

# Leading the Way in Atomic Spectroscopy Innovation

Agilent AA, MP-AES, ICP-OES, ICP-MS, ICP-QQQ



# Leading Together Starts Here

Agilent's portfolio of atomic spectroscopy products offers you the most diverse application coverage, while our unique MP-AES and ICP-QQQ technologies deliver new possibilities for your lab. Choose Agilent, together we'll take the path to success.



## AA

### Atomic Absorption Spectroscopy

Agilent's comprehensive range of AA spectrometers is productive, user-friendly and exceptionally reliable.

**Fast analysis**—boost productivity and slash running costs with the Agilent 240FS and 280FS featuring unique Fast Sequential capabilities

**Sensitive furnace AA**—the Agilent 240Z and 280Z Zeeman Graphite Furnace AA systems are productive and precise, providing outstanding furnace performance and accurate background correction for challenging samples

**Rugged and reliable**—the Agilent 55B AA standalone instrument is ideal for remote sites and harsh environments

**Simultaneous flame and furnace**—the unique DUO AA configurations double your productivity by allowing flame and furnace operation at the same time, without change-over delays

For further details refer to the Agilent 55B AA Spectrometer brochure, publication number: [5990-6617EN](#) and Agilent Atomic Absorption Spectrometers brochure, publication number: [5990-6495EN](#)

# MP-AES

## Microwave Plasma-Atomic Emission Spectroscopy

The Agilent 4210 MP-AES has high sensitivity, detection limits down to low ppb levels, and is faster than conventional flame AA. Best of all, it runs on air instead of combustible gases.

**Lowest cost of ownership**—the 4210 runs unattended without expensive flammable gas supply, dramatically reducing your operating costs

**Improved laboratory safety**—the 4210 eliminates flammable gases and the need to manually transport and handle gas cylinders

**High performance**—a magnetically excited microwave plasma source provides superior detection limits to flame AA. A range of accessories extends the performance for your toughest samples

**Ease-of-use**—application-specific software applets and plug-and-play hardware ensure any user can use the instrument with minimal training

**Remote control**—the Automation Software pack allows remote control of the instrument

For further details refer to the Agilent 4210 MP-AES brochure, publication number: [5991-7237EN](#)



# ICP-OES

## Inductively Coupled Plasma-Optical Emission Spectroscopy

The Agilent 5800 and 5900 ICP-OES deliver accurate results with highest speed utilizing smart software features.

**The right answer every time**—software tools think like an expert to provide insight about your samples reducing sample remeasurement.

**Uncompromised performance**—measure your toughest samples with a vertical torch and enjoy minimal interferences with a Cooled Cone Interface. A high speed intelligent detector delivers fast, simultaneous measurement over the full wavelength range, irrespective of concentration or signal strength.

**Self-diagnosis and health tracking**—with their inbuilt sensors, the 5800 and 5900 ICP-OES pro-actively alert the analyst when maintenance is needed, avoiding unplanned downtime.

**Designed for lab productivity**—delivering in-class lowest cost of ownership, the 5900 Synchronous Vertical Dual View (SVDV) ICP-OES uses ingenious optics to measure both the axial and radial views of the plasma at the same allowing the measurement of samples in half the time of other ICP-OES instruments.

For further details refer to the Agilent 5800 ICP-OES brochure, publication number [5994-1276EN](#) and Agilent 5900 ICP-OES brochure, publication number [5994-1277EN](#)

# Quadrupole ICP-MS

## Inductively Coupled Plasma-Mass Spectrometry

The Solution-Ready Agilent 7800 offers a streamlined approach to routine trace metal analysis, without compromising performance.

**Simplify common analyses**—Pre-set Methods, auto-optimization tools and pre-defined report templates automate many routine applications, while standard operating procedures and optional ICP Go software interface streamline system setup and routine operation

**Reduce sample preparation**—high matrix introduction (HMI) technology enables samples with up to 3% dissolved solids to be run directly, usually without the need for matrix matched calibrations

**Ensure accurate data with effective interference removal**—helium (He) collision mode is the only universal cell mode, proven to reduce all common polyatomic interferences under a single consistent set of cell conditions

**Simplify methodology and reduce re-runs**—the wide 10 orders dynamic range of the detector enables analysis of both trace and major elements in a single run

For further details refer to the Agilent 7800 ICP-MS brochure, publication number: [5991-5874EN](#)



The Agilent 7900 offers market-leading performance with the flexibility to address routine and research applications.

**Superior matrix tolerance**—a robust plasma and optional Ultra High Matrix Introduction technology enable the measurement of samples containing up to 25% total dissolved solids

**Widest dynamic range**—an orthogonal detector system delivers up to 11 orders of dynamic range – allowing you to measure trace elements and majors in the same run, simplifying method development and virtually eliminating over-range results

**Fast transient signal detection**—high-speed detector electronics (integration times down to 0.1 ms) and optional integrated nanoparticle analysis software (for single particles or on-line separation using FFF) make characterizing nanomaterials routine

**Flexibility**—ICP-MS MassHunter software features automated system optimization, intelligent method setup, and remote monitoring capabilities

For further details refer to the Agilent 7900 ICP-MS brochure, publication number: [5991-3719EN](#)

# ICP-QQQ

## Triple Quadrupole ICP-MS

The Agilent 8900 triple quadrupole ICP-MS opens up analytical possibilities for analysts around the world.

**Effortless high performance**—the 8900 offers higher sensitivity and lower background than conventional ICP-MS, delivering lower detection limits

**Handle difficult samples**—the matrix tolerance and robustness of the 8900 allows the measurement of even the most difficult samples

**Unparalleled accuracy**—the 8900 features MS/MS mode, which eliminates the variability seen with reaction mode on conventional quadrupole ICP-MS. The result is more accurate and reliable data, regardless of sample type

**Excel in difficult applications**—the 8900 provides reliable measurement of previously difficult elements—S, P, Si, Cl. MS/MS gives the 8900 the highest abundance sensitivity ever seen in ICP-MS ( $<10^{-10}$ ), further improving data integrity in high matrix samples

**Tailored solution**—the 8900 ICP-QQQ is available in a range of configurations, suitable for routine analysis through to advanced research

For further details refer to the Agilent 8900 ICP-QQQ brochure, publication number: [5991-6900EN](#)



# Service and Support

Agilent—focused on your organization's scientific and business goals.



## CrossLab instrument services

### Methods and applications

We assess, develop, and deploy workflows ranging from sample preparation through to final report. We can assist with data transfer, restoring and transferring methods and transitioning equipment to meet changing laboratory demands.

### Service and repair

Agilent's CrossLab service solutions provide laboratories with comprehensive maintenance coverage to suit your specific needs and budget. We provide service contracts for software and instrumentation from any major manufacturer. We also offer on demand repairs in the event of an incident, repair parts and supplies for in-house use, and preventive maintenance plans.

### Compliance

To help you achieve regulatory compliance, Agilent has developed an automated compliance solution designed to support the end-to-end Analytical Instrument Qualification process. The Automated Compliance Engine (ACE) is an electronic, audit-ready qualification solution that addresses data integrity and intended use requirements.

Additionally, Agilent offers custom validation services such as computer system validation, audits/assessments, custom procedure writing, and more.

## Consumables

### Parts and supplies

Agilent provides a comprehensive range of supplies for all Agilent atomic spectroscopy instruments. All Agilent supplies are backed by unmatched technical support – plus a 90-day warranty from the date of shipment.

For a complete list of Agilent atomic spectroscopy supplies, including hollow cathode lamps and supplies for AA, ICP-OES, ICP-MS, and MP-AES products, visit us online at: [www.agilent.com/chem/supplies](http://www.agilent.com/chem/supplies)

### Standards

Agilent has an extensive list of chemical standards, matched by expertise in designing and formulating custom standards to exacting specifications. Agilent products are available through our global distribution channels, and with our logistics capabilities we offer rapid turnaround time on all orders. More information at: [www.agilent.com/chem/standards](http://www.agilent.com/chem/standards)

## Agilent University

From basic operations courses to in-depth training that covers advanced workflow techniques, our team of industry experts can help wherever it's most convenient for you. Learn in an Agilent classroom, at your site or online.

More information is available online at: [www.agilent.com/crosslab/university](http://www.agilent.com/crosslab/university)

# Which Agilent Instrument is Right for Your Lab?

Agilent instruments deliver sensitive, accurate, and precise measurements across a wide dynamic range, from percentage to low ng/L, and in the presence of matrix interference. Each instrument has unique performance characteristics, so you can choose the technique that meets your analytical needs and your requirements for sample matrix, throughput, and budget.

This table will help you select the right Agilent instrument to meet your needs.

Criteria	Flame AA	GFAA	MP-AES	ICP-OES	ICP-MS	ICP-QQQ
<b>Measurement range</b>						
> 10%				•		
1–10%	•		•	•		
1–10,000 ppm	•		•	•	•	•
100–1,000 ppb	•	•	•	•	•	•
1–100 ppb		•	•	•	•	•
ppt		•			•	•
<ppt					•	•**
<b>Number of samples</b>						
Few	•	•	•	•	•	•
Several	•		•	•	•	•
Many				•	•	•
<b>Number of elements per sample</b>						
Single/few (1–5)	•	•	•	•	•	•
Intermediate (5–10)	•		•	•	•	•
Many				•	•	•**
<b>Sample matrix</b>						
< 3% solids	•	•	•	•	•	•
3–10%*	•	•		•	•	•
> 10%		•		•		
<b>Advanced applications</b>						
Chromatographic coupling					•	•
Nanoparticle characterization					•	•
Isotopic analysis/IDMS					•	•

\*Agilent ICP-MS systems with UHMI tolerate up to 25% total dissolved solids (HMI up to 3% TDS).

\*\*ICP-QQQ offers improved overall performance compared to ICP-MS, including higher sensitivity, lower detection limits, and better control of interferences using MS/MS reaction cell methods.

## Agilent CrossLab: Real insight, real outcomes

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