

STREAMLINE YOUR SPECIATION WORKFLOW



NexSAR HPLC-ICP-MS Speciation Solution – Challenging Applications Made Simple

Many modern laboratories, like yours, are expanding their analytical portfolio to include HPLC-ICP-MS for metal speciation to gain better insight into ion mobility, bioavailability, metabolism and toxicity.

For such studies, it is advantageous to have an intuitive, user-friendly system that meets your requirements for automation, ultra-low baseline, powerful integration, and flexible data export. And no one offers a more inert, versatile, and seamless speciation solution than PerkinElmer – accelerate your speciation analyses with the NexSAR™ HPLC-ICP-MS Speciation Solution.

Separation. Detection. Operation. Integration.

The NexSAR HPLC-ICP-MS Speciation Solution brings together our inert NexSAR speciation analysis ready HPLC system and the revolutionary NexION® ICP-MS in a seamless platform. Integrated using Clarity™ software, all levels of expertise are catered to through an intuitive solution with multi-user and multi-permission functionality.

Highlights

- ▶ Seamlessly integrated HPLC-ICP-MS solution
- ▶ Completely metal-free flow path NexSAR HPLC system
- ▶ Flexible, tried and tested Clarity™ software
- ▶ Robust and versatile NexION ICP-MS system

Integration	
Separation	Detection
NexSAR HPLC – Truly inert technology for reproducible, repeatable, and reliable results	NexION ICP-MS – Most robust and versatile mass spectrometer in the industry
Operation	
Clarity™ software – Simple, streamlined operator experience offering control of your entire system	

NexSAR HPLC System – Lower Baselines, Remarkable Detection Limits

Speciation starts with separation. Meet the **NexSAR HPLC**, the next generation of analysis-ready speciation systems – engineered with a completely inert and metal-free fluid path, it enables you to meet the low backgrounds required by your most challenging applications. Plus, it is fully customizable, giving you the flexibility to pick and choose only the parts that you need for your application.

Let's take a look at the individual components:

- The **NexSAR 200 Inert HPLC Pump** is engineered to deliver pulse-free and quiet baselines. Its fluid path is completely metal-free and composed of inert materials. Plus, priming buttons on the user interface allow easy purging of the LC without the need for software control, and its compact design ensures easy access to the system components.
- The **NexSAR Inert HPLC Autosamplers** have a metal-free, inert fluid path and are available in either cooled or non-cooled configurations. The non-cooled option is fully upgradeable, so if you decide at a later stage that you need the cooling option, it can be added. Both autosamplers accommodate a full range of sample loops, syringes and injection modes, empowering you to work with samples from a few microliters to a few milliliters.
- The **NexSAR Solvent Tray** is ergonomically designed to reduce cavitation and store solvent bottles in an inert holder, preventing leaks or spillages from damaging the rest of the system.
- An optional version of the solvent tray contains a **NexSAR Degasser** that allows you to degas up to three different solvents, minimizing the risk of air bubbles entering the system which would otherwise affect pump and column performance.
- An optional peltier-cooled **NexSAR HPLC Column Oven** can help to further ensure run-to-run stability and greatly improve elution times, thereby delivering faster chromatography and higher productivity.
- And finally, an optional **NexSAR Switching Valve** with a metal-free and inert fluid path allows the mobile phase to be diverted away from the ICP-MS, enabling you to tune the mass spectrometer at the same time as equilibrating your column.



NexSAR HPLC System

Clarity™ Chromatography Software – Intuitive and Simple, Saving Time

At the center of the system is the proven **Clarity™ chromatography software**, which controls both the HPLC and the ICP-MS, allowing streamlined workflows, from method development through to reporting. Data processing, integration and calibration are straightforward, and for the most discerning users, advanced integration features are also available. Reporting is simple, allowing you to export data into a variety of different formats, personalizing your reporting style to suit your individual needs. The software controls any NexION ICP-MS and supports all NexSAR HPLC components.

Clarity software features:

- Proven chromatography software
- Efficient workflow tools
- Species-specific calibrations
- Extensive reporting capabilities
- Multiple post-run review options
- Simultaneous data acquisition and reviewing windows
- Complete control of all system components from a single software interface

The screenshot displays the 'Method Setup service method set-up demo - #3; 2021-02-04 12:33:50 PM' window. The interface includes a menu bar with options like 'New', 'Open...', 'Save', 'Save as...', 'Report setup...', 'Audit trail...', 'Send method by e-mail...', and 'Help'. Below the menu, the 'Select Detector' dropdown is set to 'ICP-MS 1' and is checked as 'Enabled'. The main area is titled 'NexION ICP-MS Detector Method' and contains several configuration fields: 'MassCal File' (Default.tun), 'Conditions File' (Default.dac), 'Detector Mode' (Dual), 'IGM Status' (ON), and 'IGM' (dropdown). There are also four flow rate settings, each set to 0 mL/min. A 'Points/second' field is set to 2. A table lists analytes with their mass, dwell time, and RPq values. Below the table, 'Shutdown Options' include checkboxes for 'No Action', 'Turn plasma OFF at the end of the method', 'Turn plasma OFF on Abort by user', 'Turn plasma OFF on instrument error', and 'Set the peristaltic pump to -5 rpm at the end of the method'. At the bottom, there are 'OK', 'Cancel', and 'Send Method' buttons.

#	Analyte/Ref. Isotope	Mass (amu)	Dwell Time (ms)	RPq	Ref. Isotope	Link to Ref.
1	As	74.92	250.0	0.25	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	Cr	52.00	100.0	0.25	<input type="checkbox"/>	<input type="checkbox"/>
3	In	113.00	250.0	0.25	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
4					<input type="checkbox"/>	<input type="checkbox"/>
5					<input type="checkbox"/>	<input type="checkbox"/>
6					<input type="checkbox"/>	<input type="checkbox"/>
7					<input type="checkbox"/>	<input type="checkbox"/>
8					<input type="checkbox"/>	<input type="checkbox"/>

Example of Method Setup in Clarity™ chromatography software.



NexION ICP-MS – Ultimate Detection for Accurate Speciation

With an array of patented technologies designed to minimize instrument maintenance even when working with high organics or high total dissolved solid (TDS) mobile phase compositions, the **NexION ICP-MS** is the ultimate solution in speciation analyses.

These proprietary features include:

- At the heart of the instrument's high matrix tolerance is a state-of-the-art solid-state, free-running **RF generator**, providing superior plasma power and stability. The advanced impedance matching of the generator makes it ideal for rapid transitioning between organic and aqueous mobile phases, which is essential to a number of chromatographic applications.
- The **Triple Cone Interface** offers the widest aperture cones on the market, therefore minimizing drift and cone maintenance when running high TDS samples. Additionally, this design produces the industry's most tightly focused ion beam.
- The **Quadrupole Ion Deflector** guides the focused ion beam at a 90° angle into the Universal Cell, filtering out all neutral species for greater stability and lower baselines.
- The combination of the **Triple Cone Interface** and **Quadrupole Ion Deflector** is ideal for chromatographic analyses that require high-salt mobile phases. Together, they ensure that there are no lenses to clean or maintain, increasing the amount of time you can spend analyzing.
- The NexION's unique quadrupole **Universal Cell** with dynamic bandpass tuning allows you to use pure reaction gases such as 100% NH_3 , collision gases and gas mixtures where the quadrupole design of the cell ensures that you are able to obtain controlled and predictable reactions for targeted interference removal. No matter what your element(s) of interest, the NexION ICP-MS systems can eliminate virtually all interferences, generating highly accurate, reliable, and reproducible results - all with the sensitivity you need to achieve low-to-sub ppt detection limits.



Compatible with all NexION ICP-MS models

ACCELERATE YOUR SPECIATION ANALYSES WITH THE NEXSAR HPLC-ICP-MS –
The next generation in speciation analysis ready solutions and the perfect complement to your analytical laboratory
For more information, visit www.perkinelmer.com/speciation

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