applying different voltages to the Hyper-Skimmer cone and OmniRing assembly, three modes of operation are possible.



Extraction Mode

Provides high sensitivity by eliminating space-charge effects. It accelerates positively charged ions through the interface with minimal expansion, then refocuses the ions before they enter the Quadrupole Ion Deflector. This produces the most tightly defined ion beam in the industry, dramatically improving sensitivity.

Focusing Mode

Your go-to for everyday applications, thanks to three pumping stages and the elimination of surface deposits and ion sputtering, resulting in low background equivalent concentrations (BECs) reducing the effects of high total dissolved solids.

Cold Plasma Mode

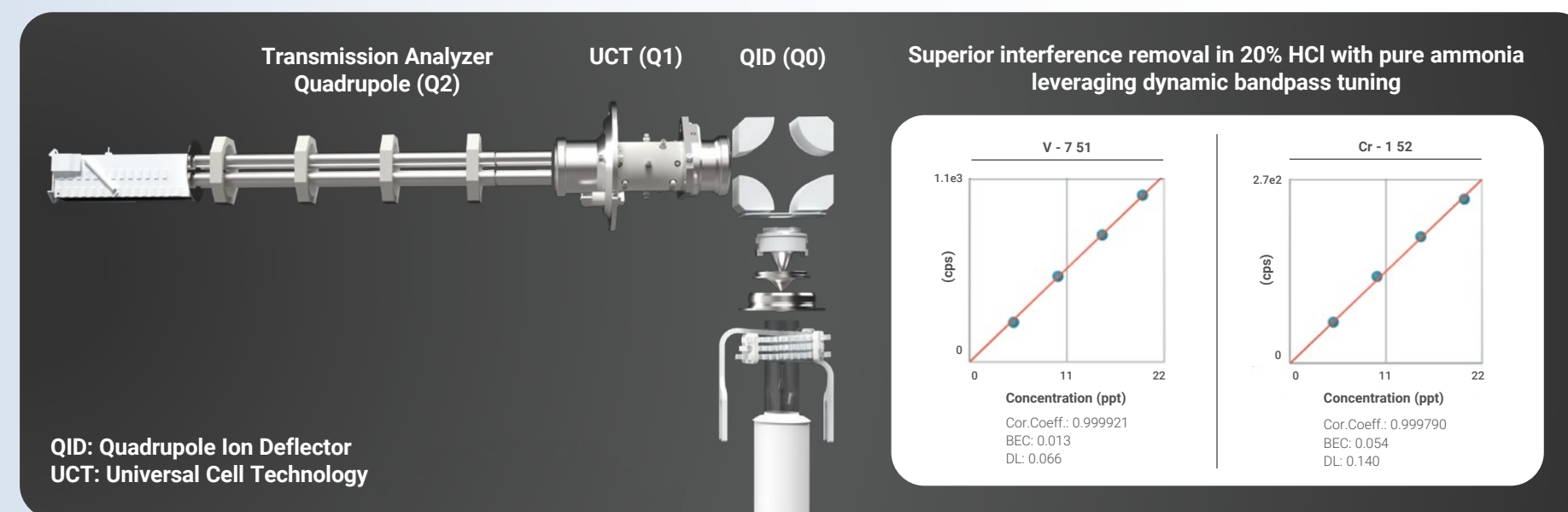
Allows for enhanced background equivalent concentrations (BECs) for special applications, while ensuring stability.

Performance Without Compromise: Superior Interference Removal

The ability to manage interferences is key to lower detection limits. The NexION 2200 system's unique three-quad design – with the **Quadrupole Ion Deflector (Q0)**, the **Universal Cell (Q1)**, and the **Transmission Analyzer Quadrupole (Q2)** – enables it to surpass the interference removal capabilities of conventional single-quadrupole ICP-MS, delivering parts-per-quadrillion (ppq) detection limits.

At the heart of the NexION 2200 system is its proprietary Universal Cell, a one-of-a-kind quadrupole reaction and collision cell. The Universal Cell can operate in Reaction mode with reactive gases and in Collision mode, employing kinetic energy discrimination, with nonreactive gases. And now, the Universal Cell is even more powerful with higher helium-hydrogen mixed-gas flow volume for better interference removal and lower detection limits. Plus, you can use up to three cell gases, including pure ammonia and other reactive gases, with on-the-fly gas mixing.

The Universal Cell leverages exclusive dynamic bandpass tuning as an additional mass filter, a feature only possible with quadrupole cells that eliminates reaction byproducts before they can form new interferences, for superior interference removal and lower detection limits.

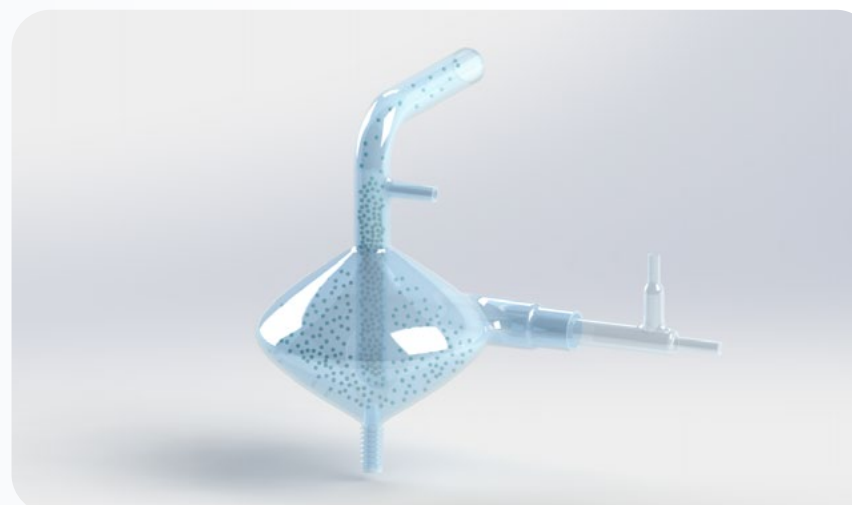


Performance Without Compromise: Unmatched Matrix Tolerance

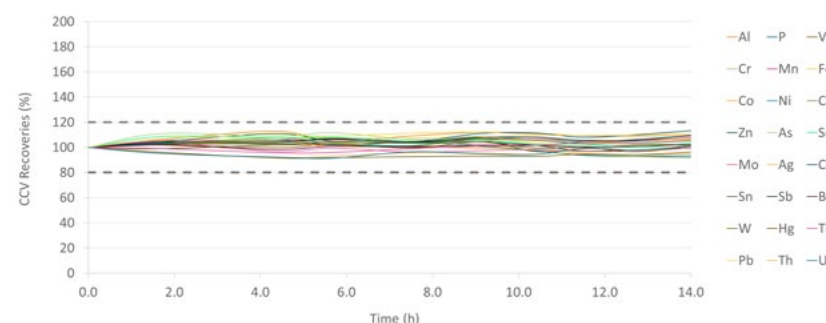
The NexION 2200 ICP-MS is designed to accommodate a wide range of sample matrices – from simple aqueous samples to high total dissolved solids, including organic solvents.

Its powerful **All Matrix Solution (AMS)** sample introduction system allows online gas dilution up to 200x and supports samples even with 35% total dissolved solids, improving efficiency and preventing contamination. And combined with the wide-aperture cones in the proprietary **Triple Cone Interface** and the charged ions' ninety degree turn in the **Quadruple Ion Deflector (QID)**, unionized components in the heavy matrix are eliminated effectively without entering the cell.

Plus, its innovative free-running **RF Generator** with unique **LumiCoil™** technology – especially designed for ICP-MS applications – provides accurate impedance matching to easily handle the most difficult matrices and solvents. It dynamically adjusts the plasma power based on plasma loading to handle matrix changes on the fly. This revolutionary combination delivers superior plasma power and stability for uncompromised performance, robustness, and reliability.



Continuing calibration verification recoveries
for a 14-hour seawater analysis



ICP-MS That's Up for Anything

Across your workflow, the NexION 2200 ICP-MS is engineered to effectively address the fast turnaround requirements of today's testing labs. Its **Extended Dynamic Range (EDR)** – only possible with quadrupole cells – attenuates user-selected masses to increase the linear dynamic range up to 14 orders of magnitude. This allows analysis of high and low concentrations in a single run, for fewer reruns. Combined with the **All Matrix Solution**, it minimizes manual sample prep and maximizes uptime. Plus, the Universal Cell increases gas efficiency with the ability to switch in and out of Collision mode in three seconds.

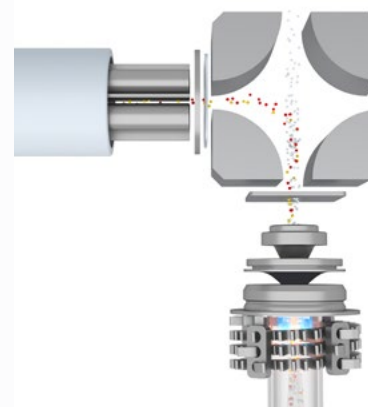
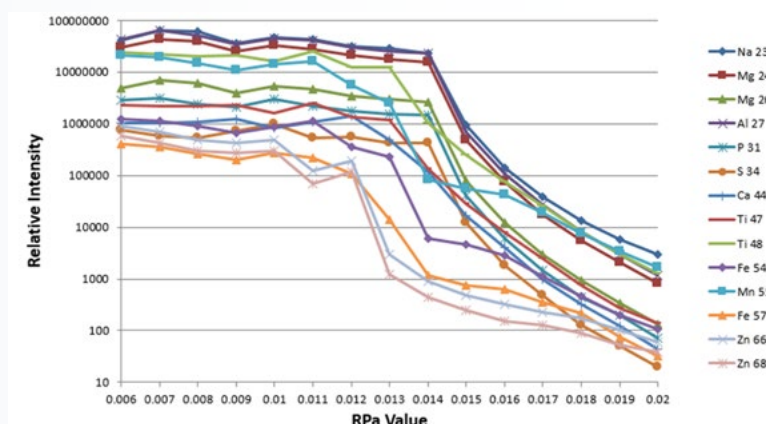
Speed is further optimized with short transient data acquisition speeds – 100,000 data points per second – ideal for **single-particle** and **single-cell** applications.

Plus, its **High Throughput System (HTS)** dramatically decreases sample-to-sample time by reducing sample uptake, stabilization washout times. This improves sample throughput while maintaining operational simplicity.

Do Science, Not Maintenance

Uptime is key to keeping labs running at peak performance, and the NexION 2200 is the lowest maintenance ICP-MS on the market, for unsurpassed uptime. A robust plasma can always be generated by the balanced free-running **RF Generator** and proprietary **LumiCoil** load coil, which is guaranteed for life and requires no water or gas cooling. And the unique combination of the **Triple Cone Interface** and **Quadrupole Ion Deflector** controls and focuses the ion beam in the downstream ion optics, ensuring that the Universal Cell requires no cleaning or replacing, without breaking the vacuum as with other commercial ICP-MS systems.

EDR Increases the linear dynamic range from 10 to 14 orders of magnitude



ICP-MS Everyone Can Use

For those labs looking for an easy-to-use trace-elemental analysis solution to accommodate different levels of user expertise, the NexION 2200 ICP-MS is your platform of choice, combining a series of innovative features with tried, tested, and proven technologies.

The NexION 2200 system's innovative **LCD touchscreen** allows you to perform critical day-to-day tasks, including hardware control, results reviews, instrument parameter diagnostics, analytics, access embedded training videos, and more.

Plus, it features **LED lighting** that quickly provides status of the instrument – whether operating, acquiring data, or in standby – from anywhere in the laboratory.



Sustainable Future of ICP-MS

The NexION 2200 ICP-MS boasts an array of features that help labs meet their sustainability goals for safeguarding our environment, while also reducing operating costs and improving the bottom line. It's simply the lowest maintenance system on the market, while minimizing the need for replacement parts over its lifetime.

Plus, with as low as 12 L/min argon gas consumption, the NexION 2200 system can significantly lower your operating costs while helping keep your lab on a sound sustainability footing.

And because the RF Generator's innovative LumiCoil technology doesn't require active cooling, you can leverage our energy-efficient **GreenCT™** cooling system, which uses a cleaner, greener, more affordable coolant, consumes less power, and generates less waste.



Reduced Landfill Waste

- Lowest maintenance ICP-MS
- Peristaltic pump Tubing Saver feature
- Lifetime-guaranteed LumiCoil RF coil
- Zero-landfill production site
- All Matrix Solution (AMS)
- Extended Dynamic Range (EDR)



Reduced Solvent/Water Usage and Chemical Waste Production

- All Matrix Solution (AMS)
- Extended Dynamic Range (EDR)



Reduced Plasma Gas Consumption

- Extended Dynamic Range (EDR)
- All Matrix Solution (AMS)



Power Consumption Savings

- All Matrix Solution (AMS)
- Extended Dynamic Range (EDR)
- High Throughput System (HTS)
- LED status lighting



Circularity

- Platinum Cone Recycling Program*
- Refurbished Instrument Program*

* Only available in certain countries
* Depending upon availability

NexION 2200 ICP-MS

The Inside Story

The unique combination of the NexION 2200 system's three-quad design – Quadrupole Ion Deflector (Q0), Universal Cell (Q1), Transmission Analyzer Quadrupole (Q2) – and other proprietary technologies come together to deliver uncompromised performance in the lowest maintenance ICP-MS on the market.

Three-Quad Design

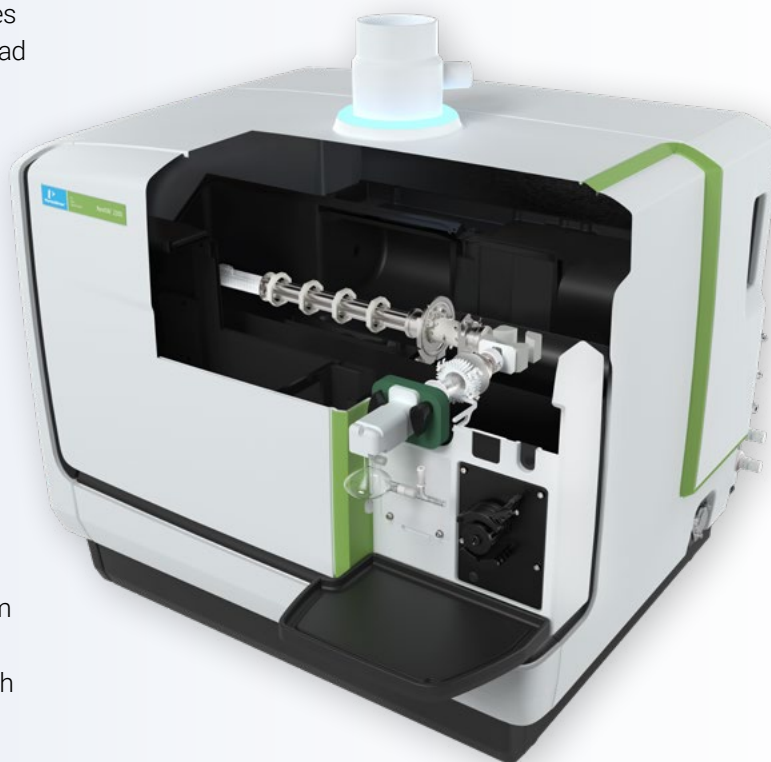
Provides three stages of mass resolution with interference removal capabilities that surpass conventional single-quad ICP-MS systems, delivering ppq detection limits.

Extended Dynamic Range

Increases the linear dynamic range up to 14 orders of magnitude, allowing the analysis of high- and low-concentration analytes in a single run.

All Matrix Solution

Powerful sample introduction system allows online gas dilution, delivering long-term stability while handling high dissolved solids.



Quadrupole Universal Cell

Unique collision/reaction cell with dynamic bandpass tuning eliminates reaction byproducts before they form new interferences, for superior interference removal.

Triple Cone Interface with OmniRing

Leverages up to six modes of operation (Extraction, Focusing, KED Extraction, KED Focusing, Cold Plasma, and custom) to deliver unprecedented flexibility to handle a variety of applications.

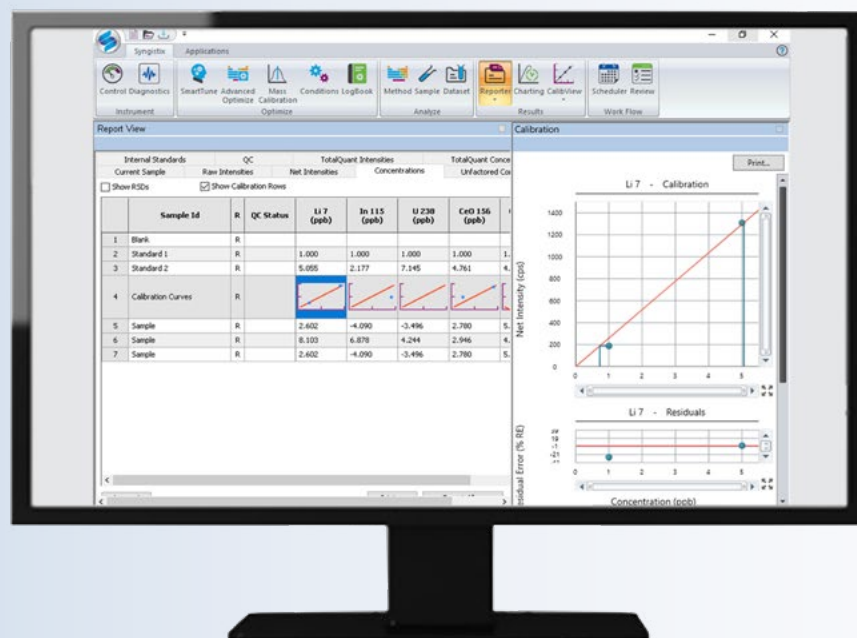
RF Generator with LumiCoil

Provides accurate impedance matching to easily handle the most difficult matrices and requires no active cooling or maintenance.

Software Brings It All Together

NexION 2200 ICP-MS operation is further optimized by its simple, powerful Syngistix™ for ICP-MS software, featuring a modern, intuitive user interface that mimics a typical daily workflow with left-to-right navigation and a streamlined experience.

The software is built around a ribbon menu, with icons organized according to functional groups.



Instrument Control

Presents real-time information on the status of key instrument components. Built-in maintenance reminders intelligently predict usage and remaining lifetime of consumables and instrument maintenance items.

Instrument Setup and Optimization

Allow one-click SmartTune™ Express, a fully automated, predetermined optimization that proceeds dynamically and intelligently until preset conditions are achieved. Or opt for SmartTune Manual, executed with preset methods and conditions based on user preferences, that improves operational efficiencies by running only required optimizations routinely.

Method and Sample Analysis

Includes a set of built-in methods, such as TotalQuant™ and other tried and tested methods that you can use as is. The software features a more simplified experience with autofill correction equations, gas modes and parameters, and more.

Results and Reporting

Provides simplified, customizable, and interactive data visualization and interpretation. Plus, its user-defined and customizable reporting capabilities facilitate support for a variety of peripherals, including online auto-dilution and laser ablation systems.

Other benefits of Syngistix for ICP-MS software include an optional Enhanced Security™ add-on for 21 CFR Part 11 compliance and application-specific modules for Single Particle and Single Cell ICP-MS, as well as Automated Method Validation for USP <233>.

NexION 2200 in Action Environmental Waters

Water is essential to life. And water testing is essential to ensuring a safe, healthful water source for drinking, agriculture, transportation, manufacturing, recreation, food processing, power generation, and more. So for contract labs, governments, municipal testing labs, and others conducting trace elemental analyses that need accurate data and fast sample turnaround times, the NexION 2200 ICP-MS offers exceptional interference removal and sensitivity – ideal for water analysis.

First, it delivers low detection limits for your most challenging elements, with sensitivity via the second-generation Triple Cone Interface with OmniRing technology. The quadrupole Universal Cell with dynamic bandpass tuning provides best-in-class interference removal, while the increase in helium-hydrogen gas flows means better interference removal and lower detection limits.

The system delivers exceptional throughput, too – one minute per sample for 56 elements – and can analyze low and high concentrations of elements through its unique Extended Dynamic Range technology, and the All Matrix Solution delivers up to 200x on-the-fly gas dilution. And with gas-switching times of under three seconds and reduced downtime. It's the most serviceable – and reliable – ICP-MS out there, for unmatched uptime and productivity.

And again, the combination of the Triple Cone Interface and Quadrupole Ion Deflector means zero maintenance in the Universal Cell. And with fast plasma switching and a robust plasma to handle matrix types, you have the matrix tolerance you can depend on.

What's more, with lower argon consumption at lower power and power savings with optional GreenCT chiller, you have lower cost of analysis with sustainability you can be proud of – perfect for labs working in the environmental arena.



NexION 2200 in Action

Mining and Geochemical

Mining companies, academic institutions, and contract testing labs face analytical challenges of assessing the quality of raw materials, monitoring beneficiation, and controlling processes and wastewater – all with high sample throughput and fast turnaround times. At the same time, accuracy is paramount when revenues, reputation, and market share are on the line. And with harsh, corrosive sample materials being tested, rugged, reliable, easy-to-use solutions are required.

That's where the NexION 2200 system really shines.

With all the high-investment decisions mining concerns face, accuracy is key – and this system gives you the ability to control interferences as early as the Quadrupole Ion Deflector (QID) and allow controlled reactions in the Universal Cell with dynamic bandpass tuning to deliver predictable results. Extraction mode, enabled by the revolutionary OmniRing technology, brings exceptional sensitivity so even the most stringent detection requirements can be achieved with laser ablation sample introduction.

Thanks to the wide-aperture Triple Cone Interface combined with Quadrupole Ion Deflector, plus the 200x dilution capability of All Matrix Solution, 35% total dissolved solids can be tackled without manual dilution. Plus, the 34-MHz RF Generator is balanced at ignition to ensure successful plasma generation and becomes free-running to overcome ever-changing matrices. These capabilities allow the NexION 2200 to handle high-matrix samples with internal standard suppression even lower than 25%.

Throughput is exceptional, too, with under-one-minute sampling for 56 elements – and Extended Dynamic Range technology enables analysis of low- and high-concentration elements in the same run. And with the fastest peak-hopping speed (1.6M amu/sec), more elements can be analyzed in one firing with the laser ablation technique.

Plus, it's easy to learn and use, with an LCD touchscreen interface and intuitive Syngistix™ for ICP-MS software, and extremely low maintenance, with no lenses to clean and no care required beyond the cones.



NexION 2200 in Action Petrochemical

Whether sampling crude oil, natural gas, or associated products, petrochemical companies count on NexION 2200 technology to analyze challenging elements at trace concentrations or at minor to major levels in distillate petroleum products - in finished goods or raw materials, quickly, easily, accurately, and in accordance with public regulations like ASTM requirements.

That's because it's simply the most robust ICP-MS system out there – with lower detection limits for your most challenging elements. The system's second-generation Triple Cone Interface with OmniRing technology delivers outstanding sensitivity to meet specific low-detection-limit requirements for certain elements, and the quadrupole Universal Cell with dynamic bandpass tuning provides technologically advanced interference removal. And the increase in helium and hydrogen mix gas flows delivers even better interference removal and lower detection limits. To analyze the elements at much higher concentrations (ppm to mass %), Extended Dynamic Range simplifies the dilution process and allows the low- and high-concentration elements to be analyzed in the same run.

Throughput is further increased with Collision mode gas-switching time of under three seconds, dramatically improving analysis efficiency during mode changes. Plus, it's the most serviceable ICP-MS out there, with no lenses to clean and zero maintenance beyond the wide-aperture cones, for increased uptime. The All Matrix Solution can even introduce alternative gases, such as oxygen, into the spray chamber to burn-off excess carbon in petroleum samples, reducing cone clogging and troublesome maintenance in these matrices.

And Syngistix for ICP-MS software is incredibly easy to learn and use, with features such as Scheduler, e-Methods, Logger with interlocks for safety, and earlier instrument diagnostics – making the NexION 2200 system ideal for petrochemical enterprises that depend on scientists of varying skill levels to perform analyses.



Precision Engineered Consumables

NexION 2200 ICP-MS consumables and supplies are designed with your instrument in mind, with each part fit to perform and manufactured with the highest quality materials available. Whether you're looking for sample introduction components or standards, we have the consumables you need to keep your NexION 2200 instrument up and running smoothly and efficiently. Only by using genuine PerkinElmer consumables will you be able to fully and consistently enjoy the exceptional performance of the NexION 2200 system.



Sample Introduction Solutions

NexION SMARTintro™ sample introduction kits are tested as a complete unit to ensure intra- and interlaboratory performance. Each system utilizes specific combinations of sample introduction components, and the kits are color-coded according to user application.



Cones

Precision-designed and manufactured, wide-aperture sampler and skimmer cones provide superior long-term stability and resist clogging, allowing analysis under both low and high sample-uptake conditions.



Standards

We offer a complete selection of atomic spectroscopy reference materials that are tested and proven to provide you the certified quality and reliability you expect for all your application needs.

At Your Service

Today's lab managers face a variety of challenges, from tighter schedules to increased workloads and budget control to teams with varying levels of familiarity with lab equipment. We help you overcome the obstacles to your success.

OneSource® Laboratory Services offers scalable and flexible options for labs of all sizes, for PerkinElmer and non-PerkinElmer equipment.

We're here to help maximize your workflows, from beginning to end. Explore what suits you best.

Trust in Our Expertise

Instrument Repair, Service Contracts, and System Maintenance

Be confident that your equipment will work as expected, every time you turn it on – anywhere.

Analytics, Dashboards, and Optimization

Harness the power of data to optimize operating and capital expenses and improve lab performance.

Education and Training

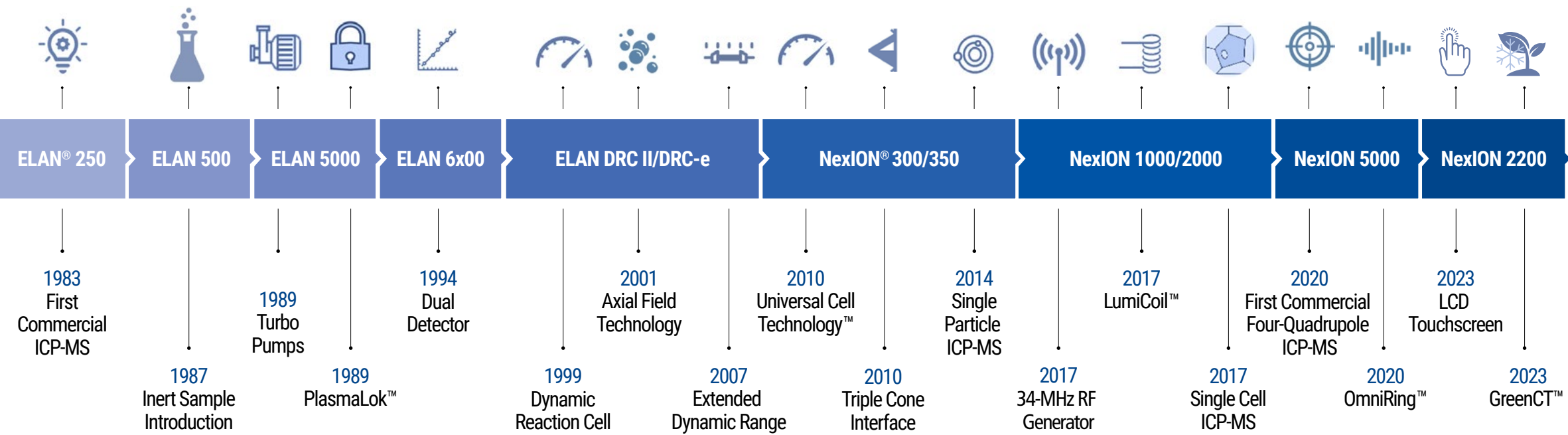
Empower your lab staff with the knowledge and skills to take full advantage of the capabilities of modern lab equipment.

OneSource Integrated Laboratory Solutions Services

Get support for all your noncore but critical laboratory activities, freeing up your scientists to concentrate on the science at hand.



PerkinElmer and ICP-MS: A History of Innovation





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