

PlasmaQuant MS in Contract Lab Analysis

Recommended configurations

Industry requirements

- High sample throughput
- Robust and reliable performance
- Matrix tolerance
- Easy operation
- Start-up routine
- Low maintenance

Regulations

National and global directives for water purity, food safety, pharmaceuticals and others, e.g.:

- European drinking water directive
- US EPA methods
- USP 232/233 and ICH Q3D

Instrument characteristics

- Robust plasma with exceptional hot and cool plasma capability
- Stable performance even with challenging and changing matrices
- High throughput with >80 samples/hour
- High sensitivity for customized data acquisition speed and fast sample introduction option



The control and characterization of various sample types in specialized contract laboratories is a huge market for ICP-MS due to high regulation of certain industries. International and national groups, e.g. ALS, SGS, Intertek, Eurofins, Agrolab or Sonic, offer the quantitative analysis and characterization of various sample types and an interpretation with respect to regulations and norms. Sample throughput, automation, reliable performance and minimum downtime are major requirements of this market. The PlasmaQuant MS series fits perfect in this application field since the sensitivity offered can be used to decrease the data acquisition time and thus increase the sample throughput drastically.

Sample types

- Water samples, soils and sediments
- Food samples, e.g. beverages, cereals, oils
- Pharmaceutically relevant raw materials and final products
- Consumer goods and toy samples
- Clinical samples

Recommended instruments

PlasmaQuant MS Q is the most suitable instrument for high-throughput characterization and quality control. It provides the fast, sensitive and reliable solution for the characterization of samples with moderate matrix concentration for all relevant sample types. In combination with HPLC it provides sensitive speciation analysis of Cr III and Cr VI and other element species.

Application	Sample Introduction Kit	Sheath Gas / Aerosol Dilution	Nitrox	FAST Sample Introduction	Cones	PlasmaQuant MS		PlasmaQuant MS Elite	
							Q	S	
Drinking and surface water	Standard	No	No	Optional	Nickel	✓	✓	✓	
Food and beverages / cereals, plants	Standard	Optional	Optional N ₂	Optional	Nickel	✓	✓		
Soils and fertilizer	Standard	Optional	No	Optional	Nickel	✓	✓		
Species identification (As,Se,Hg)	Standard	No	Optional O ₂	No	Nickel / Platinum	✓	✓		

When to choose which instrument

Rule of thumb:

- Sensitive analysis and moderate to high sample throughput → PlasmaQuant MS Q
- Lowest detection limits or specific requirements → PlasmaQuant MS Elite S
- High matrix loads and moderate sample throughput → PlasmaQuant MS

All models allow the characterization of natural and artificial single particles. For diameters <20 nm the PlasmaQuant MS Elite S is recommended.

Basic configuration

- PlasmaQuant MS model
- Start Kit Standard
- Autosampler
- Fast/discrete sample introduction
- Chiller

Upgrades and accessories

- Aerosol Dilution
- 21 CFR Part 11 compliance
- Nitrox
- HPLC

Benefits of upgrades and accessories

Autosampler: automated sample introduction for clean and contamination free sample supply provides the user with time for other activities. Combined with QC samples and defined response actions the automated sequence can run unattended or over night.

Fast/discrete sample introduction: autosampler upgrade that reduces sample or rinse delay times by 80 %, significantly increasing sample throughput.

Aerosol dilution: software controlled aerosol dilution option allowing the on-line dilution of samples such as beverages or water samples during sample introduction.

Nitrox: allows the addition of nitrogen or oxygen to the plasma. Nitrogen improves the sensitivity towards arsenic and selenium in high matrix samples. Oxygen guarantees stable instrument performance when analyzing organic solvents.

HPLC: coupling of a PQ LC HPLC system or others for chromatographic separation of element species for speciation analysis of elements such as As, Se, Cr, and others using LC-ICP-MS.

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