Reveal the Details that Matter

PlasmaQuant 9100

Inductively Coupled Plasma Optical Emission Spectrometry

analytikjena

An Endress+Hauser Company

Reveal Anything – PlasmaQuant 9100 Series

Experience innovative high-end technology and explore the elemental details of your samples for superior product quality, process monitoring and regulation compliance.

Maximum reliability

- Unique resolving power with high-resolution optics
- Interference-free trace element analysis
- Selection of emission lines without compromises
- Fast measurement readiness

Convenient functionality

- Less torch handling and increased instrument up-time
- Broad applicability and superior analytical performance
- Cost-efficient operation
- Torch mounting process with no need for alignment

Flexible observation

- Optimized plasma observation modes without compromises
- Argon-neutral counter gas for unique sensitivity
- Detection from sub-ppb to percentage range in one run
- Minimal need for sample preparation

Increased productivity

- Outstanding plasma robustness for analyzing any sample matrix
- Superior accuracy and precision by running undiluted samples
- Maximum application flexibility
- Lowest matrix-specific detection limits

Accessories

Application-specific sample introduction kits

- STANDARD kit for the analysis of low-matrix sample types
- SALT kit for the analysis of saline or metal samples with high matrix content
- ORGANIC kit for the analysis of oils and petrochemicals
- HF kit for the analysis of hydrofluoric acid containing samples

Automation

- Variety of autosamplers for aqueous samples
- Autosampler for organic samples with high volatility
- Autosampler for organic samples with high viscosity
- Online and offline automatic dilution auto samplers
- Rapid sample introduction systems for aqueous and oil samples

Hydride system

- HS Pro PQ for ultra-trace analysis of hydride forming elements
- HS PQ for the synchronous analysis of hydride and non-hydride elements

Variety of sample introduction accessories

- Concentric, parallel path and special nebulizers of different materials
- Ultrasonic nebulizers
- Temperature-controlled spray chamber
- Argon humidifier

The Benchmark in ICP-OES

Add clarity, simplicity and confidence to your most delicate analytical routines. Benefit from the widest working range as well as reduced sample preparation demands to improve precision, productivity and ease of use.

Reliable performance and low maintenance costs

The convenient plug-and-play design of the fully demountable V Shuttle Torch simplifies maintenance and minimizes torch handling needs. Individually interchangeable torch components allow for **maximum methodological flexibility** while reducing the cost of consumables. All torch gases are automatically connected when the shuttle locks into a rail guide, on which it easily slides into the sampling position. This setup allows the torch to be mounted quickly with no need for alignment and **increases the availability of the instrument**. The vertical plasma orientation allows highly concentrated sample aliquots to be run and provides increased accuracy, minimizes blank values, and allows a wide range of samples to be analyzed without wet chemical pre-treatment. Excellent long-term plasma performance without clogging and soot formation is a reality, even for the most challenging samples.

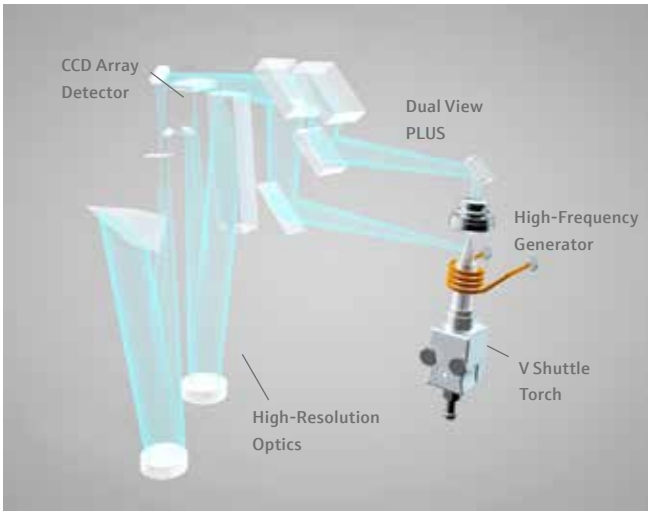
Flexible plasma observation without compromise

The analysis of trace elements and major constituents requires different plasma observation modes and the **flexibility to apply any mode**, radial and axial, to any emission line in a single method. Dual View PLUS enables the free selection of 2+2 plasma views in every sample for synchronous analysis of contents ranging from sub-ppb to high weight percent. The availability of automatic attenuators in any observation mode allow for the **widest possible working range** in ICP-OES. Spectral interferences from the cold plasma tail are eliminated thanks to the latest argon-neutral counter-gas technology that neither disrupts the stability of the vertical plasma nor reduces the length of its analytical zone. Dual View PLUS allows for robust trace element analysis with unique sensitivity and increased productivity due to minimal sample preparation efforts across all applications.

10-year WARRANTY
Optical Components
analytikjena

Exceed the limit

Reliable and stable plasma performance in any sample matrix remains a challenge in ICP-OES. The high-frequency generator of the PlasmaQuant 9100 is designed to **run any sample**, including the direct analysis of extreme matrices. In addition to a significant extension of the application range, method robustness, precision and productivity are also enhanced by lower matrix specific detection limits and **reduced sample preparation needs**. Utilizing a heavy-duty four-winding induction coil, the free-running 40 MHz power tube generator readily transfers power ranging from 700 to 1700 W with the highest efficiency into plasma of exceptional length. Its unique high-power settings with instant RF power output matching, required for industrial routine analysis of materials like brines, metal concentrates and volatile organics make plasma collapse a relic of the past. Due to its fast warm-up, the plasma is stable within minutes and allows for **cost-efficient shift-work operation**.



Scheme showing the main components of the PlasmaQuant 9100, including V Shuttle Torch, high-frequency generator, Dual View PLUS, and high-resolution optics.

Results you can trust

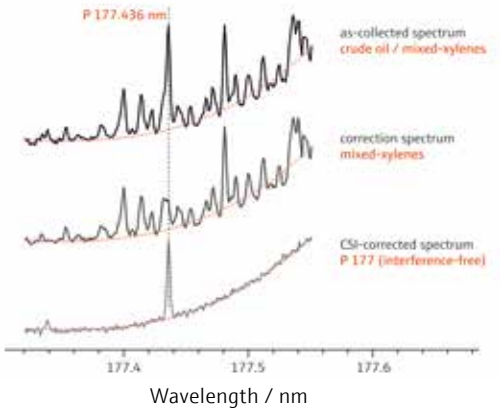
The unique resolving power of the high-resolution optics guarantees **unmatched sensitivity, accuracy and precision** in real sample matrices. This well-established encapsulated echelle spectrometer utilizes a double monochromator set-up along with the latest high-resolution CCD detector and enables access to any emission line in the spectral window of 160 to 900 nm. With a spectral resolution of 2 pm @ 200 nm, even severe interferences in challenging samples can be resolved. Select the best emission line for your analytical task from over 43,000 lines and reveal the details of your samples. The availability of **interference-free emission lines** with high sensitivity allows for robust trace element analysis and highest confidence in results. Internal neon correction ensures a wavelength accuracy of less than 0.4 pm without laborious calibration procedures and allows for a **system readiness within 15 minutes.**

FDA CFR 21 Part 11 compliance

The ASpect PQ software fully complies with FDA requirements. It is equipped with different levels so that several users can be granted different access rights. Individual passwords ensure that the system can only be accessed by authorized persons. All important events, such as logon/ logoff, measurements, calibrations, and messages generated by the Self Check System, are recorded in the Audit Trail. Measured data can undergo routine review and approval using electronic signatures.

Software solutions

The Aspect PQ software controls, monitors and documents all of the processes of the entire PlasmaQuant 9100 system. Its modular design offers both maximum operator flexibility for customized analytics as well as the convenience of pre-set method templates that are easy to use and modify. Online status updates on smart phones, tablets etc. increase the productivity of unattended operations. **Powerful and automated data evaluation** tools such as an automatic baseline correction algorithm (ABC) and a tool for the correction of spectral interferences (CSI) greatly enhance ease-of-use for operators, eliminate the need for guesswork in data evaluation and significantly boost the productivity of your analytics.



Interference removal with the powerful CSI correction tool

Raise Your Game – Overcome Boundaries

Experience superior analytical performance, application flexibility, robustness, and reliability with the PlasmaQuant 9100 family.

PlasmaQuant 9100

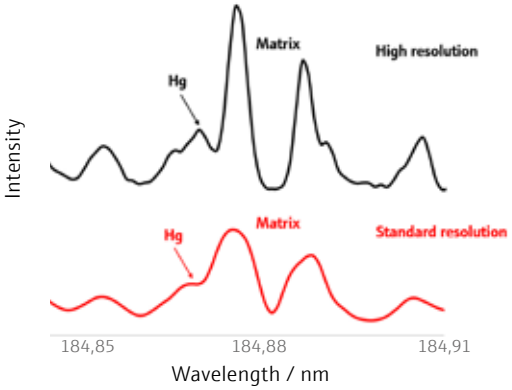
With a clear emphasis on broad applicability, simplicity and cost-effectiveness in general applications, the PlasmaQuant 9100 is not just another ICP-OES. With high-performance features, it allows for more matrix tolerance, a wide working range and high measurement sensitivity. It provides high-quality results in contract analysis, reliability in quality control and the highest standards in regulated industries. Whether aiming for on-off measurements, method flexibility in shift-operation or continuous aspiration of challenging samples, the PlasmaQuant 9100 is your instrument of choice.

PlasmaQuant 9100 Elite

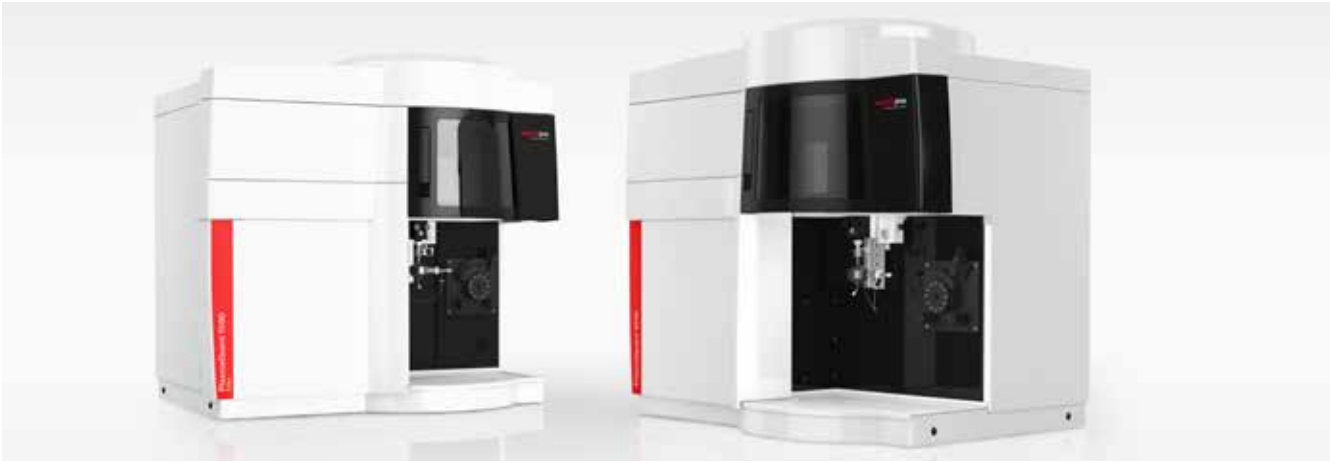
High spectral resolution: the extra that makes the difference in ICP-OES. The PlasmaQuant 9100 Elite uncovers spectral details like no other ICP-OES. Removing common spectral interferences minimizes compromises in line selection and allows the use of highly sensitive emission lines for every application. In combination with its matrix tolerance and superior sensitivity, this enables previously unconceived analytical potential with superior precision, accuracy and detection limits in any sample type. The PlasmaQuant 9100 Elite is the number one choice for spectral resolution, sensitivity and the ideal solution for your most delicate analytical routines.

Secrets revealed with high resolution

Analysis of the elemental composition of metals, minerals, chemicals and petrochemicals suffers from many spectral interferences due to their line-rich emission spectra. High spectral resolution separates even close line pairs and reveals most spectral details. This provides access to previously interfered lines with accurate baseline correction and reliable peak integration. Fluctuation in signal peaks due to varying matrix compositions do not significantly influence trace element detection. This opens up new opportunities for specification analysis and quality control of challenging samples.



Comparison of spectral data quality of high-resolution and standard-resolution instrumentation on the example of trace mercury determination in petrochemical samples.



Meeting Industry Needs

At home in many industries – helpful in many applications. Reveal the smallest details of your samples and make the difference in quality control, composition analysis and process control.

Beyond one industry

The ability to run complex and concentrated samples, resolve severe spectral interferences, detect trace and ultra-trace concentrations and work across a wide concentration range make the PlasmaQuant 9100 the ideal tool for industrial QC and R&D labs as well as contract and state authority labs with challenging sample types and stringent quality requirements. Clients from various industries, e.g. oil & gas, metals & mining and chemicals trust in its performance and stability.

Oil & Gas

- Specification and composition analysis of petrochemicals like naphtha, gasoline, diesel, fuels etc.
- Feedstock inspection for elements that disrupt the refining process
- Specification analysis and metal analysis in oils

Chemicals & Materials

- Quality and purity control of base chemicals (salts, acids, caustics, metal oxides, polymers, etc.)
- Purity control of organic solvents
- Composition analysis of materials (ceramics, semiconductors, building materials, advanced chemical compounds)
- Analysis of process media (process water) and feedstock inspection

Food & Agriculture

- Analysis of toxic metals and micro minerals in food, feed and agricultural products
- Quality control of fertilizers

Geology, Mining & Metals

- Quality control of high-purity metals, metal oxides, metal alloys
- Composition and specification analysis of metal alloys and steel
- Analysis of minerals and ores
- Analysis of refractory metals and rare-earth elements
- Process control by analysis of intermediates and processing chemicals (e.g. etching/plating solutions)

Pharma & Life Science

- Determination of elemental impurities according to USP chapters <232> and <233> as well as ICH Q3D guidelines
- Determination of salt contents in infusion solutions

Environment

- Analysis of surface water, fresh water, sea water, waste water
- Analysis of soil

Headquarters

Analytik Jena AG
Konrad-Zuse-Str. 1
07745 Jena · Germany

Phone +49 3641 77 70
Fax +49 3641 77 9279
info@analytik-jena.com
www.analytik-jena.com

Pictures: Analytik Jena AG, p. 7: iStockphoto®/SeanPavone, iStockphoto®/N-sky_ww
Subjects to changes in design and scope of delivery as well as further technical development!

en · 02/2020 · 888-18003-2-B
Förster & Borries GmbH & Co. KG

analytikjena
An Endress+Hauser Company