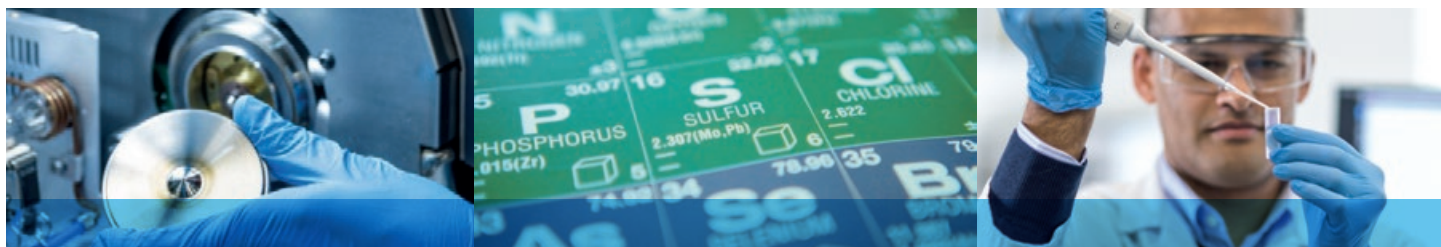


# Spectroscopy Supplies

Your essential resource for spectroscopy





# Put Our Insight to Work for You

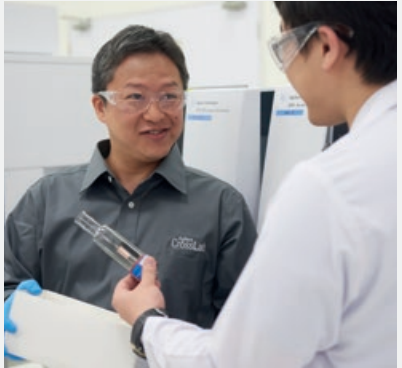
Across the lab, around the world, with you every step of the way.

CrossLab is an Agilent capability that integrates services and consumables to support workflow success, improve productivity, and enhance operational efficiency. In every interaction, we strive to provide insight that helps you achieve your goals. We offer a wide range of products and services – from method optimization and training to full-lab relocations and operational analytics – to help you manage your instruments and your lab for best performance.

Together, we'll support your scientific and business goals with superior laboratory services, software, and consumables from Agilent. We offer a direct connection to a network of service experts who can help you improve laboratory performance and meet vital business needs.

Our solutions maximize performance, reduce complexity, and drive improved economic, operational, and measurable outcomes. And our innovative and comprehensive products generate immediate results and lasting impact.

Learn more about CrossLab at [agilent.com/crosslab](https://www.agilent.com/crosslab)

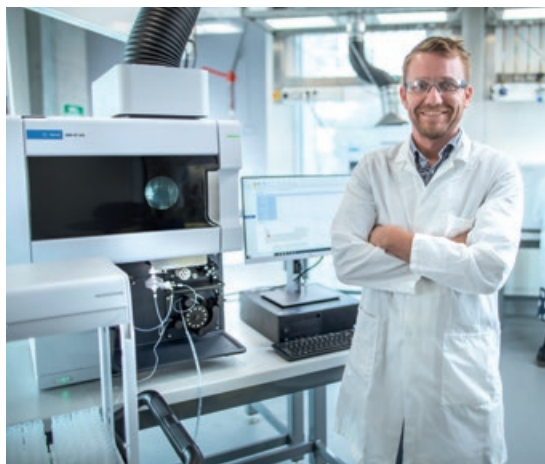


**Contact us**

Get in touch with an expert to support your lab at [agilent.com/crosslab/contactus](https://www.agilent.com/crosslab/contactus)

## Satisfy your growing demand to screen large numbers of samples, faster

Agilent leads the way with our high-quality portfolio of atomic and molecular spectroscopy systems. Our comprehensive and trusted portfolio offers the most powerful and reliable solutions for diverse application areas, such as energy and chemicals, environmental, food safety and agriculture, geochemistry, materials testing and research, semiconductor analysis, pharmaceutical, academic, and life science research.



Our supplies product range includes:

- **Atomic absorption supplies** that help you reduce detection limits. Our research and development efforts have also led to innovations such as single-element and solid-cathode multi-element lamps, along with high-intensity UltraAA lamps.
- **ICP-OES supplies** that deliver reliable results for complex matrices. From spray chambers to nebulizers, torches, and peristaltic pump tubing, Agilent ICP-OES supplies help you confidently determine major and trace elements in samples such as food, water, and soil.
- **ICP-MS supplies** for confident trace analysis. Agilent ICP-MS supplies continually push the boundaries of design and innovation, helping you reduce interferences and improve productivity.
- **MP-AES supplies** and accessories that maintain the superior performance of the revolutionary Agilent 4210 MP-AES – a system that literally runs on air.
- **Molecular supplies** that ensure nondestructive measurements for quantitative analysis. From high-quality UV cuvettes to source lamps, cell holders, reference materials, and other critical parts, Agilent molecular supplies help you discover, characterize, and test various solid, liquid, organic, and inorganic materials.



Agilent OneNeb 2 nebulizer, coded single-element AAS lamp and Easy-fit torch, for 4200/4210 MP-AES

Driven by insights from customers around the world, Agilent has created an innovative spectroscopy portfolio – spanning instruments, supplies, standards, services, software, and more – to bring confidence to your lab. Trust us to protect your investments with genuine parts and supplies, as well as a broad range of services, supported by a global network of experienced service professionals. All Agilent supplies are backed by unmatched technical support, plus a 90-day warranty from the date of shipment.

## Table of Contents

<b>Featured Products</b>	<b>6</b>		
Agilent Atomic Spectroscopy Portfolio	6		
Agilent Molecular Spectroscopy Portfolio	9		
Raman Spectroscopy	11		
UV-Vis and UV-Vis-NIR spectrophotometers	12		
Agilent Spectroscopy Supplies Portfolio	14		
<b>Atomic Absorption Supplies</b>	<b>17</b>		
Hollow cathode lamps	17		
Coded single element lamps	19		
Uncoded single element lamps	20		
Convenient multi-element lamps	22		
High intensity UltrAA coded single element lamps	23		
High intensity UltrAA multi-element lamps	24		
Background correction lamps	25		
ACT 80 atom concentrator tube	25		
Mark 7 flame atomization system	26		
Mark 7 flame atomization system operating kit	28		
Burners	28		
SIPS 10/20 supplies	30		
VGA 77 supplies	31		
Graphite furnace parts and supplies	33		
Graphite tubes and platforms	35		
Graphite electrodes	36		
Graphite shrouds	36		
Graphite furnace tools	37		
Programmable sample dispenser (PSD) supplies (used with graphite furnace AA)	38		
<b>ICP-OES Supplies</b>	<b>39</b>		
Operating Supplies Kits for 5000 Series Dual View ICP-OES	39		
Applications kits	40		
Torches and supplies	42		
Torches for 700 series, Vista series, and Liberty ICP-OES	45		
Spray Chambers and Accessories	48		
Multimode Sample Introduction System (MSIS)	50		
IsoMist Temperature-controlled spray chamber	52		
Nebulizers and accessories	53		
Humidifier accessory	56		
		Tubing	57
		Tubing Kits for 700 series, Vista series, and Liberty ICP-OES	61
		AVS 6/7 advanced valve systems for 5000 series ICP-OES	63
		SVS 1 and SVS 2 switching valves for ICP-OES	66
		<b>ICP-MS Supplies</b>	<b>69</b>
		Sample introduction supplies	70
		PFA inert sample introduction kit supplies	76
		Torches and components	77
		Interface cones and ion lenses	78
		Interface cone selection guide	80
		Easy-fit x-lens	82
		Ion extraction Omega lens assembly (standard lenses)	83
		Screw and spacer kit for lens maintenance	83
		Vacuum system supplies	85
		Integrated Sample Introduction System 3 supplies	86
		Gas line supplies	102
		<b>MP-AES Supplies</b>	<b>104</b>
		Agilent 4100/4200/4210 MP-AES supplies	104
		Multimode Sample Introduction System (MSIS)	109
		External gas control module (EGCM)	110
		Organics kit for 4100 MP-AES	110
		AVS 4 advanced valve system, for 4200/4210 MP-AES	111
		IsoMist temperature-controlled spray chamber	112
		<b>Autosampler Supplies</b>	<b>113</b>
		SPS 4 autosampler supplies	113
		SPS 3 autosampler supplies	117
		Integrated autosampler (I-AS) supplies	118
		ASX-500 series autosampler supplies	120
		Common autosampler supplies	121
		<b>AA/MP-AES, ICP-OES, and ICP-MS Standards</b>	<b>123</b>
		Wavelength Calibration Solutions for ICP-OES and MP-AES	123
		IntelliQuant Calibration Standards for 5000 Series DV ICP-OES	124
		ICP-MS tuning, installation and checkout solutions	126

<b>UV-Vis and UV-Vis-NIR Flow Cells and Cuvettes</b>	<b>127</b>	<b>Agilent Solutions</b>	<b>166</b>
Cell shapes	128	Chemical Analysis Solutions	166
Cell volumes	129	Life Science Solutions	168
Beam (z) height	130		
Macrocells	131	<b>Services and Support</b>	<b>170</b>
Disposable polystyrene cells	133	Agilent CrossLab service plans	170
Semi-microcells with self masking black walls	134	Agilent CrossLab compliance services	170
Sub-microcells	135	Agilent instrument training and method services	171
TrayCell 2.0	136	The Agilent Value Promise—10 years of guaranteed value	171
Cylindrical cells	137	Technical support at work for you	171
Flow-through cells	138	Need more information?	171
Cell holders and accessories	141		
<b>Agilent 8453/8454 UV-Vis supplies</b>	<b>143</b>		
8453/8454 tubings and fittings	143		
8453/8454 UV accessory supplies and lamps	144		
Dissolution testing supplies	145		
<b>Agilent Cary UV-Vis and UV-Vis-NIR Supplies</b>	<b>146</b>		
Cary fiber-optic probes	146		
Replaceable tips and miscellaneous supplies	148		
Kits and supplies for UV-Vis and UV-Vis-NIR accessories	149		
Cary UV-Vis source lamps	152		
Cary tubing	152		
<b>UV Filters, Standards, and Reagents</b>	<b>153</b>		
Standards and reagents	154		
<b>Agilent Cary Eclipse Fluorescence Supplies</b>	<b>156</b>		
Kits and supplies for fluorescence accessories	156		
Base plate for custom accessories	157		
Fluorescence cuvettes and flow cells	158		
Microplates	159		
Fiber-optic probes and couplers	159		
Standards and reference materials	160		
<b>Agilent 8700 LDIR and Sample Planer Supplies</b>	<b>161</b>		
<b>Agilent FTIR Supplies</b>	<b>162</b>		

# Agilent Atomic Spectroscopy Portfolio

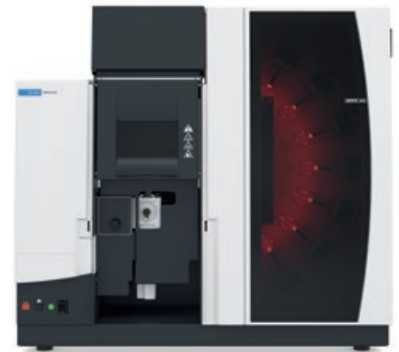
## The value of knowing

Knowing the right information at the right time can help you cut through the everyday complexities of your samples, instrument needs, regulations, other demands on your time and resources — and help you handle unexpected challenges. The most valuable thing an analytical solution can deliver is the confidence of knowing you'll get the answers you need, when you need them. Driven by insights from customers around the world, Agilent has created an innovative atomic spectroscopy portfolio — including instruments, consumables, standards, services, software, and more — to bring that confidence to your lab.

## Agilent atomic absorption (AA) spectrometers

### Productive, precise, reliable

Agilent AA instruments are suitable for routine analysis where reliable and simple operation are vital. With the world's fastest and most productive flame AA, the world's most sensitive furnace AA, user-friendly software, and unbeaten instrument ruggedness, you can be sure you're getting reliable results.



## Agilent 4210 microwave plasma-atomic emission spectrometer (MP-AES)

### Elemental analysis that runs on air

The Agilent 4210 MP-AES provides the lowest cost of ownership, improved safety, and superior performance. The 4210 MP-AES has high sensitivity, detection limits down to sub-ppb levels, and is faster than conventional flame AA. Best of all, the 4210 MP-AES runs on air instead of combustible gas, dramatically reducing your operating costs. Our instrument is easy to use, with application-specific software applets to ensure any user can set up quickly without method development or alignment, and with minimal training.



## Agilent 5800/5900 ICP-OES

### The smart way to high productivity and low cost of ownership

Agilent ICP-OES systems are packed with smart functions that deliver reliable analytical results and slash wasted time in the lab. The Agilent 5800 and 5900 ICP-OES systems use smart software features to deliver accurate results in the quickest time. Analysts will know exactly when to carry out cleaning and maintenance thanks to sensors built into the ICP-OES system. Lab managers will receive accurate results from their ICP-OES systems thanks to algorithms that find interferences and provide backup results.



## Agilent 7850 ICP-MS

### Free your workflow from common time traps

The Agilent 7850 ICP-MS is the smart way to reduce wasted time so users can focus on tasks that deliver value. The 7850 is the ideal solution for routine ICP-MS applications and can handle samples with up to 25% dissolved solids, reducing dilutions. The instrument features a helium mode collision cell and half mass correction that address both polyatomic and doubly charged ion interferences, improving the accuracy and consistency of results. Effective control of spectral interferences makes method development simpler and eliminates time-wasting sample remeasurement.



### Tips and tools

Did you know that Agilent can streamline your procurement needs by being your single source for parts, consumables, and services for your PerkinElmer AA, ICP-OES, and ICP-MS systems?

Learn more about the comprehensive Agilent portfolio for PerkinElmer parts at:

[www.agilent.com/chem/pespectrosupplies-aas](http://www.agilent.com/chem/pespectrosupplies-aas)

[www.agilent.com/chem/pespectrosupplies-icpoes](http://www.agilent.com/chem/pespectrosupplies-icpoes)

[www.agilent.com/chem/pespectrosupplies-icpms](http://www.agilent.com/chem/pespectrosupplies-icpms)

### Agilent 7900 ICP-MS

#### Powerful, flexible, single quadrupole ICP-MS

The Agilent 7900 ICP-MS has exceptional matrix tolerance, high sensitivity, wide dynamic range, and an unmatched helium collision cell mode for control of polyatomic interferences. Combined with a suite of autotuning, method setup, and data analysis tools, this makes our ICP-MS easier than ever to operate. Innovative technology and a new MassHunter software platform make the Agilent 7900 the world's most powerful, and most automated quadrupole ICP-MS. Matrix tolerance has been extended into the tens of %TDS range and the 7900 has a linear dynamic range of 11 orders of magnitude. Plus, the updated octopole reaction system (ORS) supports the industry's most effective helium collision mode. The 7900 ICP-MS delivers superior data quality whatever your application, with the flexibility needed for research and advanced analysis, such as speciation. High sensitivity and fast acquisition of transient signals – necessary for analysis of single nanoparticles (ICP-MS), single cells, and for laser ablation – give you the edge over the competition.



### Agilent 8900 triple quadrupole ICP-MS

#### Leave interferences behind with MS/MS

The Agilent 8900 triple quadrupole ICP-MS (ICP-QQQ) is the world's most successful and widely used tandem ICP mass spectrometer. It offers the same matrix tolerance and robustness as the Agilent market-leading single quadrupole ICP-MS systems, combined with the industry's most effective helium (He) collision mode. It adds tandem mass spectrometry operation (ICP-MS/MS) for unmatched control of reaction chemistry in the collision reaction cell (CRC), making it the world's most powerful and flexible multi-element analyzer.

Available in a range of configurations to cover applications from routine contract analysis to advanced research and high-purity materials analysis, the Agilent 8900 ICP-QQQ also introduces analytical capabilities not previously possible using ICP-MS. Low-level determination of previously difficult elements, separation of direct isobaric overlaps, and fast, trace analysis of emerging nano-scale materials extend the application of ICP-MS into new fields of analysis.

Let the 8900 ICP-QQQ take control of your interferences and put your results beyond doubt.





# Agilent Molecular Spectroscopy Portfolio

## Performance, accuracy, and flexibility

The Agilent best-in-class portfolio of molecular spectroscopy instruments have grown in breadth as well as capabilities. With leading innovations like the Agilent Cary 3500 UV-Vis spectrophotometer and laser direct infrared (LDIR) chemical imaging, as well as the Agilent 4300 handheld FTIR spectrometer and our proprietary spatially offset and transmission Raman technologies, our spectroscopy systems are more qualified than ever to equip you with the right solution for your specific challenge.

## Agilent Cary Eclipse fluorescence spectrophotometer

### Industry-leading fluorescence spectroscopy instrumentation

The Agilent Cary Eclipse fluorescence spectrophotometer delivers the highest levels of performance, flexibility, and innovation, providing consistent analytical results in a range of fluorescence spectroscopy applications. The Cary Eclipse can easily be switched between fluorescence, phosphorescence, chemiluminescence, and bioluminescence measurements.

The unique xenon flash lamp technology delivers superior sensitivity and room light immunity. It is ideally suited for use with fiber-optics for remote sample measurements, and biosample analysis with inherent bleaching protection for photosensitive samples and fast data collection for kinetics measurements.



## Agilent Cary 630 FTIR

### Innovative, intuitive, reliable

The Agilent Cary 630 FTIR spectrometer is a flexible benchtop FTIR instrument, offering high performance and extraordinary ease-of-use in an ultracompact design. Engineered with the user in mind, it provides simple, intuitive workflows to deliver meaningful answers in routine FTIR spectrometer analysis and cutting-edge research. The modularity of the Cary 630 FTIR offers sampling flexibility for analysis of solids, liquids, powders, and gases. Permanently aligned optics allow a wide range of modules to be swapped in and out in seconds, providing superior quantitative and qualitative information – fast.



## Featured Products

### Agilent compact and portable FTIR

Agilent offers a range of flexible handheld FTIR spectrometers for routine testing and robust portable FTIR analyzers for field applications. With a range of attenuated total reflection (ATR) options, Agilent instruments are quick and easy to optimize for every application.

The Agilent 4300 handheld FTIR spectrometer incorporates lightweight ergonomics, ease-of-use, ruggedness, and flexibility in one system. Weighing approximately 2 kg, it is ideal for mobile, and nondestructive testing in field and nonlaboratory environments. Featuring MicroLab Mobile software, users can easily transition from one sample to another, with no alignment or adjustments necessary, simply by changing the sampling interface.



### Agilent 4500/5500 portable FTIR

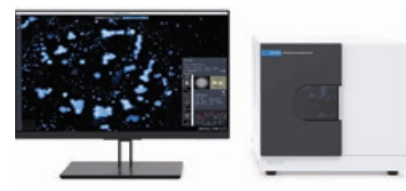
The Agilent 4500 portable FTIR spectrometer is a rugged analyzer, ideal for on-the-spot analysis in a range of nonlaboratory settings. The system is packaged in weather-resistant housing, making it great for outdoor use. It is also easy-to-use and a good match for applications requiring fast, high-quality answers. The optics are designed for reliability in nonlab environments, with innovative sampling interfaces and fit-for-purpose software providing high-quality answers for liquid and solid samples at the sampling site. Dedicated analyzers for polymer identification and forensic analysis are also available with preinstalled software, featuring extensive ATR-based spectral libraries and pushbutton methods that enhance ease-of-use and deliver speedy results with little training.

The Agilent 5500 compact FTIR spectrometer is designed as an at-site analyzer to offer great results, rapidly and reliably, day after day. The combination of excellent optics, innovative sampling interfaces, and intuitive software provides information on liquid and solid samples faster and easier than ever before.



### Agilent 8700 Laser Direct Infrared chemical imaging system

Laser direct infrared (LDIR) imaging provides a rapid and simplified path to molecular imaging using a quantum cascade laser (QCL) coupled with rapidly scanning optics. The Agilent 8700 Laser Direct Infrared (LDIR) chemical imaging system provides a sophisticated new approach to chemical imaging and infrared spectral analysis, and is ideally suited to the analysis of microplastics. Employing quantum cascade laser (QCL) technology and designed to be used by experts and nonexperts alike, the 8700 LDIR offers simple, highly automated operation, which reduces costs and potential errors, as well as simplifying analysis.



# Raman Spectroscopy

## Innovative technology for noninvasive through-barrier chemical analysis

Agilent Raman spectroscopy systems use proprietary spatially offset Raman spectroscopy (SORS) and transmission Raman spectroscopy (TRS) in fields ranging from airport security screening and pharmaceutical quality control, to hazardous chemical identification in the field.

SORS enables chemical analysis through containers and opaque barriers, and can be employed to help first responders identify the contents of suspect packages. It can also be used for high-throughput raw material identification inside unopened packaging at pharmaceutical quality control. TRS nondestructively screens whole tablets and capsules in seconds, for rapid content uniformity and polymorph analysis in pharma QC and formulation development.



### Raman pharmaceutical analysis systems

The Agilent Vaya handheld Raman spectrometer increases raw material identification throughput without increasing costs by reducing the need for sampling. From clear glass vials to brown paper sacks, Vaya offers best-in-class identification testing through transparent containers, and transformative handheld Raman identification through nontransparent containers, for the fastest possible release to manufacturing.

The Agilent RapID Raman system is the fastest way to verify raw materials for pharmaceutical GMP quality control and the most cost-effective means for high throughput or 100% testing. RapID is a flexible, mobile, probe-based scanner that uses SORS technology to extend high throughput spectroscopic analysis through clear packaging to nontransparent and colored containers. This unique capability makes RapID ideally suited to fast, nonintrusive raw material identity verification.

The Agilent TRS100 Raman quantitative pharmaceutical analysis system enables fast whole tablet or capsule content uniformity and polymorph screening for pharmaceutical finished-product testing and formulation development. Easier to implement than other spectroscopic methods, the Agilent transmission Raman spectroscopy (TRS) technology allows simple method development and deployment for quantitative analysis in quality control applications.



## Featured Products

### Handheld Raman chemical detection systems

The Resolve handheld Raman analyzer enables rapid identification of explosives, narcotics, toxic industrial chemicals, chemical warfare agents, and other materials through sealed, opaque containers. The system determines materials from comprehensive libraries, with handheld SORS technology enabling positive chemical identification through a wide range of nonmetallic containers, barriers, and packaging.

### Raman aviation security systems

Agilent Cobalt Insight100 and Insight100M systems are widely employed at European airports, providing exceptional detection with an ultralow false alarm rate for nonmetallic containers. The Insight100M system screens all container types, including metals.

The Cobalt Insight200M is the latest airport security liquid explosive detection system (LEDS) from Agilent, screening all common container types with the lowest false alarm rate of any ECAC-certified LEDS system. Smaller and lighter than the popular Insight100 series—and offering improved detectivity and false alarm rates (FARs)—the Insight200M fits into security operations with the lowest resource impact and highest screening throughput of any Type B LEDS system.



## UV-Vis and UV-Vis-NIR spectrophotometers

### Advanced optical analysis with Cary spectrophotometers

With a proven record in optical design excellence and innovation, Agilent Cary spectrophotometers deliver unparalleled performance. Cary UV-Vis (ultraviolet visible) spectrophotometers are ideal for both routine and research measurements, with reliability and photometric excellence in a range of applications for both liquid and solid samples.

A comprehensive portfolio of accessories adds flexibility, enabling routine analysis with precise temperature measurements, sophisticated transmission, and reflectance measurements of solid samples.

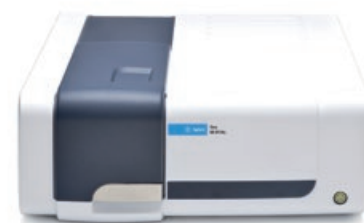


## Agilent Cary 60 UV-Vis

### Efficient, accurate, flexible

The Agilent Cary 60 UV-Vis spectrophotometer has a wavelength range of 190 to 1100 nm that can be scanned in under three seconds. Our flexible UV-Vis spectrophotometer can be fitted with long pathlength cuvettes and solid sample transmission or reflectance accessories, and is ideal for remote UV-Vis absorbance analysis, when fitted with fiber-optic probes.

The xenon source lamp requires zero warmup and causes no photodegradation of samples. Fast reactions can be recorded with 80 data points collected every second. The Cary 60 is well-suited as a routine UV-Vis spectrophotometer or for use in teaching labs. Optional 21 CFR Part 11 software tools are also available.



## Agilent Cary 3500 UV-Vis

### Multiply your experimental possibilities

The Cary 3500 UV-Vis is a double beam, multicell spectrophotometer system, offering new and unique measurement capabilities for routine analysis and challenging measurements, including advanced data integrity in compliant environments. Measure up to four temperature experiments across eight cuvette positions, simultaneously, with air-cooled Peltier temperature control. Xenon flash lamp technology enables accurate monitoring of kinetic experiments, with a data collection rate of up to 250 points per second. You can also analyze low-volume samples accurately and reproducibly.



## Agilent Cary 4000/5000/6000/7000 UV-Vis and UV-Vis-NIR

### Unrivaled, precise, consistent

The Agilent Cary 4000 UV-Vis spectrophotometer is a high-end instrument with excellent photometric performance in the 175 to 900 nm range, making it a powerful reference spectrophotometer. The system is ideal for analyzing solid biotechnology samples with minimal sample preparation.

The Agilent Cary 5000 UV-Vis-NIR spectrophotometer is a high-performance UV-Vis and NIR spectrophotometer with exceptional photometric performance. Using a PbSmart detector, the Cary 5000 extends its NIR range to 3300 nm, making it a powerful tool for materials science research.

The Agilent Cary 6000i UV-Vis-NIR spectrophotometer has been tailored for unmatched photometric performance in the short-wave infrared (SWIR) 800 to 1800 nm range, as well as the UV-visible range from 175 to 800 nm. Using narrowband InGaAs detection and a 600 lines-per-mm diffraction grating for improved SWIR sensitivity, the Cary 6000i is the ultimate tool for materials characterization spectroscopy.

The Agilent Cary 7000 universal measurement spectrophotometer (UMS) will satisfy all your solid sampling needs. Collect hundreds of UV-Vis-NIR spectra overnight, or characterize optical components and thin films in minutes or hours rather than days. The Cary 7000 UMS is a turnkey solution for research, development, and QA/QC in optics, thin films/coatings, solar, and glass.



# Agilent Spectroscopy Supplies Portfolio

## Agilent hollow cathode lamps

Agilent uncoded hollow cathode lamps provide economical operation, great performance, and are compatible with all Agilent and most AA systems from other manufacturers\*. Agilent lamps are manufactured in an ISO 9001 certified environment and use proven processing steps to ensure optimum purity, stable operation, and long lifetime.

Turn to **Page 17** or visit [www.agilent.com/chem/aalamps](http://www.agilent.com/chem/aalamps)

\*Not compatible with PerkinElmer systems. For Agilent hollow cathode lamps suitable for all PerkinElmer AA systems, see [www.agilent.com/chem/pelamps](http://www.agilent.com/chem/pelamps)



## Inert OneNeb series 2 nebulizer, for ICP-OES and MP-AES

The OneNeb series 2 nebulizer is an inert, high-efficiency universal nebulizer that is virtually indestructible. It provides excellent tolerance to high levels of dissolved solids, and is tolerant to most sample matrices determined using ICP-OES and MP-AES, including high acids, HF digests, and organic solvents. It replaces a conventional glass concentric nebulizer and is compatible with most standard cyclonic spray chambers.

For ICP-OES, turn to **Page 53** or visit [www.agilent.com/chem/oneneb2](http://www.agilent.com/chem/oneneb2)

For MP-AES, turn to **Page 106** or visit [www.agilent.com/chem/oneneb2mp-aes](http://www.agilent.com/chem/oneneb2mp-aes)



## Fully demountable ICP-OES torch

The Agilent fully demountable torch for the 5000 series ICP-OES features a removable injector to streamline torch maintenance and allow quick changeover. The simple design allows analysts to easily remove the injector for cleaning or to switch injectors when switching applications. Injector removal or replacement can even be done without removing the torch from the instrument. This takes the pain out of routine maintenance. The fully demountable torch is compatible with all Agilent 5100/5110 and 5800/5900 ICP-OES instruments and is available with a variety of injector sizes and materials to cover every application.

Turn to **Page 42** or visit [www.agilent.com/chem/icp-oes-demountabletorch](http://www.agilent.com/chem/icp-oes-demountabletorch)



## Inert ICP-OES spray chamber for HF digests, high TDS, and wear metal samples

Agilent inert spray chambers feature a durable, sandblasted internal finish that does not require periodic rejuvenation and has a removable internal baffle, enabling single-pass operation for improved sensitivity. Used with the OneNeb series 2 nebulizer and Easy-fit inert fully demountable torch, it provides an inert sample introduction system suitable for aggressive acids, hydrofluoric (HF) acid digests, and samples with high total dissolved solids (TDS) levels, or larger particulates such as wear metals (used oils). The inert spray chamber is compatible with all Agilent 5100/5110, 5800/5900 ICP-OES, and 4200/4210 MP-AES instruments and is retrofittable to earlier model ICP-OES instruments (with an adaptor).

Turn to **Page 48** or visit [www.agilent.com/chem/inert-spray-chamber](http://www.agilent.com/chem/inert-spray-chamber)



## ICP-MS interface cones for superior, reproducible performance

Optimum performance of your ICP-MS is critically dependent on the size, shape, and condition of the interface cones. Genuine Agilent cones offer superior sensitivity across the mass range with the lowest background. Short and long-term stability can also be compromised by using non-Agilent cones, introducing instrument drift and increasing the risk of QC failures. Genuine Agilent cones are designed and extensively tested on Agilent ICP-MS systems to ensure both sensitivity and stability with real-world applications. Protect your investment and ensure ease-of-use by choosing Agilent cones.

Turn to **Page 78, 79**, or visit [www.agilent.com/chem/interface-cones-ion-lenses](http://www.agilent.com/chem/interface-cones-ion-lenses)



## Nickel-plated cones extend lifetime and reduce cone maintenance

Agilent nickel-plated, platinum-, and nickel-tipped sampler cones reduce copper base corrosion, which shortens lifetime, and simplifies maintenance. Reduced base corrosion enables a simple one-step cleaning routine using only water sonication, so your cone is back in use faster. The lifetime of Ni-plated cones is two times longer than Pt-tipped copper base cones when using a 10% aqua regia matrix. The Ni-plated cones are compatible with all Agilent 7700/7800/7900 single quadrupole and 8800/8900 triple quadrupole models, and are recommended for food, environmental, and other applications using aggressive acid matrices.

Turn to **Page 78, 80**, or visit [www.agilent.com/chem/nickel-plated-cones](http://www.agilent.com/chem/nickel-plated-cones)



### Easily ensure your ICP-MS pump performance with Agilent Easy-fit tubing

Agilent Easy-fit peristaltic pump tubing is manufactured to an optimal minimized length so you can eliminate tedious trimming and fitting. The flared ends also make inserting the capillary tube or connectors a straightforward task. Easy-fit tubing has low leachable metals to minimize background. It is available in PVC for use with routine aqueous samples and PVC solvent flexible (Solvaflex) for compatibility with organic solvents and longer lifetime with aqua regia and other high acid matrices.

Turn to **Page 70** or visit [www.agilent.com/chem/icpms-pumptubing](http://www.agilent.com/chem/icpms-pumptubing)



### Easily restore your ICP-MS to peak performance with an Easy-fit x-lens

Eliminate the need for routine cleaning and polishing of the ion lens assembly with an Easy-fit x-lens. This single-piece construction makes installation a snap for anyone in your lab, with no service call needed, giving you an easy way to return your ICP-MS to peak performance.

Turn to **Page 82** or visit [www.agilent.com/chem/icpms-xlens](http://www.agilent.com/chem/icpms-xlens)





# Atomic Absorption Supplies

## Hollow cathode lamps

A hollow cathode lamp is used as a spectral line source for Atomic Absorption (AA) instruments. AAS lamps utilize the hollow cathode effect to generate light at wavelengths for the element of interest. The emission line selected must avoid wavelength overlaps, and have good intensity with low noise. A lamp is typically required for each element, although a multi-element lamp enables multiple elements to be determined using the same lamp.

Agilent offers an extensive range of single element and multi-element lamps. Our uncoded hollow cathode lamps are suitable for use with most major brands of AA instruments (except Shimadzu instruments, which have self-reversal correction, and PerkinElmer; Agilent also offers a comprehensive range of coded 50 mm lamps for use with all PerkinElmer AA systems). Agilent has various coded lamps with unique element coding to enable the Agilent AAS system to automatically identify the lamp needed for analysis. This simplifies operation and eliminates operator errors when using multiple lamps in the same AAS system.

For enhanced performance, Agilent also offers a comprehensive range of high-intensity UltraAA boosted discharge hollow cathode lamps that can replace conventional lamps for AA determination. Agilent UltraAA lamps lower detection limits for the most demanding AA applications, where improved performance is required. A boost discharge applied within these high-intensity AAS lamps increases emission intensity, providing improved sensitivity and lower detection limits, especially with challenging GFAAS applications. The boost current is fixed, eliminating manual optimization and dramatically improving ease-of-use.



## Tips and tools

Solve your flame and graphite furnace AAS challenges with featured innovations, applications, videos, on-demand webinars, and maintenance tips to help improve your laboratory performance and sample output.

Bookmark the Agilent AAS Resource Hub to ensure you have the right information at the right time to help you minimize downtime and achieve great results.

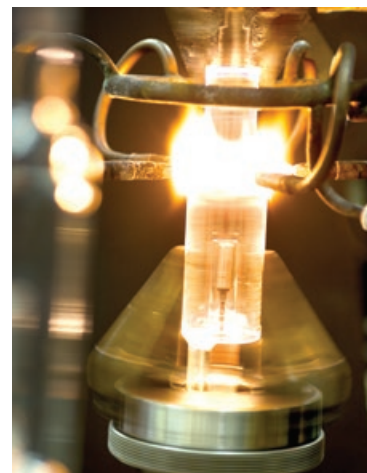
Visit [www.agilent.com/chem/aas-resource](http://www.agilent.com/chem/aas-resource) to find out more.

## Comprehensive quality control for performance consistency

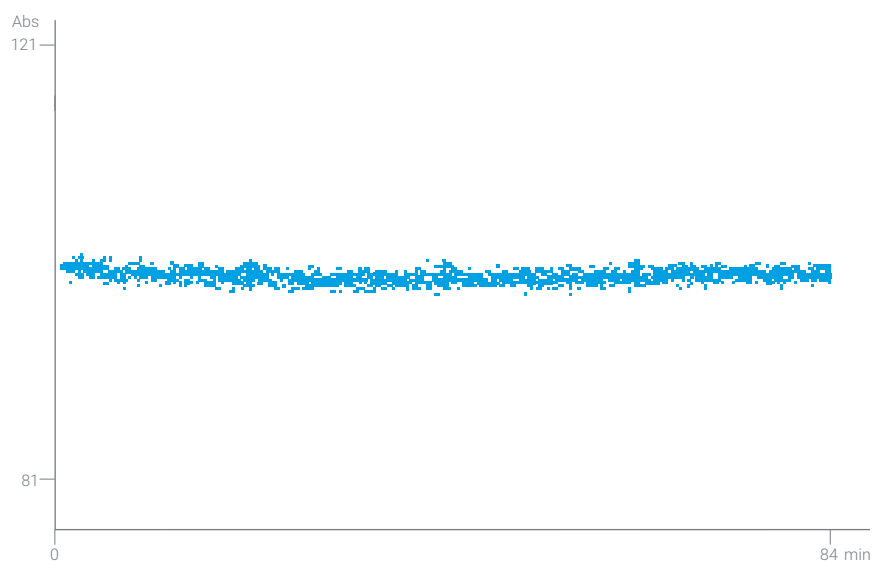
Agilent lamps are manufactured in an ISO 9001 certified environment using the purest cathode materials for optimal lifetime, economical operation, and superb performance. Our lamps provide high spectral purity, and the extended processing cycle and unique lamp conditioning procedures ensure minimal lamp warmup time and stable operation.

Economical operation is assured by the long lamp life, typically exceeding 5,000 mA hours, over and above our factory conditioning and testing service.

Consistent performance is also assured. Before shipping, every lamp is analytically tested to confirm that it meets Agilent standards for intensity, noise, and stability. These tests ensure that you receive quality lamps that can provide optimum signal-to-noise ratios and stable performance throughout their lifetime.



## H.C.L drift test



The trace shows the variation in emission intensity from a lamp over a 1 hour 24 minute period. The steady trace demonstrates the stability and low drift achieved when using our hollow cathode lamps (after a suitable warmup period).

## Coded single element lamps

- High performance – manufactured from the purest cathode materials
- Easier to use – element-coded for automatic lamp recognition, preventing errors
- Stable operation – extended processing ensures minimal warmup and good lamp stability



Coded single element lamp, Fe,  
5610102700

### Coded Single Element Lamps

Element	Part No.
Aluminum – Al	5610100100
Antimony – Sb	5610100200
Arsenic – As	5610100300
Barium – Ba	5610100400
Beryllium – Be	5610100500
Bismuth – Bi	5610100600
Boron – B	5610100700
Cadmium – Cd	5610100800
Calcium – Ca	5610101000
Chromium – Cr	5610101200
Cobalt – Co	5610101300
Copper – Cu	5610101400
Gold – Au	5610102100
Hafnium – Hf	5610102200
Iridium – Ir	5610102600
Iron – Fe	5610102700
Lead – Pb	5610102900
Lithium – Li	5610103000
Magnesium – Mg	5610103200
Manganese – Mn	5610103300
Mercury – Hg	5610103400
Molybdenum – Mo	5610103500

### Coded Single Element Lamps

Element	Part No.
Neodymium – Nd	5610103600
Nickel – Ni	5610103700
Niobium – Nb	5610103800
Palladium – Pd	5610104000
Phosphorus – P	5610107700
Platinum – Pt	5610104100
Potassium – K	5610104200
Rhenium – Re	5610104400
Rhodium – Rh	5610104500
Selenium – Se	5610105000
Silicon – Si	5610105100
Silver – Ag	5610105200
Sodium – Na	5610105300
Strontium – Sr	5610105400
Tantalum – Ta	5610105500
Tellurium – Te	5610105600
Thallium – Tl	5610105800
Tin – Sn	5610106100
Titanium – Ti	5610106200
Vanadium – V	5610106500
Zinc – Zn	5610106800
Zirconium – Zr	5610106900



Uncoded single element lamp, Pb,  
5610124800

## Uncoded single element lamps

- No element coding for economical operation
- Compatible with all Agilent and all AAS instruments with octal base connectors
- Same excellent performance as provided by Agilent coded single element lamps

### Uncoded Single Element Lamps

Element	Part No.
Aluminum – Al	5610122000
Antimony – Sb	5610122100
Arsenic – As	5610122200
Barium – Ba	5610122300
Beryllium – Be	5610122400
Bismuth – Bi	5610122500
Boron – B	5610122600
Cadmium – Cd	5610122700
Cesium – Cs	5610122800
Calcium – Ca	5610122900
Chromium – Cr	5610123100
Cobalt – Co	5610123200
Copper – Cu	5610123300
Europium – Eu	5610123600

### Uncoded Single Element Lamps

Element	Part No.
Neodymium – Nd	5610125500
Nickel – Ni	5610125600
Niobium – Nb	5610125700
Palladium – Pd	5610125900
Phosphorus – P	5610126000
Platinum – Pt	5610126100
Potassium – K	5610126200
Rhenium – Re	5610126400
Rhodium – Rh	5610126500
Rubidium – Rb	5610126600
Ruthenium – Ru	5610126700
Samarium – Sm	5610126800
Scandium – Sc	5610126900
Selenium – Se	5610127000

(continued)

## Tips and tools

Did you know that Agilent also offers a comprehensive range of coded 50 mm hollow cathode lamps that are compatible with all PerkinElmer AA systems? They provide economical operation and match the performance of genuine PerkinElmer Lumina lamps.

Choose the lamp for the elements you need at [www.agilent.com/chem/pelamps](http://www.agilent.com/chem/pelamps)

## Uncoded Single Element Lamps

Element	Part No.
Gadolinium – Gd	5610123700
Gallium – Ga	5610123800
Germanium – Ge	5610123900
Gold – Au	5610124000
Hafnium – Hf	5610124100
Indium – In	5610124400
Iridium – Ir	5610124500
Iron – Fe	5610124600
Lanthanum – La	5610124700
Lead – Pb	5610124800
Lithium – Li	5610124900
Magnesium – Mg	5610125100
Manganese – Mn	5610125200
Mercury – Hg	5610125300
Molybdenum – Mo	5610125400

## Uncoded Single Element Lamps

Element	Part No.
Silicon – Si	5610127100
Silver – Ag	5610127200
Sodium – Na	5610127300
Strontium – Sr	5610127400
Tantalum – Ta	5610127500
Tellurium – Te	5610127600
Thallium – Tl	5610127800
Tin – Sn	5610128100
Titanium – Ti	5610128200
Tungsten – W	5610128300
Vanadium – V	5610128500
Yttrium – Y	5610128700
Zinc – Zn	5610128800
Zirconium – Zr	5610128900





Coded multi-element lamp,  
Co/Cr/Cu/Fe/Mn/Ni,  
5610107600



Uncoded multi-element lamp,  
Co/Cr/Cu/Fe/Mn/Ni,  
5610129200

## Convenient multi-element lamps

- Save time by eliminating lamp warmup when switching elements
- Same excellent performance as provided by Agilent single element lamps
- Primary lines checked to avoid and minimize spectral interferences

### Coded Multi-Element Lamps – for Automatic Lamp Recognition, Preventing Errors

Element	Part No.
Aluminum/calcium/magnesium – Al/Ca/Mg	5610108800
Calcium/magnesium – Ca/Mg	5610107100
Cobalt/chromium/copper/iron/manganese/nickel – Co/Cr/Cu/Fe/Mn/Ni	5610107600
Copper/iron/manganese/zinc – Cu/Fe/Mn/Zn	5610109600
Copper/iron/silicon/zinc – Cu/Fe/Si/Zn	5610109700
Copper/zinc – Cu/Zn	5610119200
Silver/cadmium/lead/zinc – Ag/Cd/Pb/Zn	5610108700
Silver/chromium/copper/iron/nickel – Ag/Cr/Cu/Fe/Ni	5610109500
Sodium/potassium – Na/K	5610107000

### Uncoded Multi-Element Lamps – for Economical Operation and Universal Compatibility

Element	Part No.
Calcium/magnesium – Ca/Mg	5610129100
Cobalt/chromium/copper/iron/manganese/nickel – Co/Cr/Cu/Fe/Mn/Ni	5610129200
Copper/zinc – Cu/Zn	5610129300
Sodium/potassium – Na/K	5610129000

## High intensity UltrAA coded single element lamps

- Emission intensity is increased 3 to 5 times, for lower noise
- Sensitivity is increased by up to 40% due to the sharper emission profile, allowing determination at even lower levels
- Element-coded for automatic lamp recognition, preventing errors

UltrAA lamps are high intensity, boosted discharge hollow cathode lamps. They use the standard lamp current, but apply an additional boost discharge within the lamp to increase the emission intensity. The boost current is supplied from a secondary control module (either integrated into the instrument or generated from an external module).

UltrAA lamps are manufactured from the purest cathode materials and every lamp is QA/QC tested to guarantee performance and reliability. These lamps are coded for automatic lamp recognition (except for 55 AA, SpectrAA-50/55 and SpectrAA-5 models), eliminating the risk of time-consuming errors when reprogramming the lamp position.



High intensity UltrAA lamp, As,  
561018100

### High Intensity UltrAA Coded Single Element Lamps

Element	Part No.
Antimony – Sb	5610108000
Arsenic – As	5610108100
Bismuth – Bi	5610134200
Boron – B	5610135700
Cobalt – Co	5610134100
Copper – Cu	5610109100
Germanium – Ge	5610134300
Gold – Au	5610109000
Iron – Fe	5610108600
Lead – Pb	5610108200
Manganese – Mn	5610133700
Nickel – Ni	5610108500
Palladium – Pd	5610135800
Platinum – Pt	5610135900
Selenium – Se	5610108300
Silicon – Si	5610133400
Tellurium – Te	5610134000
Thallium – Tl	5610108400
Tin – Sn	5610133900



High intensity UltrAA lamp, Ag/Cd/Pb/Zn,  
5610108900

## High intensity UltrAA multi-element lamps

- Unique combinations of compatible elements extend the versatility and performance of any AA spectrometer
- Save time by avoiding the need to warm up a new lamp
- Same excellent performance as provided by Agilent single element UltrAA coded lamps

### High Intensity UltrAA Coded Multi-Element Lamps

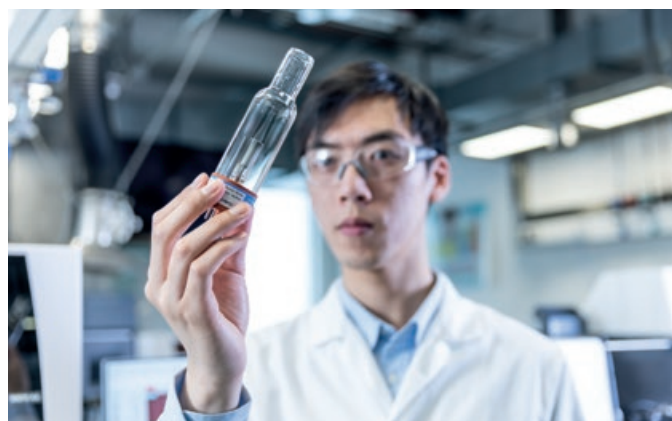
Element	Part No.
Aluminum/calcium/magnesium – Al/Ca/Mg	5610133600
Cobalt/chromium/copper/iron/manganese/nickel – Co/Cr/Cu/Fe/Mn/Ni	5610134500
Cobalt/molybdenum/lead/zinc – Co/Mo/Pb/Zn	5610135200
Copper/iron/manganese/zinc – Cu/Fe/Mn/Zn	5610135000
Copper/iron/silicon/zinc – Cu/Fe/Si/Zn	5610135100
Copper/zinc – Cu/Zn	5610134600
Silver/cadmium/lead/zinc – Ag/Cd/Pb/Zn	5610108900
Silver/chromium/copper/iron/nickel – Ag/Cr/Cu/Fe/Ni	5610134900



High intensity UltrAA lamp, As/Cu/Fe,  
5610135300

### High Intensity UltrAA Uncoded Multi-Element Lamps

Element	Part No.
Arsenic/copper/iron – As/Cu/Fe	5610135300
Nickel/selenium – Ni/Se	5610135400





## Background correction lamps

Deuterium background correction lamps provide accurate and fast correction over the widest possible absorbance range and are QC-selected for optimal lifetime.



Deuterium lamp for AA instruments,  
G8431-80000

### Background Correction Lamps

Description	Part No.
Deuterium background correction lamp for AA systems	G8431-80000

## ACT 80 atom concentrator tube

The ACT 80 atom concentrator tube is a quartz tube that is positioned in the air-acetylene flame to enhance the sensitivity of flame AA by two to three times, compared to that of normal flame AA. Improvements in detection limits can also be achieved. The benefits of this system are:

- Simple, cost-effective, and offers advantages in low-level analyses
- Increases sensitivity by two to three times for elements determined using the air-acetylene flame
- Improves detection limits by up to three fold
- Measurements are as fast as normal flame determinations, and can be used with manual or automated sampling
- Suitable for use with the air-acetylene burner and compatible with any Agilent flame AA instrument

### ACT 80 Atom Concentrator Tube

Description	Unit	Part No.
ACT 80 atom concentrator tube, for Mark 7 air-acetylene burner		110656800
Spare quartz atomization cells, for ACT 80	10/pk	9910054400



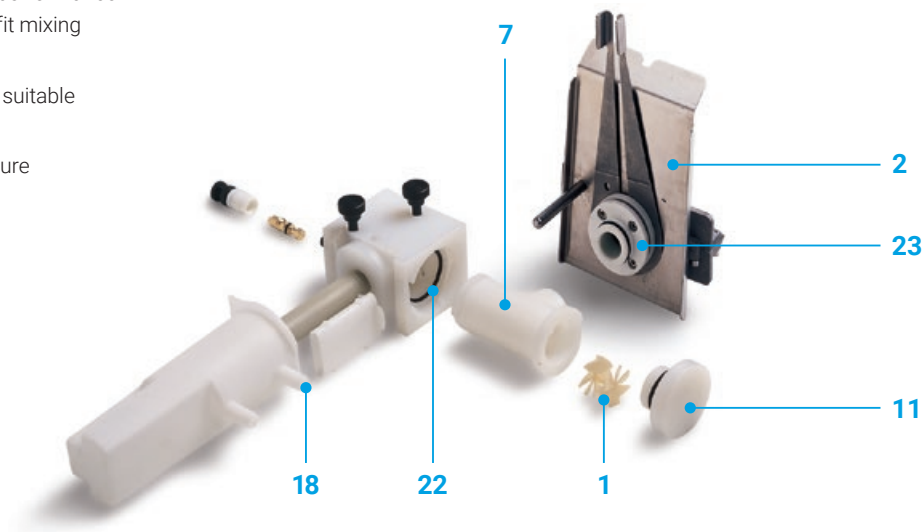
Quartz atomization cells,  
for ACT 80, 9910054400

## Tips and tools

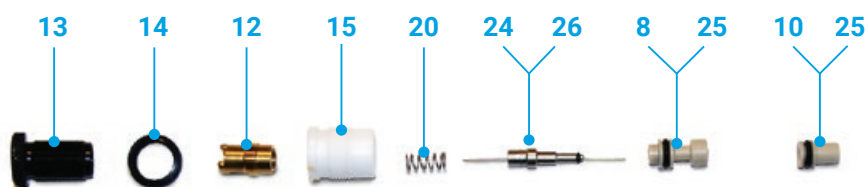
Deuterium background correction is only usable over a range from 185 to around 430 nm. There is no usable output from the lamp at higher wavelengths.

## Mark 7 flame atomization system

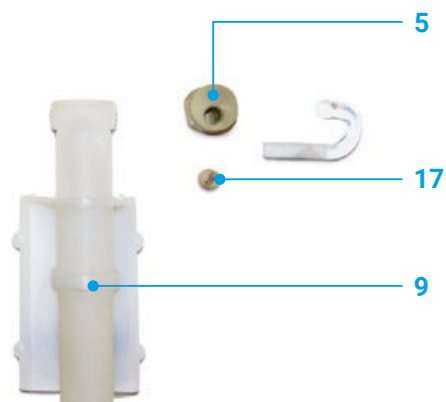
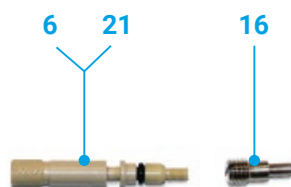
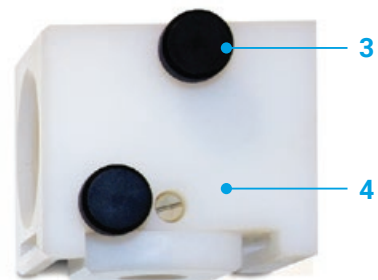
- Simple-to-use twist and lock assembly makes cleaning and routine maintenance easy
- Flexible operation with the capability to tune performance using the externally adjustable impact bead, fit mixing paddles for better precision, or both
- Inert construction makes the spray chamber suitable for use with aqueous and organic solutions
- Users can fit organic-resistant O-rings to ensure organic compatibility



Complete Mark 7 spray chamber assembly, 110634490  
(shown with optional Mark 7 air-acetylene burner (item 2), ordered separately)



Expanded view of nebulizer block from the Mark 7 spray chamber



## Mark 7 Spray Chamber

Item	Description	Part No.
	Complete Mark 7 spray chamber assembly, aqueous, for use with aqueous solutions (fitted with standard O-rings)	110634490
	Complete Mark 7 spray chamber assembly, organic, for use with organic solvents (fitted with organic resistant O-rings)	110866890
<b>1</b>	Mixing paddle, fluorinated	110637000
	Mixing paddle, fluorinated, 5/pk	9910093600
<b>2</b>	Mark 7 air-acetylene burner	210164000
	Mark 7 nitrous oxide-acetylene burner	210164100
<b>7</b>	Spray chamber body, fluorinated	6210092090
<b>11</b>	Spray chamber bung, fluorinated	1610118800
<b>11</b>	O-ring for spray chamber bung, nitrile for aqueous solutions	6910012100
<b>11</b>	O-ring for spray chamber bung, organic solvent compatible	6910015200
<b>18</b>	Kit, fluorinated liquid trap, drain tube with integrated float and magnet	9910105800
<b>22</b>	O-ring spray chamber, nitrile	6910037000
<b>22</b>	O-ring spray chamber, organic solvent compatible	6910036800
<b>23</b>	O-ring burner base, nitrile, for aqueous solutions	6910010500
<b>23</b>	O-ring burner base, organic solvent compatible	6910013100

## Nebulizer Components for Mark 7 Spray Chamber

Item	Description	Part No.
<b>3</b>	Spray chamber mounting screw	1510226600
<b>4</b>	Nebulizer block, fluorinated (excludes integrated nebulizer and spray chamber mounting screws)	9910093100
<b>5</b>	Clamp bead adjuster	810133400
<b>6</b>	Screw bead adjuster	1510225000
<b>8</b>	Nebulizer capillary guide	810134400
<b>9</b>	Kit, fluorinated liquid trap, drain tube with integrated float and magnet	9910105800
<b>10</b>	Venturi nebulizer, PEEK	1610117390
<b>12</b>	Clamp bush guide	810134300
<b>13</b>	Screw nebulizer capillary adjuster, 1/pk	1510226800
<b>14</b>	Lock nut for nebulizer adjuster M12 x 0.5, 1/pk	1510226700
<b>15</b>	Bearing bush nebulizer	310046600
<b>16</b>	Locking screw M8, bead adjuster, 1/pk	1510226000
<b>17</b>	Impact bead securing screw M6 x 6LG, 1/pk	1510226500
<b>18</b>	Kit, fluorinated liquid trap, drain tube with integrated float and magnet	9910105800
<b>20</b>	Nebulizer spring	4610017400
<b>21</b>	O-ring screw bead adjuster, nitrile	6910000100
<b>21</b>	O-ring screw bead adjuster, organic solvent compatible	6910036900
<b>24</b>	O-ring, 1/32 inch id x 3/32 inch od x 1/32 inch, nitrile	6910009700
<b>25</b>	O-ring, 3/16 inch id x 5/16 inch od x 1/16 inch, nitrile	6910009800
<b>25</b>	O-ring, 3/16 inch id x 5/16 inch od x 1/16 inch, organic solvent compatible	6910013600
<b>26</b>	Nebulizer capillary kit Includes capillary assembly, capillary guide, nebulizer spring, nebulizer cleaning wire, Hi-Vac capillary tubing, and standard capillary tubing	9910093000
	Glass impact beads, 5/pk	9910025700
	PTFE impact beads, for use with HF digests, 5/pk	9910053300
	Mark 7 O-ring kit, for aqueous samples	9910093400
	Mark 7 O-ring kit, for organic solvents	9910093500
	Drain tubing for aqueous solutions, per m, 2 m required	3710009200
	Drain tubing for organic solvents, nitrile rubber, per m, 2 m required	3710011700
	Venturi extraction tool	7210027700
	Nebulizer capillary extraction tool	7210027600
	Stand for Mark V, VI, and 7 spray chambers	9910049800

## Tips and tools

Store a spare set of compatible O-rings, glass impact beads, and nebulizer springs for the spray chamber. During routine maintenance, replace O-rings if they are visibly worn or cracked, and change the glass impact bead if the surface of the bead is worn or pitted.



Mark 7 atomization system operating kit for flame AA, 190034100

## Mark 7 flame atomization system operating kit

Typical operation supplies required for moderate use of flame atomic absorption spectrometer systems with Agilent Mark 7 spray chamber.

### Mark 7 Flame Atomization System Operating Kit

Description	Kit Quantity	Unit	Part No.
Mark 7 operating supplies kit			190034100
Kit contents			
Venturi nebulizer, PEEK	1	1	1610117390
Nebulizer capillary kit Includes capillary assembly, capillary guide, nebulizer spring, nebulizer cleaning wire, Hi-Vac capillary tubing, and standard capillary tubing	1		9910093000
Nebulizer block, fluorinated (excludes integrated nebulizer and spray chamber mounting screws)	1		9910093100
Glass impact beads	1	5/pk	9910025700
High solids capillary tubing, 3 m	1		9910024800
Mark 7 O-ring kit, for aqueous samples	1	1/pk	9910093400
Mixing paddles, fluorinated	1	5/pk	9910093600
Burner cleaning and alignment cards	1	100/pk	9910053900



Mark 7 air-acetylene burner, 210164000

## Burners

The Agilent Mark 7 burner is designed to provide a more stable flame with improved resistance to salt and carbon buildup. This translates into longer running times and better productivity. The Mark 7 burner fits all current Agilent flame AA instruments and the earlier SpectrAA series instruments, and is compatible with the Mark V, VI, and 7 spray chambers.

### Burners

Description	Part No.
Mark 7 air-acetylene burner	210164000
Mark 7 nitrous oxide-acetylene burner	210164100
Burner cleaning and alignment cards, 100/pk	9910053900



Mark 7 nitrous oxide-acetylene burner, 210164100

## Nebulizer and Nebulizer Maintenance

Description	Kit Contents	Use With	Part No.
Nebulizer capillary kit	Includes capillary assembly, capillary guide, nebulizer spring, nebulizer cleaning wire, Hi-Vac capillary tubing, and standard capillary tubing	Mark 7 spray chamber	9910093000
High solids capillary tubing, 3 m		Mark V, VI, and 7 spray chambers	9910024800
High vacuum capillary tubing, 3/pk		Mark V, VI, and 7 spray chambers	9910044000
Nebulizer cleaning wire, 3 x 0.3 m		Mark V, VI, and 7 spray chambers	9910024700
Nebulizer O-ring kit		Barrel nebulizers	9910035200
Barrel nebulizer, high vacuum		Mark V and VI spray chambers	9910043700
Spare Venturi kit, PEEK	Includes PEEK Venturi, O-rings, nebulizer spring, nebulizer tool, and instructions	Mark V and VI spray chambers	9910024400
Pt/Ir capillary spares kit	Includes capillary assembly, capillary guide, nebulizer spring, nebulizer tool, nebulizer cleaning wire, Hi-Vac capillary tubing, and standard capillary tubing	Mark V and VI spray chambers	9910024500



Capillary spares kit, 9910093000



High solids capillary tubing, 9910024800



High vacuum capillary tubing, 9910044000

## Impact Beads

Description	Use With	Unit	Part No.
Glass impact beads, 5/pk	Mark V, VI, and 7 spray chambers	5/pk	9910025700
PTFE impact beads, for use with HF digests, 5/pk	Mark V, VI, and 7 spray chambers	5/pk	9910053300



Glass impact beads, 9910025700



PTFE impact beads, 9910053300



Nebulizer cleaning wire, 9910024700

## Tips and tools

When replacing the glass impact bead, ensure the adjusting screw is turned fully clockwise before fitting the bead. This helps to avoid damaging it. Then tighten the locking screw.



SIPS 20 Sample Introduction Pump System for flame AA

## SIPS 10/20 supplies

The Sample Introduction Pump System (SIPS) is an innovative sample introduction and dilution system for flame AA that eliminates the task of manually preparing multiple calibration standards, providing fast, accurate online dilution of over-range samples.

### SIPS 10/20 Operating Supplies Kit

Description	Kit Contents	Part No.
SIPS 10/20 operating supplies kit	Includes 2 constant pressure head bottles, 500 mL (110533590), 1 L diluent bottle (6610014600), SIPS 3-way tee-piece assembly for SIPS 20 (110585790), SIPS pump tubing, 6/pk (9910075900), SIPS tubing kit (9910076100) and SIPS pump bands, 10/pk (9910077600)	190025400



SIPS 10/20 pump tubing, 9910075900

### SIPS 10/20 Maintenance Supplies

Description	Part No.
Peristaltic pump tubing, orange/orange, 6/pk	9910075900
Tubing kit for SIPS 10/20, to connect constant pressure head bottle to tee-piece	9910076100
Constant pressure head bottle, rectangular, 1 L	110766690
Constant pressure head bottle, rectangular, 500 mL	110533590
Pump bands, 10/pk	9910077600
SIPS 10 2-way tee-piece assembly	110651090
SIPS 20 3-way tee-piece assembly	110585790



Constant pressure head bottle, rectangular, 110533590



Pump bands, 9910077600

### Tips and tools

The best way to clean the burner is to polish the inside of the burner slot using the burner cleaning strips and a liquid metal polish. Then, clean the outside of the burner slot with a clean rag. After this, sonicate for a few minutes in a detergent solution, rinse, and dry. Ensure the burner is dry before refitting and igniting the flame.



SIPS 20 3-way tee-piece assembly, 110585790

## VGA 77 supplies

The Agilent VGA 77 Vapor Generation Accessory (VGA 77) is ideal for  $\mu\text{g/L}$  determination of Hg and hydride-forming elements.

### Operating Supplies Kit

Description	Kit Contents	Part No.
VGA 77 operating supplies kit	Includes 2 tubes and connectors (9910061900), 2 packs of pump tubes, black/black, 12/pk (3710027200), 2 packs of pump tubes, purple/black, 12/pk (3710027300), pump bed kit (9910050700), gas liquid separator (9910071100), mercury flow-through cell (9910040700), 2 boxes of hydride absorption cells (9910040000), and a spare plumbing module (9910062100)	190025200

### Hydride Modules\*

Description	Part No.
AA hydride module VGA 77	9910062100
ICP hydride module VGA 77P	9910062200

\*A separate hydride module should be used exclusively for Hg determinations to reduce cross contamination.

### Absorption Cells

Description	Use With	Part No.
Flow-through mercury absorption cell, single cell	VGA 76/77	9910040700
Hydride absorption cells, quartz, 2/pk	VGA 76/77	9910040000

### Tubing

Description	Kit Contents	Use With	Part No.
Peristaltic pump tubing for reagent, black/black tabs, 12/pk		VGA 76/77	3710027200
Peristaltic pump tubing for sample, purple/black tabs, 12/pk		VGA 76/77	3710027300
Tubing and connector kit	Includes 1 sample and 2 reagent peristaltic pump tubes, inlet tubing for sample and reagents (3 x 0.4 m), connectors, acid-resistant connecting tubing, gas inlet tubing to gas-liquid separator, reaction coil, and O-ring strap to secure gas-liquid separator	VGA 77 for AA	9910061900

(continued)



VGA 77



AA hydride module VGA 77,  
9910062100



Flow-through mercury absorption cell,  
9910040700



Hydride absorption cells, quartz,  
9910040000



Tubing and connector kit,  
9910061900



Transfer tubing, VGA 76/77,  
3710026390



Pump tube beds kit,  
9910050700



Gas-liquid separator for AAS,  
9910071100



Gas-liquid separator for ICP-OES,  
9910062000

## Tubing

Description	Kit Contents	Use With	Part No.
Tubing and connector kit	Includes 2 sample and 2 reagent peristaltic pump tubes, inlet tubing for sample and reagents, (3 x 0.4 m), connectors, acid-resistant connecting tubing, gas inlet tubing to gas-liquid separator, reaction coil, and O-ring strap to secure gas-liquid separator	VGA 77 for ICP	9910061800
Drain tubing for aqueous solutions, per m, 2 m required		VGA 76/77	3710009200
Transfer tubing Gas-liquid separator to absorption cell		VGA 76/77	3710026390
Tubing and connector kit	Includes 1 sample and 2 reagent peristaltic pump tubes, inlet tubing for sample and reagents, (3 x 0.4 m), connectors, acid-resistant connecting tubing, gas inlet tubing to gas-liquid separator, and reaction coil	VGA 76	9910039900

## VGA 76/77 Miscellaneous Supplies

Description	Part No.
Reagent vessel, cap, high density polyethylene, square, 500 mL	6610011600
Pump tube beds kit	9910050700
VGA cell support for Mark 7 burner	110654990
VGA cell support for Mark VI burner	110375990
O-ring strap to secure gas-liquid separator	6910018900
Bracket to mount VGA 77 onto the 700 series ICP-OES	410427590
Spare thumbscrews to secure VGA 77 mounting bracket to 700 series ICP-OES (4 required)	1510267900

## Reagents for VGA 76/77 Operation

Description	Part No.
Sodium tetrahydroborate, 500 g	8210029100

## Gas-liquid Separators

Description	Use With	Part No.
Gas-liquid separator	VGA 77 for AA	9910071100
	VGA 77 for ICP	9910062000
	VGA 76 for AA	9910040200



## Graphite furnace parts and supplies

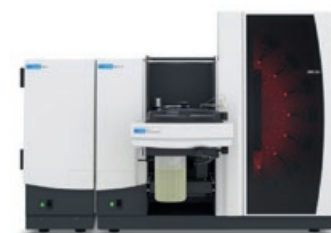
Maximize your uptime by keeping one of these kits handy.

### Kit for GTA 120 Furnace System

Description		Part No.	
GTA 120 deuterium furnace operating supplies kit		190067900	
Kit contents	Kit quantity	Unit	Part no.
Graphite electrodes For GTA 120	2	1 pair	6310003400
Graphite shroud for GTA 120	1		6310003100
Omega platform tubes, pyrolytically coated	5	10/pk	6310003700
Syringe, 100 $\mu$ L	1	1/pk	4710003200
Capillary assembly	1	5/pk	9910115100
Plastic beakers, low-density polyethylene, 10 mL	1	5/pk	9910115600
Autosampler cups, 2.0 mL conical, polyethylene	1	1,000/pk	9910028200

### Kit for GTA 120 Zeeman Furnace System

Description		Part No.	
GTA 120 Zeeman furnace operating supplies kit		190068000	
Kit contents	Kit quantity	Unit	Part no.
Graphite electrodes for GTA 120 Zeeman	2	1 pair	6310003500
Graphite shroud for GTA 120 Zeeman	1		6310003600
Omega platform tubes, pyrolytically coated	5	10/pk	6310003700
Syringe, 100 $\mu$ L	1	1/pk	4710003200
Capillary assembly	1	5/pk	9910115100
Plastic beakers, low-density polyethylene, 10 mL	1	5/pk	9910115600
Autosampler cups, conical, polyethylene, 2.0 mL	1	1,000/pk	9910028200



280Z dedicated Zeeman graphite furnace atomic absorption spectrometer



GTA 120 deuterium furnace operating supplies kit, 190067900



Graphite shroud for GTA 120, 6310003100



GTA 110 deuterium furnace operating supplies kit, 190024900

## Kits for GTA 100/GTA 110 Furnace Systems

Description	Part No.		
GTA 110 deuterium furnace operating supplies kit	190024900		
GTA 110 Zeeman furnace operating supplies kit	190025000		
Kit contents	Kit quantity	Unit	Part no.
Omega platform tubes, pyrolytically coated	5	10/pk	6310003700
Syringe, 100 $\mu$ L	1	1/pk	4710002300
Plunger for 100 $\mu$ L syringe, PTFE-tipped	1	1/pk	4710003100
Capillary assembly	1	5/pk	9910032300
Glass beakers, 25 mL	1	5/pk	6610008200
Autosampler cups, 2.0 mL conical, polyethylene	1	1,000/pk	9910028200
<b>And</b>			
Graphite electrodes for GTA 95/96/97/100/110	2	1 pair	6310001600
<b>Or</b>			
Graphite electrodes for GTA 96/100/110 Zeeman	2	1 pair	6310001700

## Tips and tools

10 and 100  $\mu$ g/mL standards are ideal for GFAAS, ICP-MS, or other trace-level elemental techniques.

## Graphite tubes and platforms

Graphite tubes are quality tested to ensure each batch passes our demanding performance specifications for contamination, sensitivity, precision, electrical resistance, and lifetime.

Use partitioned tubes for general-purpose work and when you need the best detection limits with samples that have low background. These are also ideal for measuring organic solutions, or samples with low viscosity that may spread throughout the tube, potentially degrading precision.

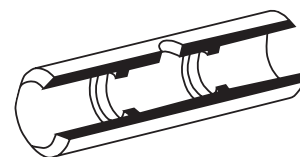
Omega platform tubes combine ease-of-use with excellent atomization. The integrated platform ensures an ideal thermal profile to produce dense atom clouds for good signal-to-noise ratios and the best detection limits.

The combination of solid pyrolytic platforms and plateau tubes provides continuity with older methods, and gives the best platform effect. This ensures great performance with samples that have high background or interferences. Operator skill is required for best results.

- High-purity graphite reduces spurious absorption from trace contaminants and improves signal-to-noise ratio
- Every tube is individually tested for reproducible and reliable results
- Perform fewer repeats and increase productivity

### Graphite Tubes and Platforms

Description	Unit	Part No.
Partitioned tubes, pyrolytically coated	10/pk	6310001200
Omega platform tubes, pyrolytically coated	10/pk	6310003700
Solid pyrolytic graphite platforms Only for use with plateau tubes (p/n 6310001100)	10/pk	6310001300
Plateau tubes, pyrolytically coated Only for use with pyrolytic platforms (p/n 6310001300)	10/pk	6310001100



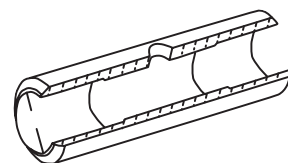
Partitioned tube,  
6310001200



Omega platform tube,  
6310003700



Solid pyrolytic graphite platforms,  
6310001300



Plateau tube,  
6310001100



Graphite electrodes for GTA 120,  
6310003400



Graphite electrodes  
for GTA 95/96/97/100/110,  
6310001600



Graphite shroud for GTA 120,  
6310003100



Graphite shroud for GTA 120 Zeeman,  
6310003600

## Graphite electrodes

- Spare electrodes maximize uptime
- Good electrical contact ensures optimum performance and maximizes tube life
- High-purity graphite reduces spurious absorption from trace contaminants and improves signal-to-noise ratio

### Graphite Electrodes

Description	Unit	Part No.
Graphite electrodes For GTA 120	1 pair	6310003400
Graphite electrodes for GTA 120 Zeeman	1 pair	6310003500
Graphite electrodes for GTA 95/96/97/100/110	1 pair	6310001600
Graphite electrodes for GTA 96/100/110 Zeeman	1 pair	6310001700

## Graphite shrouds

### Graphite Shrouds

Description	Part No.
Graphite shroud for GTA 120	6310003100
Graphite shroud for GTA 120 Zeeman	6310003600
Graphite shroud for GTA 95/96/97/100/110	6310001800
Graphite shroud for GTA 96/100/110 Zeeman	6310001900

## Graphite furnace tools

### Graphite Furnace Tools

Description	Part No.
Graphite tube alignment tool	7210034200
Graphite tube removal tool	7210018900
Electrode extractor tool for GTA 96/97/100/110/120, 2 draw bars	9910031200
Shroud removal tool for GTA 96/97/100/110/120	9910033300
Electrode extractor tool for GTA 96/100/110/120 Zeeman, 2 draw bars	9910049300
Shroud removal tool for GTA 96/100/110/120 Zeeman	9910050400



Electrode extractor tool,  
9910031200

### Optional Accessories for Graphite Furnace AAS

Description	Use With	Part No.
GTA viewing and fume extraction accessory Mounts on sample compartment to remove fumes from the GTA workhead and improves viewing of the tube for easier alignment; connects to a 150 mm (6 inch) or 125 mm (5 inch) exhaust duct	GTA 120	210190000
High-capacity carousel kit Includes carousel disk (130 samples), 1.1 mL vials (2,000/pk), and five 10 mL plastic beakers for bulk solutions	GTA 120	9910113100
Bubble-free syringe update kit	PSD 97/100	9910116800



High-capacity carousel kit,  
9910113100



240Z Zeeman graphite furnace AAS,  
shown with the GTA 120 Graphite Tube Atomizer



Glass beakers, 6610008200



Sample vials, 2 mL, 9910028200



Plastic beakers, 9910115600

## Programmable sample dispenser (PSD) supplies (used with graphite furnace AA)

### Spares and Supplies

Description	Use With	Part No.
Sample vials, polyethylene, 1.1 mL, 2,000/pk	PSD 120 high-capacity sample carousel	6610025900
Autosampler cups, 2.0 mL conical, polyethylene, 1,000/pk	PSD 95/96/97/100/120	9910028200
Glass beakers, 25 mL	PSD 95/96/97/100	6610008200
Plastic beakers, low-density polyethylene, 10 mL	PSD 120	9910115600
Rinse bottle, Nalgene, 1 L	PSD 97/100/120	6610012100
Cap for rinse bottle	PSD 97/100/120	1610094600
Capillary assembly, 5/pk	PSD 120	9910115100
	PSD 95/96/97/100	9910032300
Carousel adapters, 5/pk Allows use of 1.1 mL sample vials in the central carousel locations	PSD 120	9910116900
Syringe, 100 $\mu$ L	PSD 120	4710003200
	PSD 95/96/97/100	4710002300
Plunger for 100 $\mu$ L syringe, PTFE-tipped	PSD 96/97/100/110	4710003100
Replacement carousel plate	PSD 100/120	5410056900
Replacement carousel plate for 130-sample carousel	PSD 120	5410046300
Furnace workhead viewing mirror	GTA 110/120	9910091200
Furnace workhead viewing mirror	GTA 96/97/100	9910032700
Screw, knurled, M4, retaining block, 1/pk		1510146800

## ICP-OES Supplies

Agilent is the recognized world leader and innovator in ICP-OES, with thousands of systems installed worldwide. The Agilent 5800/5900 ICP-OES revolutionizes ICP-OES analysis by running your samples more efficiently without compromising on performance, even with your toughest samples. Our ICP range can handle both routine and challenging applications. A choice of sample introduction options and a wide range of performance and productivity enhancing accessories make Agilent systems the fastest and most flexible ICP-OES systems available today. Agilent ICP-OES instruments are compatible with many supplies designed to extend instrument capabilities.



5800 VDV and 5900 SVDV  
ICP-OES spectrometers

### Operating Supplies Kits for 5000 Series Dual View ICP-OES

Description	Kit Contents	Part No.
Operating supplies kit, for 5000 series SVDV/VDV ICP-OES	Includes EasyFit semidemountable torch, outer tube sets (2/pk), white/white peristaltic pump tubes for sample (4/pk) and blue/blue waste (4/pk), tubing and connectors for internal standard, U-series SeaSpray nebulizer, UniFit sample inlet fittings (0.75 mm id), EzyLok gas connectors for nebulizer, double-pass glass cyclonic spray chamber with spare nebulizer seal, UniFit connectors for spray chamber drain, clamp, windows for axial and radial view, capillary tubing for nebulizer, barb connectors (2/pk), and PFA nebulizer gas tubing and drain tubing for spray chamber	G8010-67001
Operating supplies kit, for 5000 series RV ICP-OES	Includes EasyFit semidemountable torch, outer tube sets (2/pk), white/white peristaltic pump tubes for sample (4/pk) and blue/blue waste (4/pk), tubing and connectors for internal standard, U-series SeaSpray nebulizer, UniFit sample inlet fittings (0.75 mm id), EzyLok gas connectors for nebulizer, double-pass glass cyclonic spray chamber with spare nebulizer seal, UniFit connectors for spray chamber drain, clamp, pre-optic window, capillary tubing for nebulizer, barb connectors (2/pk), and PFA nebulizer gas tubing and drain tubing for spray chamber	G8012-67001

### Tips and tools

Solve your ICP-OES challenges with innovative sample introduction components and supplies, certified standards, filtration options to reduce blockage, and maintenance tips to help improve your laboratory performance and sample output. Agilent provides everything you need for a complete ICP-OES solution so you can achieve an improved, trouble-free workflow for maximum productivity.

Visit [www.agilent.com/chem/icp-oes-resource](http://www.agilent.com/chem/icp-oes-resource) to find out more.

## Applications kits

### Spare sample introduction kits for 5000 series ICP-OES

Agilent provides a large selection of convenient ICP-OES application kits to ensure that everything you need is available to run the most challenging samples. Application kits for ketone-based organic samples, semivolatile organic samples, volatile samples, and inert applications where hydrofluoric (HF) acid is used are all offered.

Each application kit includes the correct torch, spray chamber, nebulizer, and peristaltic pump tubing required to run your application.

Features:

- Convenient application kits ensure you have compatible supplies for your application
- Purchasing the kit provides a saving over purchasing the parts individually
- Inert applications kit provides inert sample introduction supplies to be used with samples containing free HF
- Semivolatile organic kit for use with common organic solvents like Agilent A-Solv, kerosene, xylene, and white spirit
- Volatile organic application kits for use with volatile solvents, such as gasoline
- Ketone applications kit for use with ketone-based solvents, including MIBK

#### 5000 Series SVDV/VDV ICP-OES

Description	Kit Contents	Part No.
Inert sample introduction kit, for use with HF digests and high TDS samples	Inert double-pass spray chamber with ball joint socket, OneNeb series 2 nebulizer, inert demountable Easy-fit torch with ceramic injector (1.8 mm id), torch clamp for inert torch, and Solvaflex peristaltic pump tubes for sample (black/black tabs) and waste (gray/gray tabs)	G8010-68007
Ketone-based organic solvent sample introduction kit, for use with ketone-based organic solvents, including MIBK	Double-pass glass cyclonic spray chamber with ball joint socket, Conikal nebulizer, demountable Easy-fit torch with 1.4 mm id injector, solvent-resistant drain tubing, and Marprene peristaltic pump tubes for sample (white/white tabs) and waste (blue/blue tabs)	G8010-68009
Semivolatile organic solvent sample introduction kit, for use with semivolatile organic solvents, including kerosene	Double-pass glass cyclonic spray chamber with ball joint socket, Conikal nebulizer, demountable Easy-fit torch with 1.4 mm id injector, solvent-resistant drain tubing, and Solvaflex peristaltic pump tubes for sample (black/black tabs) and waste (grey/grey tabs)	G8010-68029
Volatile organic solvent sample introduction kit, for use with volatile organic solvents, including gasoline	Conikal nebulizer, demountable Easy-fit torch with 0.8 mm id injector, solvent-resistant drain tubing and FPM peristaltic pump tubes for sample (white/white tabs) and waste (blue/blue tabs). Requires but does <i>not</i> include a cooled spray chamber. The IsoMist peltier cooled spray chamber is recommended.	G8010-68005



DV inert sample introduction kit,  
G8010-68007



DV ketone-based organic solvent sample  
introduction kit, G8010-68009



## 5000 Series RV (Radial) ICP-OES

Description	Kit Contents	Part No.
Inert sample introduction kit, for use with HF digests and high TDS samples	Inert double-pass spray chamber with ball joint socket, OneNeb series 2 nebulizer, inert demountable Easy-fit torch with ceramic injector (1.8 mm id), torch clamp for inert torch, and Solvaflex peristaltic pump tubes for sample (black/black tabs) and waste (gray/gray tabs)	G8010-68006
Ketone-based organic solvent sample introduction kit, for use with ketone-based organic solvents, including MIBK	Double-pass glass cyclonic spray chamber with ball joint socket, Conikal nebulizer, demountable Easy-fit torch with 1.4 mm id injector, solvent resistant drain tubing, and Marprene peristaltic pump tubes for sample (white/white tabs) and waste (blue/blue tabs)	G8010-68008
Semivolatile organic solvent sample introduction kit, for use with semivolatile organic solvents, including kerosene	Double-pass glass cyclonic spray chamber with ball joint socket, Conikal nebulizer, demountable Easy-fit torch with 1.4 mm id injector, solvent resistant drain tubing, and Solvaflex peristaltic pump tubes for sample (black/black tabs) and waste (grey/grey tabs)	G8010-68030
Volatile organic solvent sample introduction kit, for use with volatile organic solvents, including gasoline	Conikal nebulizer, demountable Easy-fit torch with 0.8 mm id injector, solvent resistant drain tubing and FPM peristaltic pump tubes for sample (white/white tabs) and waste (blue/blue tabs). Requires but does <i>not</i> include a cooled spray chamber. The IsoMist peltier cooled spray chamber is recommended.	G8010-68004



RV semivolatile organic solvent sample introduction kit, G8010-68030



RV volatile organic solvent sample introduction kit, G8010-68004

## Tips and tools

To learn more, visit our application kits for ICP-OES:

[www.agilent.com/chem/icpoe-application-kits](http://www.agilent.com/chem/icpoe-application-kits)



One-piece Easy-fit DV torch, G8010-60228



Quartz outer tube set, for 5000 series DV torch, G8010-60263



Easy-fit fully demountable torch, with 2.4 mm id quartz injector, for high TDS samples, G8020-68004



Easy-fit inert semidemountable torch, for HF digests, G8010-60231

## Torches and supplies

The Agilent 5100, 5110, 5800, and 5900 ICP-OES torches come in one-piece, semi and fully demountable designs in radial (RV) and dual-view (DV) configurations. The plug-and-play design automatically aligns the ICP-OES torch and connects the gases for a fast start and reproducible performance.

The ICP-OES vertical torch orientation can measure challenging samples, providing uncompromised, robust measurements with less cleaning and downtime. The new fully demountable torch has a removable injector to simplify maintenance and allow quick changeover for diverse sample matrices.

### Torches

Description	Further Information	Application	Part No.
One-piece torches for 5000 series SVDV/VDV ICP-OES			
One-piece Easy-fit torch (standard DV torch)	Features a 1.8 mm id injector with an extended outer tube and a slot for radial viewing	Routine analysis of aqueous samples with <10% TDS	G8010-60228
Semidemountable torches for 5000 series SVDV/VDV ICP-OES			
Easy-fit semidemountable torch	Features a 1.8 mm id injector with replaceable extended outer tube and a slot for radial viewing	Routine analysis of aqueous samples with <10% TDS	G8010-60236
Easy-fit semidemountable high solids torch	Features a 2.4 mm id injector with replaceable extended outer tube and a slot for radial viewing	Recommended for high TDS samples	G8010-60232
Easy-fit inert semidemountable torch for HF digests	Features a ceramic 1.8 mm id injector with replaceable extended outer tube and a slot for radial viewing	Recommended for HF digests	G8010-60231
Fully demountable torches for 5000 series SVDV/VDV ICP-OES			
Easy-fit fully demountable torch	Features a 1.8 mm id replaceable quartz injector with replaceable extended outer tube and a slot for radial viewing	Routine analysis of aqueous samples with <10% TDS	G8020-68005
Easy-fit fully demountable torch, for semivolatile organic solvents	Features a 1.4 mm id replaceable quartz injector with replaceable extended outer tube and a slot for radial viewing	Routine analysis of semivolatile organic solvents, for example, kerosene, xylene, and white spirit	G8020-68002
Easy-fit fully demountable torch, for HF digests	Features a ceramic 1.8 mm id replaceable injector with replaceable extended outer tube and a slot for radial viewing	Recommended for HF digests	G8020-68003
Easy-fit fully demountable high solids torch	Features a 2.4 mm id replaceable quartz injector with replaceable extended outer tube and a slot for radial viewing	Recommended for high TDS samples	G8020-68004

(continued)

## Torches

Description	Further Information	Application	Part No.
One-piece torches for 5000 series RV (radial) ICP-OES			
One-piece Easy-fit torch (standard RV torch)	Features a 1.4 mm id injector with shorter outer tube (no slot) for dedicated radial viewing		G8012-60000
Semidemountable torches for 5000 series RV (radial) ICP-OES			
Easy-fit semidemountable torch	Features a 1.4 mm id injector with replaceable shorter outer tube (no slot) for dedicated radial viewing		G8010-60237
Easy-fit inert semidemountable torch, for HF digests	Features a ceramic 1.8 mm id injector with replaceable shorter outer tube (no slot) for radial viewing. Supplied with ball joint connection for torch base.	Recommended for HF digests	G8010-60234
Fully demountable torches for 5000 series RV (radial) ICP-OES			
Easy-fit fully demountable RV torch for semivolatil organic solvents	Features a 1.4 mm id replaceable quartz injector with replaceable shorter (high-purity quartz) outer tube for organic applications for dedicated (no slot) radial viewing	Routine analysis of semivolatil organic solvents, for example, kerosene, xylene, and white spirit	G8020-68007
Easy-fit fully demountable RV torch for volatile organic solvents	Features a 0.8 mm id replaceable quartz injector with replaceable shorter (high-purity quartz) outer tube for organic applications for dedicated (no slot) radial viewing	Routine analysis of volatile organic solvents, for example, gasoline	G8020-68001



One-piece Easy-fit RV torch, G8012-60000



Easy-fit fully demountable torch, with 0.8 mm id quartz injector, for volatile solvents, G8020-68001

## Injectors for 5000 Series ICP-OES Fully Demountable Torch

Description	Further Information	Part No.
Quartz injector, 0.8 mm, for 5000 series ICP-OES fully demountable torch	Recommended for routine analysis of volatile organic solvents, such as gasoline	G8020-60805
Quartz injector, 1.4 mm, for 5000 series ICP-OES fully demountable torch	Recommended for routine analysis of semivolatil organic solvents, such as kerosene and xylene	G8020-60806
Quartz injector, 1.8 mm, for 5000 series ICP-OES fully demountable torch	Recommended for routine analysis of aqueous and acidic digest samples	G8020-60807
Alumina injector, 1.8 mm, for 5000 series ICP-OES fully demountable torch	Recommended for routine analysis of samples containing hydrofluoric (HF) acid	G8020-60809
Quartz injector, 2.4 mm, for 5000 series ICP-OES fully demountable torch	Recommended for routine analysis of high total dissolved solids (TDS) samples (up to 35% TDS)	G8020-60808



Fully demountable torch for 5000 series ICP-OES with all five available removable injectors



Organics tube set for RV ICP-OES, G8016-60000



Torch clamp, G8000-64140



Top seal for semi and fully demountable torches, G8014-60023



Torch cleaning stand, for 5000 series ICP-OES torches, G8010-68021

## Outer Tube Sets for the 5000 Series Semi and Fully Demountable ICP-OES Torches

Description	Further Information	Part No.
Standard quartz outer tube set for radial view (RV) torches	For use with standard aqueous samples. Includes intermediate tube (integrated into assembly) with top seal.	G8010-60264
Standard quartz outer tube set for dual view (VDV/SVDV) torches	For use with standard aqueous samples. Includes intermediate tube (integrated into assembly) with top seal.	G8010-60263
High-purity quartz outer tube set for radial view (RV) torches	For use with organic solvents. Includes intermediate tube (integrated into assembly) with top seal.	G8016-60000
High-purity quartz outer tube set for dual view (VDV/SVDV) torches	For use with organic solvents. Includes intermediate tube (integrated into assembly) with top seal.	G8016-60022

## 5000 Series Dual View ICP-OES Torch Supplies

Description	Further Information	Part No.
Torch clamp	Secures ball joint socket between spray chamber and torch on 5000 series ICP-OES	G8000-64140
Top seal for semi and fully demountable torches	3 top seals per pack	G8014-60023
Injector locking nut, for fully demountable torch	Secures the injector in the torch base	G8020-60810
Torch cleaning stand for 5000 series ICP-OES torches	Provides a stable platform that allows either the whole torch or the injector/base assembly to be suspended in the cleaning solution	G8010-68021
Storage rack for torches used with 5000 series ICP-OES	Provides a convenient way to store up to five 5000 series DV/RV ICP-OES torches after cleaning	G8010-67000

## Miscellaneous Supplies for 5000 Series Dual View ICP-OES

Description	Part No.
Work coil assembly, copper-plated, standard coil for the 5800/5900 DV ICP-OES. Optional for the 5100/5110 DV ICP-OES.	G8020-68017
Work coil assembly, gold-plated, for 5100/5110 DV ICP-OES	G8010-68103
Strainer, for cooling water	G1833-67024
Replacement glass, quartz, for the axial view pre-optics window	G8010-68014
O-ring, for the axial view pre-optics window	G8010-68018
Replacement glass, calcium fluoride, for the radial view pre-optics window	G8010-68015
Finger nut, for cone	1510220200
Pre-optics cone, for 5000 series SVDV/VDV ICP-OES	G8010-68109

## Torches for 700 series, Vista series, and Liberty ICP-OES

### One-Piece Axial Torches

Description	Application	Part No.
Torch, low-flow, quartz, 2.4 mm id injector tube	Routine analysis of aqueous samples <10% TDS	2010090400
Torch, low-flow, quartz, 0.8 mm id injector tube	Routine analysis of volatile organic solvents, for example, gasoline	2010104700
Torch, low-flow, quartz, 1.4 mm id injector tube	Routine analysis of organic solvents, for example, kerosene, xylene, and white spirit	2010104800
High solids torch with Agilent injector design, 2.4 mm id	Routine analysis of samples to 25% TDS	2010094800
Extended length high solids torch with Agilent injector design, 2.4 mm id	Routine analysis of samples to 25% TDS	2010104600
Sheath gas high solids torch with Agilent injector design, 2.4 mm id, used with the AGM 1 oxygen addition accessory for better performance than the extended high solids torch	Routine analysis of samples to 25% TDS	2010122400

### One-Piece Radial Torches

Description	Application	Part No.
Torch, low-flow, quartz, 1.4 mm id injector tube	Routine analysis of aqueous samples <10% TDS	2010069690
Torch, low-flow, quartz, 0.8 mm id injector tube, annealed for greater strength	Routine analysis of volatile organic solvents, for example, gasoline	2010117400
Torch, low-flow, quartz, 1.4 mm id injector tube, annealed for greater strength	Routine analysis of organic solvents, for example, kerosene, xylene, and white spirit	2010117500
Torch, high-solids, 1.8 mm id, for radial ICP, Agilent injector design	Routine analysis of samples to 25% TDS	2010095000



Low-flow axial quartz torch with 2.4 mm id injector tube, 2010090400



High solids axial torch with Agilent injector design, 2010094800



Sheath gas high solids torch for axial ICP, 2010122400



Low-flow quartz torch for radial ICP, 2010069690



High solids torch with Agilent injector design for radial ICP, 2010095000



Spare quartz torch bonnet,  
2010070790



Transfer tube FEP for axial ICP,  
7910051590



Pre-optics cone for Vista/700 series  
axial ICP-OES, 3610007300



Semidemountable inert axial torch  
assembly kit, 9910084700



Semidemountable inert radial torch  
assembly kit, 10056800



Fully demountable axial torch  
assembly kit, 9910106300



Fully demountable radial torch  
assembly kit, 9910106400

## Torch Spares

Description	Part No.
Spare quartz torch bonnet, for radial ICP-OES	2010070790
Transfer tube FEP cyclone spray chamber, for radial ICP	7910051290
GazFit fitting, 8 mm id, for ICP-OES torches, 2/pk	CP959924
Transfer tube FEP Sturman-Masters spray chamber, for radial ICP	7910051490
GazFit fitting, 6 mm id, for one-piece and semidemountable ICP-OES torches, 4/pk	9910107100
Transfer tube FEP, for axial ICP (suitable for cyclone and Sturman-Masters spray chambers)	7910051590
Silicon pump tubing, 3/16 inch id, 5/16 inch od, per m	2410023800
Connects the torch plasma and auxiliary gas lines to the argon supply with the 700 series, Vista series, and Liberty ICP-OES	
Tubing, 1/4 inch id, 3/8 inch od, per m	3710033400

## Cones for Dual View and Axial ICP-OES

Description	Part No.
Pre-optics cone, for Vista/700 series axial ICP-OES	3610007300
Pre-optics cone, for Liberty series axial ICP-OES	3610006200
Estele cleaning powder, for cleaning interface cone on axially viewed ICP-OES	8110002800

## Semidemountable and Fully Demountable Torches

Description	Further Information	Part No.
Semidemountable inert axial torch assembly kit	Also requires 1 m length of transfer tubing to connect the spray chamber to the torch (p/n 3710033400)	9910084700*
Semidemountable inert radial torch assembly kit	Also requires 1 m length of transfer tubing to connect the spray chamber to the torch (p/n 3710033400)	9910056800*
Fully demountable axial torch assembly kit	Includes torch and bracket kit	9910106300
Fully demountable radial torch assembly kit	Includes torch and bracket kit	9910106400

\*Application: Samples with free HF when used with an inert alumina injector (p/n 2410067590); for volatile organic solvents, use narrow bore 0.8 mm id quartz injector (p/n 2010077500)

### Spares for Semidemountable Torches

Description	Part No.
Spare semidemountable quartz torch body, for axial ICP-OES	2010083400
Spare semidemountable quartz torch body, for radial ICP-OES	2010072900
Injector holder kit, with O-rings	9910057300
Alumina injector tube, 1.8 mm id	2410067590
Quartz injector tube, 1.8 mm id, 3/pk	9910057000
Quartz injector tube, 0.8 mm id	2010077500



Spare semidemountable quartz torch body, 2010072900



Injector holder kit, 9910057300

### Spares for Fully Demountable Torches

Description	Part No.
Spare fully demountable axial torch body	7910044400
Spare fully demountable radial torch body	7910044500
Quartz outer tube, axial	2010095200
Quartz outer tube for high solids, axial	2010120300
Quartz intermediate tube, axial and radial	2010095300
Quartz outer tube, radial	2010095500
Ceramic outer tube, radial	2010095800
O-ring kit	9910108200
Alumina injector, tapered, 1.8 mm id, axial or radial	2010095900
Quartz injector, tapered, 1.8 mm id, axial or radial	2010101800
Quartz injector, 1.0 mm id, radial	2010096000
Quartz injector, 1.5 mm id, radial	2010095600
Quartz injector, 2.4 mm id, axial	2010095400
Ceramic injector, 2.4 mm id, axial or radial	2010101700



Spare fully demountable radial torch body, 7910044500



Quartz intermediate tube, axial and radial, 2010095300



Alumina injector, 1.8 mm id, axial or radial, 2010095900



Quartz outer tube, radial, 2010095500



Quartz injector tube, 0.8 mm id, 2010077500



Alumina injector tube, 1.8 mm, 2410067590



## Spray Chambers and Accessories

Agilent has a wide range of spray chambers compatible with your Agilent ICP-OES. Glass and inert spray chambers are available in both single and double-pass configurations to meet the needs of any sample matrix.

The Agilent inert spray chamber has a permanently treated sandblasted finish for optimum drainage and continuous accurate performance. The inert spray chamber also features a removable baffle, allowing both single-pass operation for increased sensitivity and double-pass operation for difficult, high-solid matrices.

### Spray Chambers and Accessories for 5000 Series ICP-OES

Description	Use With	Further Information	Part No.
Double-pass glass cyclonic spray chamber with ball joint outlet, for 5000 series ICP-OES	For use with organic solvents, high matrix, or high TDS samples	Includes Helix nebulizer seal and UniFit drain outlet	G8010-60256
Single-pass glass cyclonic spray chamber with ball joint outlet, for 5000 series ICP-OES	For use with aqueous and low matrix samples, where best sensitivity and lowest LODs are required	Includes Helix nebulizer seal and UniFit drain outlet	G8010-60271
Inert spray chamber, for 5000 series ICP-OES and MP-AES	For use with HF digests, high TDS, and wear metal samples	Double-pass design with removable baffle and ball joint outlet	G8014-68002
UniFit drain connector, for 5000 series ICP-OES spray chamber, 2.0 mm od, 0.86 mm id, 480 mm capillary tubing, 3/pk	Connects the peristaltic pump tubing for the waste line to the spray chamber outlet		G8010-80036
Drain connector, 10/32UNF to Luer slip, for inert spray chamber	Drain connector fitting for inert spray chamber (G8014-68002).	Includes O-ring and Luer slip connector	G8014-68007
Replacement baffle (internal), for inert spray chamber	Inert spray chamber (G8014-68002)		G8014-20002
O-ring kit, for inert spray chamber	Inert spray chamber (G8014-68002)	Includes 3 replacement O-rings	G8014-68005



Inert spray chamber for 5000 series ICP-OES and MP-AES, G8014-68002



Double-pass glass cyclonic spray chamber with ball joint outlet, for 5000 series ICP-OES, G8010-60256



O-ring kit for inert spray chamber, G8014-68005

### Tips and tools

Skipping sample filtration can lead to significant downtime if large particles become trapped in the sample uptake tubing, nebulizer, or injector.

Agilent Captiva premium syringe filters are available in a wide range of sizes, formats, and membranes. With the industry's highest flow rates and loading capacities, they make the filtration process faster than ever.

Visit [www.agilent.com/chem/captiva](http://www.agilent.com/chem/captiva) to find out more.



### Spray Chambers and Brackets for 700 Series, Vista Series, and Liberty ICP-OES

Description	Use With	Further Information	Part No.
Double-pass glass cyclonic spray chamber, suitable for 700 series and Liberty ICP-OES	Organic solvents and high matrix or high TDS samples	Needs mounting bracket	7910043700
Inert spray chamber for ICP-OES, with double-pass design, including removable baffle and ball joint outlet	For use with HF digests, high TDS, and wear metal samples	Requires mounting bracket (G8460-68001)	G8014-68002
Single-pass glass cyclonic spray chamber, for 700 series and Liberty ICP-OES	Routine aqueous samples where best signal-to-noise performance is required	Needs mounting bracket	2010081700
Cooled double-pass glass cyclonic action spray chamber, with cooling gallery	Ideal for use with highly volatile organic solvents	Includes mounting bracket for Liberty series I/II, Vista, and 700 series ICP-OES instruments; requires, but does not include, a refrigerated water recirculator for subambient operation	9910070400
Bracket for mounting glass cyclonic spray chambers	715/725/735 radial, Vista-PRO radial and early axial, Vista-MPX radial, and Liberty series II radial and early axial models		110611700
	710/720/730 axial, Vista-PRO axial, Vista-MPX axial, and Liberty series II axial models		110665200
Bracket for mounting inert spray chamber	Adapter kit to fit inert spray chamber (G8014-68002) for the Agilent 700, Vista, and Liberty series ICP-OES	Includes mounting bracket and a ball joint adapter that connects to the FEP transfer tube	G8460-68001
Bracket for mounting MSIS with axial and radial ICP	All 700 series axial and radial models		110868000
O-ring for nebulizer inlet of single- and double-pass cyclonic spray chamber			6910001200



Double-pass glass cyclonic spray chamber, 7910043700



Inert spray chamber with removable baffle, G8014-68002



Multimode Sample Introduction System (MSIS)

## Multimode Sample Introduction System (MSIS)

The MSIS provides simultaneous vapor generation of environmentally sensitive elements such as As, Se, and Hg with low µg/L detection limits. It offers better performance than conventional nebulization through thin film hydride technology, while giving users a choice of three modes that eliminate changeover and allow routine and hydride elements to be determined using the same setup.

For best performance when determining environmentally sensitive elements, we recommend using the conventional vapor generation technique with the VGA 77.

### Multimode Sample Introduction System (MSIS)

Description	Part No.
Multimode Sample Introduction System (MSIS)	G8000-63003

### MSIS Accessory Kits for 700 and Vista Series ICP-OES

Description	Part No.
Accessory kit to adapt the MSIS, for use with axial ICP-OES	G8479-68000
Accessory kit to adapt the MSIS, for use with radial ICP-OES	G8479-68001

Each kit includes a mounting bracket with screws and washers, a glass transfer tube with ball joint connection, clamps for the ball joint, and a torch with ball joint connection.



Externally mounted argon filter for 5000 series dual view ICP-OES, for polychromator gas supply, G8010-60136

### Argon Gas and Air Filters

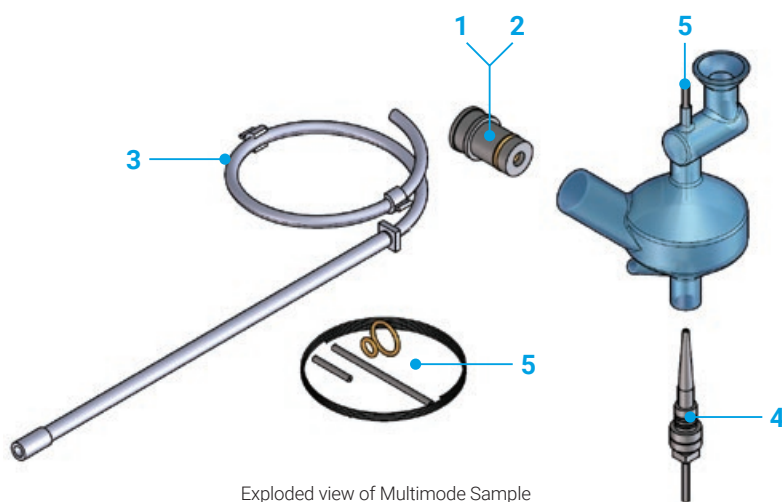
Description	Part No.
Filters for 5000 series dual view ICP-OES	
Filter element for the cooling air inlet on the 5800/5900 ICP-OES	G8020-68016
Argon gas inlet filter (requires annual replacement, customer replaceable)	G8010-60136
Inlet cooling air filter, for 5100/5110 ICP-OES	G8000-68002
Replacement filter element, for the cooling air inlet on 5100/5110 ICP-OES systems, fitted with the "dusty environment air inlet filter" option	G8010-60189
Filters for 700 and Vista series ICP-OES	
Small argon filter, charcoal, for detector gas purge line	6810008600
Drierite filter, for detector gas purge line	6810008700
Large argon filter, charcoal, externally mounted, for polychromator gas purge line	6810010000



Filter element for the 5800/5900 ICP-OES cooling air inlet, G8020-68016

## MSIS Supplies

Description	Further Information	Part No.
MSIS supplies to support routine operation		
Peristaltic pump tubing, black/black, 12/pk	Required to pump reagents to MSIS	3710027200
Peristaltic pump tubing, black/white, 12/pk	Required to pump waste from MSIS	3710068900
MSIS nebulizer bushing	Includes O-rings	G8479-20020
O-rings for MSIS nebulizer bushing	Includes one pair of replacement O-rings for the nebulizer bushing (one internal and one external O-ring)	G8479-67000
MSIS drain tube assembly	Includes 0.2 m length of 1/8 inch id drain tubing, with bushing for waste outlet, plus barb adapter and a single peri-pump tube, 2 bridged PVC with black/white tabs	G8479-60100
MSIS reaction cone assembly	Includes reaction cone, bushing, threaded barb adapter, and tubing connector for sample inlet	G8479-60300
MSIS reagent tubing kit	Includes O-rings for nebulizer bushing (one pair), tubing connectors for reagent/sample inlets, and capillary tubing (0.01 inch id by 0.03 inch od) to join to peristaltic pump tubing for reductant inlet	G8479-68100
MSIS supplies for 700 and Vista series ICP-OES		
Torch, one piece, for axial ICP	Features ball joint sample inlet and 2.3 mm id injector	7910050700
Glass transfer tube, for axial ICP	Links to torch with ball joint sample inlet Includes retaining clamp	7910052800
Torch, one piece, for radial ICP	Features ball joint sample inlet and 1.4 mm id injector	7910052900
Glass transfer tube, for radial ICP	Links to torch with ball joint sample inlet Includes retaining clamp	7910052700
Bracket, for mounting MSIS with axial and radial ICP		110868000



Exploded view of Multimode Sample Introduction System (MSIS)

- 1 p/n G8479-20020
- 2 p/n G8479-67000
- 3 p/n G8479-60100
- 4 p/n G8479-60300
- 5 p/n G8479-68100



## IsoMist temperature-controlled spray chamber

The Agilent IsoMist temperature-controlled spray chamber accurately controls the temperature of the sample introduction system. This delivers excellent long-term stability for even the most difficult matrices, including volatile organic solvents and viscous oil samples.

The programmed temperature is controlled using a Peltier device, offering the ability to either heat or cool the sample introduction system and maintain a stable temperature.

### Supplies for IsoMist (RoL Configuration), Used with ICP-OES

Description	Further Information	Part No.
PuraFlex transfer tube for IsoMist used with Agilent 5000 series ICP-OES	Connects the aerosol outlet from the IsoMist to the Easy-fit ICP-OES torch	G8010-68011
ICP spray chamber, Twister style encapsulated for IsoMist	Twister style (double-pass) glass cyclonic with thermal conductive polymer encapsulation, for use with IsoMist for 5000 series ICP-OES (RoL configuration). Will not fit the IsoMist for the 4200/4210 MP-AES.	G8010-68024
Drain fitting, right-angle, UniFit, 3/pk	For waste outlet of IsoMist spray chamber	G8010-68023



Real stories from the lab

## True Story 82

Clearing the air

### Clearing the air

Workers in an environmental lab complained of headaches. A CrossLab engineer troubleshooted and fixed the problem, creating a safer lab environment and improved performance.

[www.agilent.com/chem/story82](http://www.agilent.com/chem/story82)

Agilent  
**CrossLab**  
From Insight to Outcome

## Nebulizers and accessories

Agilent nebulizers and accessories have tight specifications for delivering fine droplets for the best signal intensity and optimum signal-to-noise. The SeaSpray glass concentric nebulizer comes as standard on all ICP-OES instruments, with high nebulization efficiency for trace-level analyses and good TDS handling capabilities. The Conikal nebulizer is an optional glass concentric nebulizer recommended for routine analysis of organic solvents.

The unique OneNeb series 2 nebulizer is a universal, high-efficiency nebulizer offering superior performance with ICP-OES instruments. Based on flow-blurring nebulization technology, the nebulizer provides improved sensitivity, precision, and greater tolerance to dissolved solids. The inert construction makes the OneNeb capable of handling most ICP-OES sample matrices, including strong acids, HF digests, and organic solvents.

### Nebulizers and Accessories

Description	Kit Contents	Application	Part No.
OneNeb series 2 inert concentric nebulizer	Includes replaceable sample capillary/connector assembly, quick release connector for nebulizer gas inlet, and conical adapter for peristaltic pump tubing	Ideal for routine analysis of samples up to 25% TDS with good precision and better sensitivity than a SeaSpray; inert construction makes it suitable for most solution types	G8010-60293
U-series concentric glass nebulizer (SeaSpray), for 5000 series ICP-OES	Includes UniFit sample connector (0.75 mm id x 700 mm) and EzyLok gas connector	Routine analysis of samples to 20% TDS	G8010-60255
Concentric glass nebulizer (SeaSpray), for 700 series and Vista series ICP-OES	Includes EzyFit sample connector (0.75 mm id x 700 mm) and EzyLok gas connector	Routine analysis of samples to 20% TDS	2010096400
U-series concentric glass nebulizer (Conikal), for 5000 series ICP-OES	Includes UniFit sample connector (0.75 mm id x 700 mm) and EzyLok gas connector	Routine analysis of organic solvents and samples to 5% TDS	G8010-60270
K-style (Conikal) concentric glass nebulizer, for 700 series and Vista series ICP-OES	Includes Ezyfit sample connector (0.75 mm id x 700 mm) and EzyLok gas connector	Routine analysis of organic solvents and samples to 5% TDS	2010106800
U-series slurry glass concentric nebulizer, for 5000 series ICP-OES	Includes UniFit sample connector (0.75 mm id x 700 mm) and ratchet nebulizer gas connector	Recommended for routine analysis of most organic samples and samples with larger particle sizes, for example, used oil samples	G8010-60347
Low-flow concentric glass nebulizer (MicroMist), 0.4 mL/min uptake	Includes UniFit sample connector (0.5 mm id x 700 mm) and EzyLok gas connector	Small sample volumes for 700 series and Vista series ICP-OES	2010126000
Concentric glass nebulizer (SeaSpray) 2 mL/min at 1 L/min	Includes EzyFit sample connector (0.75 mm id x 700 mm) and EzyLok gas connector	Routine analysis of samples to 20% TDS	CP959366

(continued)



OneNeb series 2  
inert concentric nebulizer,  
G8010-60293



Conikal nebulizer,  
G8010-60270



SeaSpray concentric nebulizer  
(standard on the 5000 series ICP-OES),  
G8010-60255

## Nebulizers and Accessories

Description	Kit Contents	Application	Part No.
Mira Mist PTFE concentric type nebulizer	Includes 0.5 m sample capillary (0.044 inch od x 0.018 inch id) and gas connector	Routine analysis of samples to 20% TDS, including aggressive acids and organic solvents	CP913246
Mira Mist PEEK concentric type nebulizer	Includes 0.5 m sample capillary (0.044 inch od x 0.018 inch id) and gas connector	Routine analysis of samples to 20% TDS (not recommended for aggressive acids or organic solvents)	CP914506
Concentric glass slurry nebulizer	Includes EzyFit sample connector (0.75 mm id x 700 mm)	Slurry samples with particles to 150 µm or >20% TDS	2010097600
High flow concentric glass slurry nebulizer, for Liberty series II axial systems	Includes EzyFit sample connector (0.75 mm id x 700 mm) and EzyLok gas connector	Slurry samples or those >20% TDS	2010097700
High flow K-style (Conikal) concentric glass nebulizer, for Liberty series II axial systems	Includes EzyFit sample connector (0.75 mm id x 700 mm) and EzyLok gas connector	Routine analysis of samples to 5% TDS	2010081600
Sample inlet (UniFit) fitting, for U-series concentric glass nebulizer, used with 5000 series ICP-OES, 0.75 mm id x 1.3 mm od capillary tubing, 10/pk			G8010-80035
Sample inlet (UniFit) fitting, for U-series concentric glass nebulizer, used with 5000 series ICP-OES, 0.5 mm id x 1.3 mm od capillary tubing, 10/pk			G3266-80012
Sample inlet fitting, for OneNeb series 2 nebulizer	Includes capillary connector with captive sample capillary tubing, 0.5 mm id, 1/16 inch od, 750 mm length capillary tubing	Suitable for the OneNeb series 2 nebulizer	G8010-60345

(continued)

## Tips and tools

The OneNeb series 2 universal nebulizer can be used with HF, high dissolved solids, organic solvents, and low-flow applications. It provides improved sensitivity, too.

To see the OneNeb flyer, watch theOneNeb video, or check specifications, visit [www.agilent.com/en/promotions/nebulizer-free-trial](http://www.agilent.com/en/promotions/nebulizer-free-trial)



Sample inlet fitting for OneNeb series 2 nebulizer, G8010-60345

## Nebulizers and Accessories

Description	Kit Contents	Application	Part No.
Conical adapter, 1/16 inch od sample line, for OneNeb series 2 nebulizer	Includes conical PTFE adapter with PTFE nut (female) and PTFE ferrule and lock ring	Joins 1/16 in od sample capillary to peristaltic pump tubing	5043-0502
Sample inlet (EzyFit) fitting, for concentric glass nebulizer on axial ICP-OES, 10/pk			9910107700
Sample inlet (EzyFit) fitting, for concentric glass nebulizer on radial ICP-OES, 10/pk		Suitable for SVS 1 accessory	1610136400
Gas inlet connector (EzyLok), for concentric glass nebulizer	Includes Ezylok connector, tubing adaptor, and tubing clamp	Suitable for 700 series and Vista series ICP-OES	9910127800
Sample inlet connector, for Mira Mist nebulizer	Includes 0.5 m sample capillary (0.044 inch od x 0.018 inch id)		CP913777
Y-piece connector, for online addition of internal standard/ionization buffer	1/pk		1610132400
	10/pk		190064200
Tubing, 1/8 inch id, 1/4 inch od, 1/16 inch wall, per m		Connects argon supply to nebulizer with 700 series and Liberty ICP-OES	3710031500
Nebulizer gas connector		Connects nebulizer gas supply tubing to gas outlet connector on instrument for 700 series and Vista series ICP-OES	1610085300
Auxiliary gas connector		Connects auxiliary gas supply tubing to gas outlet connector on instrument for 700 series and Vista series ICP-OES	1610085600
Speedy clamp		Secures gas supply tubing to nebulizer or auxiliary gas connector (2 required per length of tubing). Suits 700 series and Vista series ICP-OES.	810103200



Sample inlet (EzyFit) fitting, 9910107700



Gas inlet connector (EzyLok), 9910127800



Y-piece connector, 1610132400



Humidifier accessory, for ICP-OES, ICP-MS, and MP-AES instruments

## Humidifier accessory

The Agilent humidifier accessory is compatible with the Agilent range of ICP-OES, ICP-MS, and MP-AES instruments. The accessory features hollow fiber membrane tubing, which passes through a bottle containing de-ionized water. This humidifies the nebulizer gas, reducing desolvation at the nebulizer orifice. The process enables accurate analysis of challenging sample types that could cause particulate buildup and eventually block the nebulizer, improving long-term stability.

Recommended when solutions have >3% TDS.

### Humidifier Accessories

Description	Use with	Kit Contents	Part No.
Nebulizer gas humidifier accessory, for ICP-OES and MP-AES	5000 series ICP-OES or 4200/4210 series MP-AES	Includes gas lines (0.6 m, 4 mm od, 2/pk), fitting plate, and bracket, plus installation instructions	G8010-60346
Nebulizer gas humidifier bottle	5000 series ICP-OES, 4200 series MP-AES, or 7800/7900 and 8900 series ICP-MS	Replacement bottle with hollow fiber membrane tubing inside. <i>Does not include</i> gas lines or mounting bracket. For a complete kit for ICP-OES, order p/n G8010-60346.	G8400-60700
Tubing kit, for nebulizer gas humidifier accessory	5000 series ICP-OES, 4200/4210 MP-AES, and 7800/7900 and 8900 series ICP-MS	Includes tubing, black, PTFE, 2 x 4 mm, 615 mm long (5043-0059), tubing, black, PTFE, 1.59 x 3.17 mm, 575 mm long (5043-0060)	G8400-60710
Membrane tube with female locking luer	5000 series ICP-OES, 4200/4210 MP-AES, and 7800/7900 and 8900 series ICP-MS	Replacement hollow fibre membrane tube, 300 mm, with female locking Luer for argon humidifier	5069-4496
Laboratory bottle, 250 mL, clear (no cap)	5000 series ICP-OES, 4200/4210 MP-AES, and 7800/7900 and 8900 series ICP-MS	Replacement glass bottle for the argon humidifier (excluding cap, membrane tubing inside, and fittings)	5190-0148

### Tips and tools

To learn more about the humidifier accessory, read our [technical humidifier overview](#), or search 5991-7290EN at [www.agilent.com/search](http://www.agilent.com/search)



## Tubing

### Peristaltic pump tubing

#### Peristaltic Pump Tubing Chemical Compatibility

Tubing	Recommendations
Standard PVC tubes	Suitable for all aqueous solutions, medium-concentrated acids, and bases
Solvent flexible (Solvaflex)	Suitable for A-Solv, kerosene, white spirit, alcohols, medium-highly concentrated acids, and bases
FPM fluoroelastomer polymer	Suitable for gasoline, naphtha, toluene, xylene (aromatic hydrocarbons), highly concentrated acids, and bases
Pharmaprene	Suitable for ketone-based solvents, including MIBK and DIBK

#### Common Peristaltic Pump Tubing Dimensions

Bridge Colors	Inner Diameter (mm)	Inner Diameter (in)
Orange/Red	0.19	0.0075
Orange/Blue	0.25	0.01
Orange/Green	0.38	0.015
Orange/Yellow	0.51	0.02
Orange/White	0.64	0.025
Black/Black	0.76	0.03
Orange/Orange	0.89	0.035
White/White	1.03	0.04
Red/Red	1.14	0.045
Gray/Gray	1.3	0.05
Yellow/Yellow	1.42	0.055
Yellow/Blue	1.52	0.06
Blue/Blue	1.65	0.065
Green/Green	1.85	0.07
Purple/Purple	2.06	0.08
Purple/Black	2.29	0.09
Purple/Orange	2.54	0.1

Length 16 in (406 mm), bridge interval 6 in (152 mm)

**Standard Pump Tubing Sizes Used with Agilent ICP-OES Systems for Aqueous Samples**

Dual view and axial ICP-OES*	
Sample	White/White
Drain	Blue/Blue
Internal standard	Orange/White
Radial ICP-OES*	
Sample	White/White
Drain	Blue/Blue
Internal standard	Orange/White

\*For organic solvents and high matrix samples, the sample pump tube used should be smaller in diameter, for example, black/black

**PVC Tubing for Aqueous Samples**

Description	Part No.
Peristaltic pump tubing, orange/green, 12/pk	3710068200
Peristaltic pump tubing, orange/green, flared ends, 12/pk	3710068300
Peristaltic pump tubing, orange/white, 12/pk	3710046900
Peristaltic pump tubing for reagent, black/black tabs, 12/pk	3710027200
Peristaltic pump tubing, orange/orange, 12/pk	3710068800
Peristaltic pump tubing, white/white, 12/pk	3710034400
Peristaltic pump tubing, gray/gray, 12/pk	3710034500
Peristaltic pump tubing, blue/blue, 12/pk	3710034600
Peristaltic pump tubing for sample, purple/black tabs, 12/pk	3710027300
Peristaltic pump tubing, black/white, 12/pk	3710068900
Replacement tubing for aqueous samples	
Drain tubing, spray chamber to peristaltic pump waste line (glass cyclonic spray chamber) and 5000 series ICP-OES spray chamber waste, 0.12 inch id, 0.062 inch thick	3710024600
Tubing, spray chamber to torch and 5000 series ICP-OES sample tray drain, 1/4 inch id, 3/8 inch od, per m	3710033400
Clip to secure the drain tubing to the 5000 series ICP-OES sample tray	G8010-40026
Tubing, spray chamber to peristaltic pump waste line (Sturman-Masters spray chamber), per m	3710033900
Nebulizer capillary tubing, per m	2410020500
PFA tubing for gas supply to nebulizer, with 5800/5900 ICP-OES 3mm id x 4mm od, per m	0890-2603



PVC peristaltic pump tubing, 3710034400

### PVC Solvaflex Tubing for Low Volatile Organic Samples

Description	Part No.
Peristaltic pump tubing, orange/green, 12/pk	3710068000
Peristaltic pump tubing, orange/green, flared ends, 6/pk	3710068100
Peristaltic pump tubing, black/black, 12/pk	3710034800
Peristaltic pump tubing, white/white, 12/pk	3710035000
Peristaltic pump tubing, gray/gray, 12/pk	3710035200
Peristaltic pump tubing, blue/blue, 12/pk	3710067900
Peristaltic pump tubing, purple/black, 12/pk	3710047000
Replacement tubing for low volatile organic samples	
Tubing, spray chamber to torch, per m	3710037800
Tubing, spray chamber to peristaltic pump waste line (Sturman-Masters spray chamber), per m	3710035300
Tubing, spray chamber to peristaltic pump waste line (glass cyclonic spray chamber), per m	3710035400
Nebulizer capillary tubing, per m	2410020500



PVC Solvaflex peristaltic pump tubing, 3710068100

### Pharmaprene Tubing for Ketone-Based Organic Samples

Description	Part No.
Peristaltic pump tubing, orange/green, 12/pk	3710068400
Peristaltic pump tubing, orange/green, flared ends, 12/pk	3710068500
Peristaltic pump tubing, orange/yellow, 12/pk	3710044000
Peristaltic pump tubing, black/black, 6/pk	3710044100
Peristaltic pump tubing, black/black, 12/pk	3710041900
Peristaltic pump tubing, orange/orange, 6/pk	9910075900
Peristaltic pump tubing, white/white, 12/pk	3710044200
Peristaltic pump tubing, gray/gray, 12/pk	3710044300
Peristaltic pump tubing, yellow/yellow, 12/pk	3710041800
Peristaltic pump tubing, blue/blue, 12/pk	3710044400
Replacement tubing for ketone-based organic samples	
Tubing, spray chamber to torch, per m	3710037800
Tubing, spray chamber to peristaltic pump waste line (Sturman-Masters spray chamber), per m	3710035300
Tubing, spray chamber to peristaltic pump waste line (glass cyclonic spray chamber), per m	3710035400
Nebulizer capillary tubing, per m	2410020500



Pharmaprene peristaltic pump tubing, 3710044100



FPM peristaltic pump tubing,  
3710043600

### FPM Fluoroelastomer Polymer Tubing for Aromatic Organic Samples

Description	Part No.
Peristaltic pump tubing, orange/green, 12/pk	3710068600
Peristaltic pump tubing, orange/green, flared ends, 12/pk	3710068700
Peristaltic pump tubing, orange/yellow, 12/pk	3710043500
Peristaltic pump tubing, black/black, 12/pk	3710043600
Peristaltic pump tubing, white/white, 12/pk	3710043700
Peristaltic pump tubing, gray/gray, 12/pk	3710043800
Peristaltic pump tubing, blue/blue, 12/pk	3710043900
Peristaltic pump tubing, orange/yellow, 6/pk	3710053500
Peristaltic pump tubing, black/black, 6/pk	3710053600
Peristaltic pump tubing, white/white, 6/pk	3710053700
Peristaltic pump tubing, gray/gray, 6/pk	3710053800
Peristaltic pump tubing, yellow/yellow, 12/pk	3710041700
Peristaltic pump tubing, blue/blue 6/pk	3710053900



Internal standard kit 2,  
with orange/white tubing,  
9910124100

### Internal standard kit

The internal standard kit enables online addition of an internal standard. It includes:

- One pack of standard PVC pump tubing
- One pack of UniFit sample inlet connectors, 10/pk
- Five Y-piece connectors
- Connecting tubing

### Internal Standard Kit

Description	Part No.
Internal standard kit 1, with black/black pump tubing	9910124000
Internal standard kit 2, with orange/white pump tubing	9910124100

## Tubing Kits for 700 series, Vista series, and Liberty ICP-OES

### Aqueous samples and high dissolved solids

The ICP-OES tubing kit for aqueous samples and high dissolved solids includes:

- Two packs of standard PVC peristaltic pump tubing, 12/pk (one each of blue/blue and white/white for the axial ICP kits, and one each of gray/gray and blue/blue for the radial ICP kits)
- One FEP transfer tube (spray chamber to torch)
- Drain tubing, 1 m
- Tubing for waste line from spray chamber, 1 m
- One pack of EzyFit sample inlet connectors, 10/pk
- Nebulizer capillary tubing, 2 m
- Barb connectors for joining tubing (5/pk of 1/16 to 1/8 in id and 5/pk of 1/16 to 1/16 in id)
- Connecting tubing, 0.5 m

### Aqueous Samples and High Dissolved Solids

Description	Use With	Part No.
Aqueous tubing kit 1 – axial	OneNeb/SeaSpray/K-style nebulizers and single- or double-pass cyclonic spray chamber	9910123600
Aqueous tubing kit 2 – axial	OneNeb/V-groove nebulizer and Sturman-Masters spray chamber	9910123800



Aqueous tubing kit 1, for axial ICP-OES,  
9910123600



Sample compartment/torch box tube connection kit, 9910057100



Sample compartment O-ring kit, 9910057200

## Sample Compartment Tubing Kits for 700, Vista, and Liberty Series ICP-OES

Description	Kit Contents	Part No.	For Axial ICP	For Radial ICP
Sample compartment/torch box tube connection kit	Includes all tubing for spray chamber area and spare nipples for drain (excluding pump tubing) (compatible with 700 series and Liberty ICP-OES only)	9910057100		
Sample compartment O-ring kit	Includes all O-rings for spray chamber area, demountable torch, and ASA (compatible with 700 series and Liberty ICP-OES only)	9910057200		
Tubing and connector kit for 700 series and Liberty ICP-OES	Includes two packs of standard peristaltic pump tubing, snap connectors, and other connectors used in sample compartment and torch box area; ideal for spare startup kit		9910097500	9910105400
Molding drip tray, for 700 series ICP-OES		6210113000		
O-ring kit, ASA (argon saturation accessory)		9910081400		



## AVS 6/7 advanced valve systems for 5000 series ICP-OES

The Agilent advanced valve system (AVS) 6 or 7 port switching valve is an optional accessory for the Agilent 5000 series ICP-OES instruments (AVS 7 fitted as standard on the 5900 SVDV). The unique two-position switching valve features either 6 or 7 ports (the seventh port is for internal standardization) and a high-speed positive displacement pump to rapidly fill the sample loop. The sample introduction system is rinsed at the same time as the next sample is presented to the instrument, virtually eliminating the delay times of conventional ICP-OES analysis. This reduces your cost-per-analysis and more than doubles your productivity.

### Supplies for AVS 7 (7 Port) Advanced Valve System for 5000 Series ICP-OES

Description	Part No.
Spare valve, 7 port, 2 position, for AVS 7 switching valve Replacement valve assembly for AVS 7	G8495-60000
Stator and rotor for 7 port valve, for AVS 7 switching valve	G8495-60003
Rotor seal for 6-7 port valve, for AVS 6/7 switching valve	G8494-60002
Drip tray for 6-7 port valve, for AVS 6/7 switching valve	G8010-20071
Plug, PTFE, for 1/4-28 flat-bottom (blanking plug which can be used to block the 7th port of the AVS 7, if internal standard addition is not required)	UCP316

### Supplies for AVS 6 (6 Port) Advanced Valve System for 5000 Series ICP-OES

Description	Part No.
Spare valve, 6 port, 2 position, for AVS 6 switching valve Replacement valve assembly for AVS 6	G8494-60000
Stator and rotor for 6 port valve, for AVS 6 switching valve	G8494-60003
Rotor seal for 6-7 port valve, for AVS 6/7 switching valve	G8494-60002
Drip tray for 6-7 port valve, for AVS 6/7 switching valve	G8010-20071

### Tips and tools

Learn how to reduce costs and boost productivity using the **AVS 6/7 technical overview** by searching for 5991-6863EN at [www.agilent.com/search](http://www.agilent.com/search)



Replacement 7 port valve for AVS 7,  
G8495-60000



Rotor seal for 6-7 port valve,  
G8494-60002



Reagent uptake capillary tube with PTFE sinker, G8494-60007

### Supplies for AVS 4 (4 Port) Advanced Valve System for 5000 Series ICP-OES

Description	Part No.
Spare valve, 4 port, 2 position, for AVS 4 switching valve replacement valve assembly	G8493-60000
Stator and rotor for 4 port valve, for AVS 4 switching valve	G8493-60003
Rotor seal for 4 port valve, for AVS 4 switching valve	G8493-60002
Drip tray for 4 port valve, for AVS 4 switching valve	G8010-20080

### Miscellaneous Supplies for AVS Switching Valves for 5000 Series ICP-OES

Description	Further Information	Part No.
Rinse and waste containers (10 L and 20 L, respectively) for AVS 6/7	Includes 10 L HDPE container for rinse solution and 20 L HDPE container for waste, both fitted with safety caps to prevent vapors reaching the lab Supply lines fitted with sinkers to ensure the capillary draws from the base of the container	G8494-60005
Internal standard container kit, 5 L, for AVS 7	Includes 5 L polypropylene space saver container for internal standard; fitted with safety caps to prevent vapors in the laboratory Supply line fitted with sinker to ensure the capillary draws from the base of the container	G8495-60005
Reagent uptake capillary tube, 1.6 mm od x 1.0 mm id x 1400 mm length, with heavy PTFE sinker		G8494-60007
Check valve outlet, for AVS switching valve, nonmetallic		G8010-60300
Mounting clamp, for AVS 4/6/7 switching valve		G8494-60004

### Tips and tools

“Matrix matching” of major sample components can be valuable with many spectrometric techniques. Our 1% (10,000 µg/mL) standards work well as stock materials for matrix matching.



### Tubing Kits for AVS Switching Valves for 5000 Series ICP-OES

Description	Further Information	Part No.
Sample inlet connection kit, for AVS switching valve		G8010-60303
Nebulizer connection kit, for AVS switching valve		G8010-60304
Autosampler connection kit, for AVS switching valve	Super flangeless one-piece fitting, 1/4-28 flat-bottom, for 1/16 inch od tubing (used to join the probe line to the valve assembly)	G8010-60306
Internal standard connection kit, for AVS7 switching valve		G8010-60307
Pump outlet connection kit, for AVS switching valve		G8010-60308
Waste tube kit, for 4 port AVS switching valve	Includes swivel barb adaptor, fitted with 2 m length of 1/8 inch id PVC tubing (for the AVS waste line)	G8010-60334
Sample/rinse connection kit, for AVS switching valve, 2/pk	Includes super flangeless one-piece fitting, 1/4-28 flat-bottom, for 1/16 inch od tubing, fitted with 1/16 inch od PFA tubing and a conical adaptor to join to the peristaltic pump tubing	G8010-60335
Autosampler peri-pump connection kit	Allows the user to bypass the switching valve when required, for example, for wavelength calibration. Includes ferrule fitting for the autosampler line, plus a conical PTFE adaptor to enable connection to the peristaltic pump tubing.	G8010-60348
UniFit sample line, 0.75 mm id x 1/16 inch od	Replacement part, for UniFit nebulizer Connection kit (p/n G8010-60336) supplied with the AVS 4	8003-0493
Nebulizer adaptor kit, for AVS switching valve	Includes super flangeless one-piece fitting, 1/4-28 flat-bottom, for 1/16 inch od tubing and 1/16 inch od FEP tubing sleeve (used to join the sample capillary of the OneNeb nebulizer to the valve assembly)	G8010-60333



Sample inlet connection kit for AVS, G8010-60303



Autosampler connection kit for AVS, G8010-60306



Pump outlet connection kit, for AVS switching valve, G8010-60308

### Sample Loops for AVS 6/7 Switching Valves for 5000 Series ICP-OES

Description	Part No.
Sample loop for AVS switching valve, 1.0 mL volume*	G8010-60305
Sample loop for AVS switching valve, 0.25 mL volume	G8010-60338
Sample loop for AVS switching valve, 0.5 mL volume	G8010-60339
Sample loop for AVS switching valve, 1.5 mL volume	G8010-60340
Sample loop for AVS switching valve, 2.0 mL volume	G8010-60341
Sample loop for AVS switching valve, 2.5 mL volume	G8010-60342
Sample loop for AVS switching valve, 3.0 mL volume	G8010-60343
Sample loop for AVS switching valve, 3.5 mL volume	G8010-60344

\*This is the standard loop supplied with the AVS switching valves



SVS 2 (left) and SVS 1 (right)

## SVS 1 and SVS 2 switching valves for ICP-OES

The Agilent SVS 1/SVS 1+ and SVS 2/SVS 2+ switching valve systems are innovative sample introduction systems for ICP-OES that improve productivity and reduce memory effects by rinsing while the next sample is introduced. Excess sample is diverted away from the spray chamber, reducing sample carryover. The SVS 2/SVS 2+ doubles ICP-OES productivity by loading the next solution into a sample loop during the rinse phase, using a high speed pump. Please note: The SVS 1 and SVS 2 switching valves have been superseded by the AVS switching valves on the 5800/5900 ICP-OES models.



Replacement 4 port valve, for SVS 1, 3610010100



Flangeless fittings, 1610136500



Ferrules (4 required), 1610136600

### SVS 1+ Supplies

Description	Further Information	Part No.
Replacement 4 port valve, for SVS 1+	Replace every 4–6 months, depending on use	G8484-60101
Valve tubing kit, for SVS 1+	Includes flangeless fittings, 1/4 inch-28, P-218, 4/pk; flangeless ferrules, 1/16 inch, P-240, 4/pk; super flangeless fittings, 1/4 inch-28, P-232; super flangeless ferrules, 1/16 inch, P-250x; PFA tubing, 1.5 m, 1/16 inch od x 0.02 inch id	G8485-60523
Super flangeless nut, PEEK, short, headless, 1/4 in-28 flat-bottom for 1/16 in od tubing		1510256900
Super flangeless ferrules, 1/16 inch, P-250x, for SVS 1+/2+		0100-1690
Adjustable mounting bracket, for SVS 1+	Allows mounting of the SVS 1+ onto ICP-OES and MP-AES Adjustable from 15–90 mm and preset to 50 mm	G8485-81003

### SVS 1 Supplies

Description	Part No.
Replacement 4 port valve, for SVS 1 Replace every 4–6 months, depending on use	3610010100
Flangeless fittings (4 required)	1610136500
Ferrules (4 required)	1610136600
Sample inlet (EzyFit) fitting, for concentric glass nebulizer on radial ICP-OES	1610136400
Capillary tubing, PFA, 0.0625 inch x 0.02 inch id	3710052400

## SVS 2 Supplies

Description	Kit Contents	Part No.
Nebulizer EzyFit connector, for SVS 0.75 mm id, 1.6 mm od tubing (10/pk)		1610146100
Replacement triple-stack 4 port valve Replace every 12 months, depending on use	Includes valve assembly with rotor, mounting plate, mixing tee, thrust washer, and stator	3610020400
Tubing kit, for SVS 2	Includes SVS 2 carrier/rinse tubing, 300 mm (blue), SVS 2 internal standard tubing, 300 mm (yellow), loop link, 80 mm (green/green), SVS 2 internal standard link, 120 mm (gray/brown), SVS 2 sample loop, 1.0 mL (black/black) and 1/4 inch-28 super flangeless fittings, and 1/16 inch super flangeless ferrules, 2/pk	7910063800
Replacement wiper seal kit, for SVS 2 fast uptake pump		7910064500
Tubing kit, for SVS 2 fast uptake pump	Includes PVC 2.5 mm id waste tubing, 1.5 m, PVC 2.5 mm id inlet tubing, 50 mm, valve waste tubing, 320 mm (red), bubble injector tubing, 400 mm, bubble injector tee-piece, and bubble injector one-way valve	3710066700
Capillary transfer line, connects SVS 2 to UniFit nebulizer fitting, 50 mm		G8010-60834



SVS 2 tubing kit, 7910063800



Tubing kit for SVS 2 fast uptake pump, 3710066700

## Sample Loops for the SVS 2/SVS 2+

Description	Part No.
SVS 2 sample loop, 0.25 mL	9910143200
SVS 2 sample loop, 0.5 mL	9910143300
SVS 2 sample loop, 1.0 mL	9910143400
SVS 2 sample loop, 1.5 mL	9910143500
SVS 2 sample loop, 2.0 mL	9910143600
SVS 2 sample loop, 3.0 mL	9910143800
SVS 2 sample loop, 3.5 mL	9910143900
SVS 2 sample loop, 4.0 mL	G8485-60518



SVS 2 sample loop, 1.0 mL, 9910143400



Super flangeless nut,  
1510256900

### SVS 2+ Supplies

Description	Further Information	Part No.
Replacement 6/7 way valve assembly, for SVS 2+	Includes rotor, mounting plate, mixing tee, thrust washer, valve body, and PTFE stator	G8485-60513
Replacement mixing tee for 6/7 way valve assembly, for SVS 2+		G8485-60514
Capillary transfer line, connects SVS 2 switching valve to U-Series nebulizer inlet, 50 mm long with UniFit connector		G8010-60834
Valve tubing kit, for SVS 2+	Includes carrier/rinse tubing (350 mm), internal standard tubing (350 mm), and sample loop (1 mL)*	G8485-60515
Tubing, carrier/rinse, 350 mm, for SVS 2+		G8485-60516
Tubing, internal standard, 350 mm, for SVS 2+		G8485-60517
Pump tubing kit, for SVS 2+	Includes bubble injector tubing (220 mm), PVC inlet tubing (2.5 mm id, 100 mm), barb fitting (1/4-28 male to 1/8 inch), PVC inlet tubing (2.5 mm id, 1.5 m), bubble injector tee-piece, and bubble injector one-way valve	G8485-60519
Tubing, bubble injector, 220 mm, for SVS 2+		G8485-60520
Tubing, inlet, PVC, 0.1 m, 2.5 mm id, for SVS 2+		G8485-60521
Tubing, PFA, 3 m, 1/16 in od, 0.04 in id, for SVS 2+		G8485-60522
Super flangeless nut, PEEK, short, headless, 1/4 in-28 flat-bottom for 1/16 in od tubing		1510256900
Super flangeless ferrules, 1/16 inch, P-250x, for SVS 1+/2+		0100-1690
Barb fitting, 1/4-28 male to 1/8 inch, for SVS 2+		G8485-80001
Replacement uptake pump, for SVS 2+, excludes tubing or accessories		G8485-60512
Adjustable mounting bracket, for SVS 2+	Adjustable from 15 to 90 mm and preset to 50 mm, allows mounting of the SVS 2+ on the 5100/5110 dual view ICP-OES	G8485-81002
Adjustable mounting bracket, for SVS 2+, to suit Agilent 700 series axial ICP-OES		G8485-81001
Stator alignment and extraction tool, PTFE, for SVS 2+		G8485-80000

\*Tubing color code: black/black. Fittings are already attached to tubing and labeled.

# ICP-MS Supplies

Agilent ICP-MS instruments are available in single quadrupole and triple quadrupole configurations. Our single quadrupole ICP-MS instruments address the range of typical ICP-MS measurements, from routine, regulated analysis to advanced research and demanding applications. Our triple quadrupole ICP-MS will give you the confidence of knowing you can resolve problematic interferences – even in your most difficult samples – delivering results you know you can trust.



7900 ICP-MS

## ICP-MS Maintenance Schedule

Item	Actions/Comments	Typical Schedule*
Argon gas	Check argon gas pressure and volume	Daily
Drain vessel	Check, empty if required	(check before starting work and over the course of daily analysis)
Peristaltic pump tubing	Check for damage/deterioration Typically replace sample uptake tubing weekly	
Sampling cone, skimmer cone	Check orifice for matrix buildup, deformation, and enlargement Clean or replace if required	Weekly
Foreline pump	Check oil level and color Check exhaust hose for kinks, damage, oil contamination, and secure connection	
Nebulizer	Run nebulizer test, take appropriate action as indicated	Monthly
Graphite gasket for sampler cone	Replace when creased, torn, or out of shape	
Cooling fluid	Check level and condition	
Foreline pump	Change oil	6 months
Foreline pump oil mist filter	Replace mist filter	
ORS cell clean gas filters	Check and replace according to indicator	
Water strainer	Check and clean	Annually
Cooling fluid	Replace	
Argon gas filter and Big universal trap	Check and replace	
Extraction/Omega lenses	Clean or replace	
Shield contact	Replace	
Octopole	Replace	
Other ion lenses	Clean	
Sample introduction area, including spray chamber, end cap	Clean	Periodically
Torch	Clean or replace	
Electron multiplier	Replace when analogue HV is >3500 V or Pulse HV is >2000 V	
Plasma gas, auxiliary gas tubing	Check and replace	

\*Maintenance frequency is highly dependent on lab conditions, sample throughput, and sample type. Components should be checked periodically (as indicated), and appropriate action should be taken.

## Sample introduction supplies

Easy-fit peristaltic pump tubing has an optimum, minimized length, eliminating the need to trim.

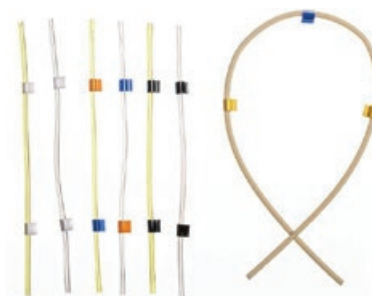
When qualifying this easy-fit peristaltic pump tubing range, we verified:

- **Low leachable metals and quick wash out** to prevent contamination or increased background
- **Secure tab adhesion**, even for tubing that has been presoaked in nitric acid cleaning solution
- **Stable flow rate** for better long-term signal stability over the lifetime of the tube
- **Fast recovery**, ensuring signals stabilize faster when changing pump speeds
- **Easy insertion** with accurately cut, flared ends for all tubing with <1 mm id

The results showed improved ease-of-use and greater productivity.

### Easy-fit Peristaltic Pump Tubing

Description	Specifications	Use	Unit	Instrument Model	Part No.
Clear PVC, 2-stop, white/white tabs	1.02 mm id	Standard for sample uptake for aqueous, acidic matrix	12/pk	7xx0, 8x00	5005-0020
Flared-end clear PVC, 2-stop, blue/orange tabs	0.25 mm id	Online internal standard (ISTD) uptake with aqueous solutions	12/pk	7xx0, 8x00	5005-0021
Beige thermoplastic elastomer, 3-stop, yellow/blue tabs	1.52 mm id	Standard for spray chamber drain	12/pk	7xx0, 8x00	5005-0022
Flared-end clear PVC, 2-stop, black/black tabs	0.76 mm id	High matrix uptake, aqueous, recommended for online sample dilution 1:1 with ISTD	12/pk	7xx0, 8x00	5005-0023
Yellow PVC solvent flexible, 2-stop, white/white tabs	1.02 mm id	Sample uptake with organic solvent matrix	12/pk	7xx0, 8x00	5005-0025
Flared-end yellow PVC solvent flexible, 2-stop, black/black tabs	0.76 mm id	High matrix uptake, organic, recommended for online organic solvent sample dilution 1:1 with ISTD	12/pk	7xx0, 8x00	5005-0026
Flared-end yellow PVC solvent flexible, 2-stop, blue/orange tabs	0.25 mm id	Online internal standard (ISTD) uptake with organic solvent matrix	12/pk	7xx0, 8x00	5005-0027
Black fluoroelastomer polymer, 3-stop, yellow/blue tabs	1.52 mm id	Spray chamber drain with samples in Xylene matrix	1/pk	7xx0, 8x00	5042-4799
Silicone, 3-stop, white/white tabs	1.02 mm id	High-purity sample uptake, recommended for trace analysis when not using self-aspirating nebulizer	6/pk	7xx0, 8x00	G1820-65217



Easy-fit peristaltic pump tubing

## Sample Line Supplies

Description	Specifications	Use	Unit	Part No.
Sample tubing, PFA	0.5 mm id, 1.6 mm od, 5 m	Standard sample uptake tubing	1/pk	G1820-65105
Sample tubing, PFA	0.2 mm id, 1.6 mm od, 70 cm		3/pk	G1833-65573
Sample tubing, PFA	0.15 mm id, 1.6 mm od, 70 cm		3/pk	G1833-65572
Sample tubing with PEEK guide, PFA	0.3 mm id, 1.6 mm od, 70 cm		5/pk	G1820-65531
Sample tubing with PEEK guide, PFA	0.2 mm id, 1.6 mm od, 70 cm		5/pk	G1820-65527
Sample tubing with PEEK guide, PFA	0.15 mm id, 1.6 mm od, 70 cm		5/pk	G1820-65526
Sample tubing, for online internal standard addition	0.3 mm id, 1.6 mm od, 3 m	For online ISTD	1/pk	G1820-65478
Online internal standard addition kit	Consists of grounded connector tee-piece assembly for sample and ISTD uptake, 3 m of PFA sample uptake (0.5 mm id) and ISTD tubing (0.3 mm id), and ISTD peristaltic pump tubing (orange/blue, 0.25 mm id, flared PVC)		1/pk	G3280-60590
Plastic tubing cutter			1/pk	8710-1930
Sample tray		For 7700/8800 ICP-MS	1/pk	G3280-40103
Sample tray		For 7800/7900	1/pk	G8400-40113
Sample tray		For 8900	1/pk	G3666-40104
Plug for cross joint			3/pk	G3138-65129
PTFE nut	For 1.6 mm od tubing		10/pk	5064-8023
Ferrule, front and back	For 1.6 mm od tubing		10/pk	5064-8024
Stator arm tape, for peristaltic pump			3/pk	G3280-60568
Stator arm tape, for peristaltic pump, 30 m roll			1/pk	5043-0030



Sample tubing, PFA, G1820-65105



Plastic tubing cutter, 8710-1930

## Nebulizers and Supplies

Description	Specifications	Use	Unit	Part No.
MicroMist nebulizer, U-series	Borosilicate glass, with UniFit sample connector	Standard on 7800/7900/8800 Suitable for most sample types except those containing HF or suspended particulates	1/pk	G3266-80004
UniFit sample inlet fitting	0.5 mm id, 700 mm, with connector	For U-Series MicroMist nebulizer with UniFit sample connector	10/pk	G3266-80012
UniFit sample inlet fitting	0.25 mm id, 700 mm, with connector		10/pk	G3266-80013
MicroMist nebulizer	Borosilicate glass, with Ezyfit sample connector	Standard on 7700x/e, 8800, and 7500cx/ce Suitable for most sample types except those containing HF or suspended particulates When ordered for the 7500a, the spray chamber end cap (p/n G1833-65475) is also required	1/pk	G3266-65003
Sample inlet (EzyFit) fitting	0.25 mm id, 700 mm, with connector	For MicroMist nebulizer with EzyFit sample connector, 0.25 mm id, 700 mm, with connector	10/pk	G3266-80010
Sample inlet (EzyFit) fitting	0.5 mm id, 700 mm, with connector	For MicroMist nebulizer with EzyFit sample connector, 0.5 mm id, 700 mm	10/pk	G3266-80011
Nebulizer* gas connector, for MicroMist nebulizer			1/pk	G3266-80015
MicroMist nebulizer, with PEEK gas fitting	Borosilicate glass, with PEEK gas connector	Standard on 8900 Suitable for most sample types except those containing HF or suspended particulates	1/pk	G3266-80005
MicroMist nebulizer gas fitting, with PEEK ratchet connector		Suits MicroMist nebulizer with PEEK gas fitting, used with the 8900	1/pk	G3266-80017
Nebulizer cleaner		Suitable for conventional concentric nebulizer	1/pk	G3266-80020
MicroFlow nebulizer	PFA, 200 µL/min	For analysis of high purity and HF samples, not for use with the integrated autosampler (I-AS)	1/pk	G3139-65100
MicroFlow nebulizer, with I-AS probe	PFA, 200 µL/min	Standard for semicon configuration on 7700s, 8800, 8900, and 7500s For analysis of high purity and HF samples when using the integrated autosampler (I-AS), sample uptake tube terminates as a sampling probe	1/pk	G3139-65102

(continued)



MicroMist nebulizer, G3266-65003



Sample tubing, G3266-80010



Nebulizer gas\* connector, G3266-80015



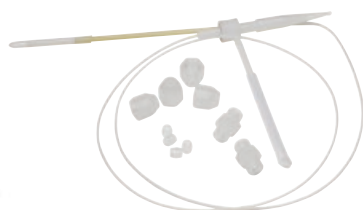
## Nebulizers and Supplies

Description	Specifications	Use	Unit	Part No.
MicroFlow nebulizer	PFA, 20–50 µL/min	Low flow rate, self-aspirating inert nebulizer, not for use with the integrated autosampler (I-AS)	1/pk	G3139-65106
MicroFlow nebulizer with I-AS probe	PFA, 20–50 µL/min	Low flow rate, self-aspirating inert nebulizer, for use with the integrated autosampler (I-AS), sample uptake tube terminates as a sampling probe	1/pk	G3139-65108
Nebulizer* gas line connector		Connector for MicroFlow nebulizer	1/pk	G1833-65583
Mira Mist nebulizer	PTFE	For high solids applications, such as environmental and geological Not for semiconductor use since it does not self-aspirate When ordered for the 7500a, the spray chamber end cap (p/n G1833-65475) is also required (included with 7500cx/cs)	1/pk	G3161-80000
Mira Mist nebulizer, PEEK	PTFE	For high solids applications, such as environmental, geological Not for semiconductor use since it does not self-aspirate When ordered for the 7500a, the spray chamber end cap (p/n G1833-65475) is also required (included with 7500cx/cs)	1/pk	G3161-80001
Sample inlet connector, for Mira Mist nebulizer	Includes 0.5 m sample capillary (0.044 inch od x 0.018 inch id)		10/pk	CP913777
C-Flow PFA concentric nebulizer	PFA 200 µL/min	All PFA nebulizers recommended for ultratrace analysis Alternative to the MicroFlow nebulizer	1/pk	G3285-80000
C-Flow PFA concentric nebulizer, with I-AS probe	PFA 200 µL/min	All PFA nebulizers recommended for ultratrace analysis Alternative to the MicroFlow nebulizer	1/pk	G3285-80001
C-Flow PFA concentric nebulizer	PFA 50 µL/min	Recommended for VPD and high matrix semiconductor, specifically Si matrices above 100 mg/L, and for H <sub>3</sub> PO <sub>4</sub> Use in free-aspiration mode	1/pk	G3285-80002
C-Flow PFA concentric nebulizer, with I-AS probe	PFA 50 µL/min	Recommended for VPD and high matrix semiconductor, specifically Si matrices above 100 mg/L, and for H <sub>3</sub> PO <sub>4</sub> Use in free-aspiration mode	1/pk	G3285-80003
Concentric nebulizer, quartz	Use G1820-65052 gas line connector and G1820-60160 sample line connector, order separately	Recommended for organic solvent analysis or trace analysis since quartz is higher purity than glass concentric nebulizer (for example, MicroMist)	1/pk	G1820-65138

(continued)



Nebulizer cleaner,  
G3266-80020



MicroFlow nebulizer with I-AS probe,  
G3139-65102



Nebulizer gas\* line connector,  
G1833-65583



Polypropylene connector,  
G1820-65052

## Nebulizers and Supplies

Description	Specifications	Use	Unit	Part No.
Connector for nebulizer* gas line, polypropylene	4 mm tubing, includes ferrule and O-ring	For gas line connection to concentric nebulizer	1/pk	G1820-65052
Sample line connector	Includes FPM O-ring	Connects concentric nebulizer with sample line. Port with large hole connects to nebulizer; smaller port connects with sample tubing.		G1820-60160
Union fitting	4 mm tubing	For PFA concentric nebulizer	1/pk	5064-8078
Ferrule and FPM O-ring kit, for nebulizer* gas line connector		For concentric nebulizer	1/pk	G1820-65533
End cap, PTFE, for concentric nebulizer	Includes FPM O-rings	Connects the concentric nebulizer (Pyrex or quartz) with the spray chamber, for MicroMist, MicroFlow, and other concentric nebulizers	1/pk	
O-ring kit, FPM, for concentric nebulizer	2 sizes, 10 each		20/pk	G1820-65491
O-ring for concentric nebulizer, for organic solvents (3 types)			4/pk	G1820-65520
O-ring, FPM, for end cap		Use with the end cap of the quartz concentric nebulizer	5/pk	G1820-65198
O-ring for end cap, for organic solvents			2/pk	G1820-65518
O-ring A, for quartz concentric nebulizer	Perfluorinated compound, 1.07 mm id		5/pk	G3280-67115
O-ring B, for quartz concentric nebulizer	Perfluorinated compound, 3.8 mm id		5/pk	G3280-67116

\*The term "carrier gas" has been replaced with "nebulizer gas" for ICP-MS (from July 2017 onwards)

\*\*Part supported but no longer available



Ferrule and FPM fluoroelastomer polymer O-ring kit, for nebulizer gas\* line connector, G1820-65533

## Spray Chambers

Description	Use	Unit	Part No.
Spray chamber, double-pass design, quartz	Standard for 7700, 7800, 8800 and 7500 series		G3280-80008
Spray chamber, double-pass design, quartz	For 7850, 7900, and 8900 series Required when using ultra HMI capability		G8400-67150
Spray chamber	For ultratrace B analysis, does not require quartz connector tube between spray chamber and torch		G3280-80503
End cap for spray chamber			G3280-60008
End cap retainer, secures end cap to spray chamber body	For 77/78/8800 and 7500 series		G3280-67091
End cap retainer, secures end cap to spray chamber body	For 7900 and 8900 series (p/n G8400-67150)		G8400-40200
Connector for gas line at end cap			5042-4775
End cap nut for nebulizer connection			0535-1082
Drain tubing assembly			G3280-60555
Tubing for drainage, 4 mm id, 2.5 m	Tubing between peristaltic pump tubing and drain tank		G1820-65515
Drain tube, PVC (Tygon), 3/32 in x 5/32 in, 5 m			G3160-67000
Drain tank, polyethylene, 4 L			5042-4769
Drain tank			G1820-65016
Drain tank for organic solvents			G1820-65505
Clamp for ball joint connector between spray chamber and torch	Used to secure ball joint connectors on spray chamber, connector tube, and torch For 77/8800 ICP-MS	2/pk	G1833-65430
Clamp for ball joint connector between spray chamber and torch, 7900 ICP-MS	Used to secure ball joint connectors on spray chamber, connector tube, and torch For 7800/7900 ICP-MS		G8400-60327
Tygon tubing, 3 m	For drain to drain tank		G3280-60077
Organic solvent introduction kit			G3280-60580
Replaces the standard quartz torch, sample introduction and drain parts with those suitable for analysis of volatile organic solvents. Includes quartz torch with 1.5 mm id injector (1.0 mm id torch is not supplied, but is available for volatile organics), sample tubing with guide (0.15 mm id, 70 cm, 5/pk and 0.2 mm id, 70 cm, 5/pk), sample tubing (0.3 mm id, 3 m) peristaltic pump tubing for drain (30/pk), and organic solvent warning label. Requires, but does not include, a quartz concentric nebulizer and an option gas line for O <sub>2</sub> /Ar nebulizer* gas addition (p/n G4920A). A Pt sampling cone is also required when O <sub>2</sub> /Ar nebulizer* gas is added.			

\*The term "carrier gas" has been replaced with "nebulizer gas" for ICP-MS (from July 2017 onwards)



PFA inert kit, sapphire, 2.5 mm id,  
G4912-68000



Connector tube with gas port,  
G4912-80016

## PFA inert sample introduction kit supplies

The Agilent PFA inert sample introduction kits replace the standard quartz sample introduction parts with those suitable for the analysis of high purity and HF samples. The kits include an end cap (PFA), spray chamber (PFA), connecting pipe, demountable torch with PFA base, and torch injector (either Pt or sapphire). The kit with the narrower diameter injector is recommended for volatile organic solvents. The kit with the Pt injector is recommended for semiconductor applications and requires, but does not include, a nebulizer. The PFA nebulizer is recommended and should be ordered separately.

### PFA Inert Sample Introduction Kit Supplies

Description	Further Information	Part No.
PFA inert kit, sapphire, 2.5 mm id	Torch included	G4912-68000
PFA inert kit, platinum, 2.5 mm id	Torch included	G4912-68001
PFA inert kit, sapphire, 1.5 mm id	Torch included	G4912-68002
PFA inert kit, platinum, 1.5 mm id	Torch included	G4912-68003
End cap		G3285-80020
Spray chamber		G3285-80021
Tube, drain, PFA		G4912-80014
Tube, drain, PFA for 7500		G3285-80022
7500 connector tube	No gas port	G3285-80023
77/78/79/88/8900 connector tube	No gas port	G3285-80024
Connector tube with gas port		G4912-80016
Injector, sapphire, for PFA inert kit, 2.5 mm id		G3285-80034
Injector, platinum, for PFA, 2.5 mm id		G3285-80035
Injector, sapphire, for inert torch, 1.5 mm id		G4912-80010
Injector, sapphire, for PFA inert kit, with O <sub>2</sub> port, 1.5 mm id	Only for 7500	G3285-80036
Injector, platinum, for PFA inert kit, with O <sub>2</sub> port, 1.5 mm id	Only for 7500	G3285-80037
Injector, platinum, for inert torch, 1.5 mm id		G4912-80011
Semidemountable quartz torch for aqueous, use with 2.5 mm injector (standard torch with PFA inert kit)	Does not include injector	G4912-80012
Semidemountable quartz torch for organic, use with 1.5 mm injector	Does not include injector	G4912-80013

Note: PFA = perfluoroalkoxy

## Torches and components

### Torches and Components

Description	Use	Part No.
Torch, quartz, 2.5 mm id	Standard torch for most applications Not suitable for samples containing hydrofluoric acid	G3280-80053
7500 torch quartz, 2.5 mm id	Only for 7500	G3270-80043
Torch, quartz, 1.5 mm id, taper type	For use with organic solvents Not suitable for samples containing hydrofluoric acid	G3280-80080
Torch, quartz, 1.0 mm id, taper type	For use with organic solvents Not suitable for samples containing hydrofluoric acid	G3280-80081
Shield plate, long-life	Use with bonnet	G1833-65419
Bonnet (quartz ring for shield torch)	Use with shield plate (p/n G1833-65419)	G1833-65421
Quartz connector tube (straight)	For use with the UHMI spray chamber (p/n G8400-67150) or without HMI capability	G3270-80025
Quartz connector tube with dilution port for HMI	For use with HMI capability for addition of dilution gas	G3270-80024
Blank plug for UHMI dilution port, PTFE, 8900		G3666-20391
Clamps, for ball joint connector between spray chamber and torch	Used to secure ball joint connectors on spray chamber, connector tube, and torch	G1833-65430
Clamp, for ball joint connector between spray chamber and torch, 7900 ICP-MS	Used to secure ball joint connectors on spray chamber, connector tube, and torch For 7800/7900 and 8900	G8400-60327
RF coil, for 7700/8800 ICP-MS		G3280-60638
Alignment plate, for RF coil		G1833-66011
RF coil, for 7500 ICP-MS		G1833-65432
RF coil, for 7800, 7850, 7900, 8900 ICP-MS		G8400-60434

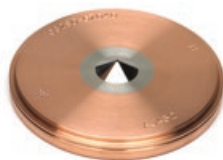
Note: See PFA Inert Sample Introduction Kit Supplies table for the appropriate torch for each inert kit on **Page 76**.

### Tips and tools

The torch must be completely dried before installing and igniting the plasma.  
If the torch is chipped, cracked, or distorted, it should be replaced.



Torch, quartz, 2.5 mm id standard torch,  
G3280-80053



Nickel sampling cone,  
G3280-67040



Platinum sampling cone,  
G3280-67036



Ni-plated platinum sampling  
cone, G3280-67142

## Interface cones and ion lenses

### Sampling Cones

Suits 77/78/7900 and 88/8900 series

Description	Part No.
Nickel (standard for x-lens, Ni tip with Cu base)	G3280-67040
Nickel-plated (Ni tip with Ni-plated Cu base)	G3280-67061
Platinum (standard for s-lens/semicon, Pt tip with Cu base)	G3280-67036
Platinum large insert (18 mm, Pt tip with Cu base)	G3280-67056
Nickel-plated platinum (Pt tip with Ni-plated Cu Base)	G3280-67142

### Cone Care Packages

Suits 77/78/7900 and 88/8900 series

Description	Kit Contents	Part No.
Nickel sampler cone care package	Includes magnifier tool (5190-9614), graphite gasket for sampling cone, 3/pk (G3280-67009), cotton swabs for cleaning, 100/pk (9300-2574), and two nickel sampler cones (G3280-67040)	5067-0294
Nickel-plated sampler cone care package	Includes magnifier tool (5190-9614), graphite gasket for sampling cone, 3/pk (G3280-67009), cotton swabs for cleaning, 100/pk (9300-2574), and two nickel-plated sampler cones (G3280-67061)	5067-0295
Platinum sampler cone care package	Includes magnifier tool (5190-9614), graphite gasket for sampling cone, 3/pk (G3280-67009), cotton swabs for cleaning, 100/pk (9300-2574), and two platinum sampler cones (G3280-67036)	5067-0296
Nickel-plated platinum sampler cone care package	Includes magnifier tool (5190-9614), graphite gasket for sampling cone, 3/pk (G3280-67009), cotton swabs for cleaning, 100/pk (9300-2574), and two nickel-plated platinum sampler cones (G3280-67142)	5067-0297

Note: Cone care packages do not include skimmer cones. Please add the appropriate skimmer cone type and quantity to your order using the Skimmer Cones table.



Nickel sampler cone care package  
5067-0294



Nickel-plated sampler cone care package  
5067-0295 or 5067-0297



Platinum sampler cone care package  
5067-0296

## Skimmer Cones

### Selection by ion lens configuration and ICP-MS series

Description	x-lens		s-lens (semicon)	
	7700 (+e)/7800/8800	7900/8900	7700/7900/8800	8900
Nickel	G3280-67041	G8400-67200	G3280-67066	G3666-67421
Platinum, with copper base	G3280-67060	G8400-67201	G3280-67064	G3666-67401
Platinum, with nickel base	G3280-67063	G8400-67202	G3280-67065	G3666-67411

Note: Shaded cells denote standard configuration

## Skimmer Bases

### Selection first by ion lens configuration and ICP-MS series, then by the interface cone material (nickel, Ni, or platinum, Pt)

Description	x-lens			s-lens (semicon)		
	7700 (+e)/7800/8800	7900	8900	7900	7700/8800	8900
Stainless steel (use with Ni cones)	G3280-60608	G8400-60624	G3666-60301	G8400-60627	G1833-65591	-
Brass (use with Pt cones)	G3280-60621	G8400-60625	G3666-60311	G8400-60626	G1833-65590	G3666-60401

Note: Shaded cells denote standard configuration

## Skimmer Cones and Bases for Specialist Applications

Description	Part No.
Copper skimmer cone, for 7700/7900/8800 with s-lens/semicon configuration	G3280-67067
Copper skimmer cone, for 8900 with semicon configuration	G3666-67067
Brass off-set skimmer base, for 7700/8800 with s-lens/semicon configuration	G3280-60381
Brass off-set skimmer base, for 7900 with s-lens/semicon configuration	G8400-60628
Brass off-set skimmer base, for 8900 with s-lens/semicon configuration	G3666-60628
Skimmer cones, for 7900 and 8900 fitted with m-lens	
7900 and 8900 skimmer cone, Pt tip, Ni base. Recommended for use with Pt tip with Ni-plated Cu base sampler cone (G3280-67142) and brass skimmer base.	G3666-67501
Skimmer base, brass, s-lens and m-lens, 8900	G3666-60401
Skimmer cones, for 8900 fitted with c-lens	
Skimmer base, brass, m-lens, 7900	G8400-60634
7900 and 8900 skimmer cone, nickel. Recommended for use with Ni tip with Ni-plated Cu base sampler cone (G3280-67061) and brass skimmer base	G3666-67511
Skimmer cone, Pt tip with Cu base	G3280-67064
Skimmer base, brass, c-lens	G3666-60601

## Tips and tools

If you plan to carry out cool plasma measurements using your ICP-MS, you should have s-lenses (semiconductor) fitted to your interface.

## Interface cone selection guide

Try our Online Selector tool at: [www.agilent.com/search/gn/icp-selector](http://www.agilent.com/search/gn/icp-selector)

Sampler Cone	Part number	Use With	Recommended Applications	Recommended Skimmer Cone	Required Skimmer Base
Nickel tip with copper base	G3280-67040	Standard on all x-lens models	Suitable for most common applications (aqueous, acid matrix, non-HF containing solutions, nonorganic) Provides most economical operation	Nickel	Stainless steel
Nickel tip with nickel-plated base	G3280-67061	Optional for all models	For samples containing high salts (seawaters/process waters) and chloride matrices (HCl, HClO <sub>4</sub> ) Ideal for routine operation with (u)HMI with a high (>8x) aerosol dilution ratio		
Platinum tip with copper base	G3280-67036	Standard on all s-lens models (semiconductor configuration) Optional for all x-lens models	Recommended for lower limits of detection (LODs) and for higher-matrix samples Required for analysis of aggressive acids (especially HF) and when O <sub>2</sub> /Ar option gas is used for analyzing organic solvents	Platinum tip with copper base	Brass
Platinum tip with nickel-plated base	G3280-67142	Optional for all models	Recommended for analysis of aggressive acids (especially HCl, HF, and HClO <sub>4</sub> ) and for higher-matrix samples		
Large (18 mm) platinum tip with copper base	G3280-67056	Optional for all models	Recommended for the lowest LODs and for highest matrix samples Suitable for high viscosity and high boiling point acids (H <sub>2</sub> SO <sub>4</sub> or H <sub>3</sub> PO <sub>4</sub> )		



Skimmer cone, nickel,  
G3280-67041



Skimmer cone, platinum,  
G3280-67060



Skimmer base, stainless steel,  
G3280-60608

## Tips and tools

Did you know you can save money and help the environment by returning your used Agilent platinum ICP-MS cones? Find out more about the trade-in credits on used Pt cones for the 7500/7700/7800/7850/7900 and 8800/8900 ICP-MS at [www.agilent.com/chem/ptcone](http://www.agilent.com/chem/ptcone)



## Interface Cone Guide for Agilent 7500 Series

Description	Part No.	7500a	7500i	7500s	7500c	7500ce/cx	7500cs	T-mode
Sampling cone								
Nickel sampling cone	G1820-65238	Std	Std	✓	Std	Std	✓	
Nickel-plated nickel sampling cone	G3270-67003	✓	✓	✓	✓	✓	✓	
Platinum sampling cone, 10 mm insert	G1820-65239	✓	✓	Std	✓	✓	Std	
Platinum sampling cone, 18 mm insert	G1820-65360	✓	✓	✓	✓	✓	✓	
Nickel sampling cone, for T-mode	G1820-65480	T-mode	T-mode	T-mode				✓
Skimmer cone								
Nickel skimmer cone	G1820-65050	Std	Std	✓				
Nickel skimmer cone	G3270-65024					Std		
Nickel skimmer cone	G1833-65497				Std		✓	
Platinum skimmer cone	G1820-65237	✓	✓	Std				
Platinum skimmer cone	G1833-65132						Std	
Platinum skimmer cone (nickel base)	G3270-60106					✓	✓	
Copper skimmer cone	G3270-60643						✓	
Nickel skimmer cone, for T-mode	G1820-65481	T-mode	T-mode	T-mode				✓
Skimmer base								
Stainless steel base, for nickel skimmer	G1833-65407	Std	Std	✓				✓
Stainless steel base, for nickel skimmer	G1833-65591					Std	✓	
Stainless steel base, for nickel skimmer	G1833-65498				Std			
Brass base, for platinum skimmer	G1833-65408	✓	✓	Std				
Brass base, for platinum skimmer	G1833-65505				✓			
Brass base, for platinum skimmer	G1833-65590					✓	Std	

**Key**

✓: Compatible part

Std: Fitted as standard when the instrument is shipped from the factory

**Notes**

- An 18 mm platinum cone insert is recommended for measuring H<sub>2</sub>SO<sub>4</sub> above 2%
- Platinum T-mode cones are not available
- T-mode is not used with ORS models



Interface wrench for sampling cone, G3280-01507



Retaining ring for sampling cone, G3280-20504



Magnifier for checking the ICP-MS cone orifice, 5190-9614

## Sampling and Skimmer Cone Supplies

Description	Part No.
Interface wrench for sampling cone removal	G3280-01507
Retaining ring for sampling cone	G3280-20504
Graphite gasket for sampling cone, 3/pk	G3280-67009
Interface wrench for skimmer cone removal	G3280-60502
Screws for skimmer base, 4/pk	G1820-65435
Cone cleaning detergent, 1 gal	5188-5359
Alumina powder, abrasive, 1 kg	8660-0791
Cotton swab, ultrafine cone bud shape, both ends, 100/pk	9300-2574
Swabs, cotton, 100/pk, for polishing cones and lenses with alumina paste	5080-5400
O-ring for sampling cone, FPM, for 7500	G1820-65025
Magnifier, for checking the ICP-MS cone orifice, 10x magnification, with LED lighting and +/- 15 mm scaled reticle	5190-9614

## Easy-fit x-lens

Replacement Easy-fit, single-piece x-lens assemblies are provided in clean packaging, ready to install. Simplify lens replacement and your ICP-MS maintenance routine, returning the system to peak performance with minimal downtime.

Note: for replacement only. Easy-fit x-lens is not able to be cleaned.

### Easy-fit x-lens

ICP-MS Model	Part No.
7800, 7850, 7700, and 8800	G3280-67200
7900	G8400-67100
8900	G3666-67700

## Ion extraction Omega lens assembly (standard lenses)

Consists of four ion lenses (Extract 1, Extract 2, Omega bias, Omega lens) installed onto a skimmer base with screws and spacers.

Provides a complete replacement set for ion extraction lenses and can be taken apart for routine lens maintenance.

### Ion Extraction Omega Lens Assembly

ICP-MS Model	Part No.
7700 with x/e lens	G3280-67039
7700 with s-lens	G3280-67035
8800 with x-lens	G3280-67039
8800 with s-lens	G3280-67035
7900 with x-lens	G8400-67001
7900 with s-lens	G8400-67002
7800	G3280-67039
7850	G3280-67039
8900 with x-lens	G3666-67300
8900 with s-lens	G3666-67400

## Screw and spacer kit for lens maintenance

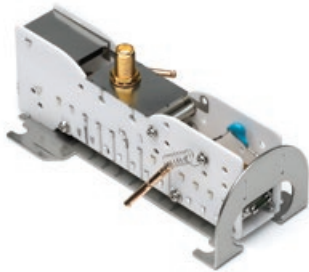
This is a complete set, to be replaced during routine lens maintenance when the standard lens assembly is taken apart for cleaning and polishing.

### Screw and Spacer Kit for Lens Maintenance

ICP-MS Model	Part No.
7700x/e	G3280-67037
7700s	G3280-67038
8800x	G3280-67037
8800s	G3280-67038
7900x	G8400-67003
7900s	G3280-67038
7800	G3280-67037
7850	G3280-67037
8900x	G8400-67003
8900s	G3666-67038

## Octopole Reaction System (ORS) Replacement Parts

Description	Part No.
Octopole assembly, with axial accelerator, for 8900 ICP-MS, 1 each	G3666-67045
Octopole assembly, without axial accelerator, for 8900 ICP-MS, 1 each	G3666-67046
ORS cell assembly, with axial accelerator, for 8900 ICP-MS, 1 each	G3666-67141
ORS cell assembly, without axial accelerator for 8900 ICP-MS, 1 each	G3666-67142
ORS cell entrance lens for 7700 and 8800 ICP-MS, 1 each	G3280-20618
ORS cell entrance lens for 8900 ICP-MS, 1 each	G3666-20394
ORS cell exit lens for 7700 and 8800 ICP-MS, 1 each	G3280-20664
ORS cell exit lens for 8900 ICP-MS, 1 each	G3666-20396
ORS cell focus lens for 7700 and 8800 ICP-MS, 1 each	G3280-20633
ORS cell focus lens for 8900 ICP-MS, 1 each	G3666-20395
ORS cell tubing for reaction cell gas, PTFE, 1 each	G3280-20663
ORS manual vent valve, includes O-ring, 1 each	G3280-67046
ORS octopole assembly for 7700, 8800 ICP-MS, 1 each	G3280-67045



Electron multiplier, 5190-0108

## Electron Multipliers

Description	8900 Part No.	8800 Part No.	78/7900 Part No.	7700 Part No.
Electron multiplier	5190-0154	5190-0123	G8400-60258	5190-0108

## Tips and tools

AVF platinum pump oil (X3760-64004) is suitable for all ICP-MS foreline pumps. Inspect the colour of the oil frequently and change when a dark brown colour is observed or at least every six months. Replace the oil mist filter together with the oil annually.

## Vacuum system supplies

- When the plasma is on, check the pump oil level every month
- Maintain the oil level between the maximum and minimum levels on the gauge
- Standard frequency for changing the oil is approximately every six months

### Vacuum System Supplies

Description	Unit	Part No.
Pump oil, AVF Platinum*	1 L	X3760-64004
Foreline pump fluid, Fomblin 06/6, recommended for strong acid samples	2 kg	5069-4478
Oil mist filter element, for DS 402 rotary vane pump		9499342M002
Oil mist filter kit, for DS 402 rotary vane pump		9499392M004
Remote drain oil kit, for DS 402 rotary vane pump		9499375M003
DS oil return system kit		9499376
Oil mist filter element, for E2M18		1535-4970
Oil mist filter element, for MS40+		G1960-80039
Odor element, for oil mist filter for E2M18	5/pk	5063-9153
Oil mist filter kit, for E1M18/E2M28		3162-1056
Electrode kit, for penning gauge for 7500		G1833-65332
Tube AIM gauge, for 7500		5042-0901
O-ring, for vent valve, FPM	2/pk	G1833-65332
O-ring, for vacuum chamber, FPM		5042-4790
Manual vent valve, includes O-ring, for 77/79/88		G3280-67046

\*AVF Platinum™ was formerly "AVF 60 SHCE". The chemical composition of the oil is exactly the same and the part number is unchanged. AVF Platinum is the recommended oil for all rotary vane pumps (RVP) used with ICP-MS, including MS40, E2M18, and DS402.

### Warnings and caution

#### Do not touch the oil with your bare hands

Be careful when changing the oil because it may have absorbed dangerous substances. The oil in the foreline pump (rotary pump), on the interface side of an ICP-MS equipped with a hydrofluoric acid resistant introduction system, is especially hazardous.

## Integrated Sample Introduction System 3 for 7800/7850/7900/8900

The Agilent Integrated Sample Introduction System 3 (ISIS 3) dramatically increases the productivity of the Agilent ICP-MS, while also allowing high matrix samples to be run for extended periods of time. With its fast uptake piston pump and close-coupled 7-port valve located close to the nebulizer, the ISIS 3 enables reduced sample uptake and rinse times with discrete sampling (DS). The system delivers unmatched productivity for high sample matrix analysis in high-throughput laboratories.



### ISIS 3 Easy-fit sample loops

Using our fixed-volume sample loops, you can benefit from these default timing recommendations that we have determined so you can get your method set up and analysis started quicker.

Part Number	Loop ID (mm)	Loop Volume (mL)	Typical Acquisition Time (s)	Sample Load (s) at 60% Speed, ISIS Uptake Pump	Stabilization Time (s)	Loop Probe Wash (s) at 80% Speed	Loop Wash (s) at 80% Speed
5005-0030	1	0.25	15	7	20	4	7
5005-0031	1	0.50	25	8	20	4	8
5005-0032	1	0.75	50	9	20	4	9
5005-0033	1	1.00	80	10	20	4	10
5005-0034	1	1.25	115	11	20	4	11
5005-0035	1	1.50	145	12	20	4	12
5005-0036	1	2.00	210	14	20	4	14
5005-0037	1	2.50	375	17	20	4	17
5005-0038	2.18	1.00	80	8	20	4	8
5005-0039	2.18	1.25	105	9	20	4	9
5005-0040	2.18	1.50	130	10	20	4	10
5005-0041	2.18	2.00	260	11	20	4	11
5005-0042	2.18	2.50	365	12	20	4	12
5005-0043	2.18	3.00	410	14	20	4	14
5005-0044	2.18	4.00	645	17	20	4	17

These are our recommended time and pump speeds for each sample loop in the range. They are based on measurements with an Agilent 7900 ICP-MS, configured with an ISIS 3 7-port valve and SPS4 autosampler, fitted with standard tubing:

- 1.02 mm id white/white peristaltic pump tubing for carrier (p/n 5005-0020)
- 0.25 mm id blue/orange peristaltic pump tubing for internal standard (ISTD)/tune (p/n 5005-0021)
- 1 mm id sample probe (p/n G8410-80103)

These recommendations are default settings. Optimization for your particular application and system may be required, please see the ISIS 3 user guide for further information.

## ISIS 3 Supplies

Description	Further Information	Unit	Part No.
Replacement tubing and sample loop kit			
ISIS 3 preconfigured tubing and loop kit, for discrete sampling	Includes all sample and pump tubing assembled with connectors, ready for installation to ISIS 3 valve. Sample loop (5005-0040), 1.5 mL, 2.18 mm id is included, other sizes are available to order separately.	1 kit	G8411-68202
Individual tubing and fittings for ISIS 3			
PFA sample tubing 1.0 mm id, 1/16 inch od, 5 m			G8411-67117
PFA sample tubing 2.18 mm id, 1/8 inch od, 5 m			G8411-67118
Flangeless tube end fitting, 1/16 inch	Includes polypropylene nut with orange collapsible CTFE ferrule	5/pk	5023-1519
Flangeless tube end fitting, 1/16 inch	Includes polypropylene nut with purple collapsible CTFE ferrule	5/pk	5023-1520
Flangeless tube end fitting, 1/16 inch	Includes polypropylene nut with yellow collapsible CTFE ferrule	5/pk	5023-1521
Flangeless tube end fitting, 1/16 inch	Includes polypropylene nut with white collapsible CTFE ferrule	5/pk	5023-1522
Flangeless tube end fitting, 1/16 inch	Includes polypropylene nut with black collapsible CTFE ferrule	5/pk	5023-1523
Flangeless tube end fitting, 1/16 inch	Includes polypropylene nut with blue collapsible CTFE ferrule	5/pk	5023-1524
Flangeless tube end fitting, 1/16 inch	Includes polypropylene nut with green collapsible CTFE ferrule	5/pk	5023-1525
Flangeless tube end fitting, 1/8 inch	Includes polypropylene nut with red collapsible CTFE ferrule	5/pk	5023-1526
Flangeless tube end fitting, 1/8 inch	Includes polypropylene nut with black collapsible CTFE ferrule	5/pk	5023-1527
Replacement collapsible CTFE ferrule, for 1/16 inch tubing		10/pk	5043-0054
Replacement collapsible CTFE ferrule, for 1/8 inch tubing		10/pk	5043-0055
Fitting, male to barb, 1/4-28 UNF, 3.2 mm id, PEEK, natural			5023-1517
ISIS 3 valve supplies			
Rotor seal replacement kit, for ISIS valve			G8411-67111
ISIS valve assembly kit			G8411-67113
Gas tubing kit, for ISIS 3 valve		3/pk	G8411-67002
ISIS 3-way valve assembly kit			G8411-67114
Stator, for 7 port, 2 position inject valve			G8411-80121
ISIS 3 pump supplies			
Piston pump seal replacement kit			G8411-67115
Piston pump seal installation tool kit			G8411-67116
ISIS piston pump			G8411-80115
Nut, PEEK, for ISIS 3 pump		1/pk	G8411-80119

## Integrated Sample Introduction System (ISIS) Supplies Used with 7700 and 8800 ICP-MS

Description	Further Information	Unit	Part No.
Comprehensive spares for the integrated sample introduction system A complete set of spare sample lines and connectors, plus fittings, mixing coil, block adapters, clamps, and tray	Includes sample tubing (0.5 mm id x 5 m, 0.3 mm id x 3 m, 2.0 mm id x 5 m, 0.8 mm id x 5 m), peristaltic pump tubing (0.89 mm id, 3 stoppers, Tygon, 12/pk), peristaltic pump tubing (flared end, Tygon, 2 stoppers (blue/orange), 0.25 mm id, 12/pk), peristaltic pump tubing (1.02 mm id, 2 stoppers, Tygon, 12/pk), tubing adapter (2/pk), tag for tubing identification (two lots of 10/pk), T-joint, cross joint, union joint, PTFE nut for 3 mm od tubing (10/pk), front and back ferrules for 3 mm od tubing (10/pk), PTFE nut for 1.6 mm od tubing (10/pk), front and back ferrules for 1.6 mm od tubing (10/pk), tubing clamp (small, 10/pk, large, 5/pk), and spiral tubing, 5 m		G4911-67001
Preconfigured tubing kit, for autodilution	Includes a set of sample lines and connectors for autodilution		G4911-68201
Preconfigured tubing kit, for discrete sampling	Includes a set of sample lines and connectors for discrete sampling		G4911-68202
Peristaltic pump tubing, Tygon	0.89 mm id, 3 stops	12/pk	5064-8014
Peristaltic pump tubing	0.25 mm id, 2 stops, flared end	12/pk	G4911-67000
Peristaltic pump tubing, Tygon	0.25 mm id, 2 stops	12/pk	5064-8015
Peristaltic pump tubing, Tygon	1.02 mm id, 2 stops	12/pk	5064-8028
Peristaltic pump tubing, Tygon	2.29 mm id, 2 stops	12/pk	5043-0010
Peristaltic pump tubing adapter		2/pk	5064-8026
Peristaltic pump tubing adapter	2.29 mm id		G4911-20021
Sample tubing, PTFE	0.8 mm id, 1.6 mm od		5064-8016
Sample tubing, PTFE	2 mm id, 3 mm od		5064-8020
T-joint			5064-8017
T-joint, with earth block			G3280-67062
Cross joint			5064-8018
Union joint			5064-8019

(continued)



Integrated Sample Introduction System  
installed on the 7700 ICP-MS



### Integrated Sample Introduction System (ISIS) Supplies Used with 7700 and 8800 ICP-MS

Description	Further Information	Unit	Part No.
PTFE nut	For 3 mm od tubing	10/pk	5064-8021
Ferrule, front and back	For 3 mm od tubing	10/pk	5064-8022
PTFE nut for cross joint	For 1.6 mm od tubing	10/pk	5064-8023
Ferrule, front and back	For 1.6 mm od tubing	10/pk	5064-8024
Tubing adapter			G3138-65158
Tubing clamp			5064-8027
Spiral tubing, 5 m			5064-8029
Wrench, for valve maintenance			5064-8032
Tag, for tubing identification		10/pk	5064-8033
APG remote cable			5182-2581
Joint holder, for nebulizer pump			G4911-01201
Joint holder, for integrated sample introduction system pump			G3138-65103
Sample line connector			G3138-65104
Rotor seal for valve			G3138-65117
Nut for valve		6/pk	G3138-65118
Ferrule for valve		6/pk	G3138-65119
Mixer			G3138-65121
Sample loop, 100 $\mu$ L			G3138-65122
Tray, for integrated sample introduction system			G4911-60011



Front and back ferrules, 5064-8024



Separator gas chamber,  
G3138-65131

### Integrated Sample Introduction System (ISIS) Hydride Generation Accessory Supplies for 77/8800

Description	Specifications	Unit	Common Part No.
Separator gas chamber			G3138-65131
Cyclone chamber			G3138-65136
Peristaltic pump tubing, PharMed	2.54 mm id, 2 stops	6/pk	G3138-65128
Tubing for gas line	3 mm id, 4 mm od, 5 m		G3138-65138
Plug for cross joint		3/pk	G3138-65129
Reducing union connector	8 x 4 mm		G3138-65144
Reducing union connector	6 x 3 mm		G3138-65139
Reducing union connector	6 x 4 mm		G3138-65140
Plug for nebulizer* gas connector	4 mm od	3/pk	G3138-65141
Y connector for pump tubing	2.5 mm id	5/pk	G3138-65143

\*The term "carrier gas" has been replaced with "nebulizer gas" for ICP-MS (from July 2017 onwards).



Real stories from the lab

## True Story 41

Optimizing lab ops

### Optimizing lab ops

A team of Agilent service and sales experts helped an ICP-MS lab find ways to improve productivity and minimize instrument downtime.

[www.agilent.com/chem/story41](http://www.agilent.com/chem/story41)

Agilent  
**CrossLab**  
From Insight to Outcome

## Operating and Supplies Kits Designed to Support Approximately 12 Months in Routine Use

Description	Kit Contents	Part No.
Basic consumables kit, for 7700/7800/7850/7900, and 8800/8900 ICP-MS fitted with x-lens	Easy-fit peristaltic pump tubes for sample (2 stop, white/white, 12/pk, 5005-0020), waste (3 stop, yellow/blue, 12/pk, 5005-0022), internal standard (2 stop, blue/orange, 12/pk, 5005-0021), PFA sample tubing, 0.5 mm id, 1.6 mm od, 5 m (G1820-65105), graphite gaskets for sampling cone, 3/pk (G3280-67009), AVF Platinum pump oil, 1 L (X3760-64004), and torch, quartz, 2.5 mm id (G3280-80053)	G3280-67221
Comprehensive spares, for 7700x/e and 8800 ICP-MS fitted with x-lens	Easy-fit peristaltic pump tubes for sample (2 stop, white/white, 2 x 12/pk, 5005-0020), waste (3 stop, yellow/blue, 2 x 12/pk, 5005-0022), internal standard (2 stop, blue/orange, 2 x 12/pk, 5005-0021), PFA sample tubes (0.5 mm id, 1.6 mm od, 5 m), sample inlet tubing (0.5 mm id) for MicroMist nebulizer, online internal standard addition kit, drain tube assembly, spray chamber, spray chamber drain tubing, connector tube with dilution port, dilution gas connector, nebulizer* gas connector, dilution gas port plug, spray chamber clamps (2/pk), and nebulizer* gas tubing.  Also includes torch with 2.5 mm id injector, long-life shield plate, bonnet for shield torch, plasma/auxiliary gas tubing with inner sleeve, gas line connector, RF coil, graphite gaskets for sampling cone (3/pk), Ni sampling cones (2/pk), Ni skimmer cones (2/pk), screw and spacer kit for x-lens, screw and spacer O-ring, PTFE tubing for internal reaction gas line, octopole assembly, polishing paper kit for ion lens (5 sheets, no. 400 and 1200), oil mist filter element and rough pump oil, AVF Platinum, 1 quart, 2/pk (X3760-64004).	G3280-67004
Comprehensive spares, for 7700s and 8800 semiconductor ICP-MS fitted with s-lens	Easy-fit peristaltic pump tubes for sample (2 stop, white/white, 2 x 12/pk, 5005-0020), waste (3 stop, yellow/blue, 2 x 12/pk, 5005-0022), internal standard (2 stop, blue/orange, 2 x 12/pk, 5005-0021), PFA sample tubes (0.5 mm id, 1.6 mm od, 5 m), online internal standard addition kit, drain tube assembly, spray chamber, spray chamber drain tubing, connector tube with dilution port, dilution gas connector, nebulizer* gas connector, dilution gas port plug, spray chamber clamps (2/pk), and nebulizer* gas tubing.  Also includes torch with 2.5 mm id injector, long-life shield plate, bonnet for shield torch, plasma/auxiliary gas tubes with inner sleeve, gas line connector, RF coil, graphite gaskets for sampling cone (3/pk), Pt sampling cone, Pt skimmer cone, screw and spacer kit for s-lens, screw and spacer O-ring, PTFE tubing for internal reaction gas line, octopole assembly, polishing paper kit for ion lens (5 sheets, no. 400 and 1200), oil mist filter element, and rough pump oil, AVF Platinum, 1 quart, 2/pk (X3760-64004).	G3280-67007
Comprehensive spares, for 7700e ICP-MS	Easy-fit peristaltic pump tubes for sample (2 stop, white/white, 2 x 12/pk, 5005-0020), waste (3 stop, yellow/blue, 2 x 12/pk, 5005-0022), internal standard (2 stop, blue/orange, 2 x 12/pk, 5005-0021), PFA sample tubes (0.5 mm id, 1.6 mm od, 5 m), sample inlet tubing (0.5 mm id) for MicroMist nebulizer, online internal standard addition kit, drain tube assembly, spray chamber, spray chamber drain tubing, connector rod, nebulizer* gas connector, spray chamber clamps (2/pk), and nebulizer* gas tubing.  Also includes torch with 2.5 mm id injector, long-life shield plate, bonnet for shield torch, plasma/auxiliary gas tubes with inner sleeve, gas line connector, RF coil, graphite gaskets for sampling cone (3/pk), Ni sampling cones (2/pk), Ni skimmer cones (2/pk), screw and spacer kit for x-lens, screw and spacer O-ring, PTFE tubing for internal reaction gas line, octopole assembly, polishing paper kit for ion lens (5 sheets, no. 400 and 1200), oil mist filter element, and rough pump oil, AVF Platinum, 1 quart, 2/pk (X3760-64004).	G3280-67085

\*The term "carrier gas" has been replaced with "nebulizer gas" for ICP-MS (from July 2017 onwards).



7900 ICP-MS with the optional Integrated Sample Introduction System 3 (ISIS 3)

## Configurable Supplies Kits for 7700/8800 Series

Description	Kit Contents	Part No.
For 7700x/e and 8800 ICP-MS systems fitted with x-lens	Easy-fit peristaltic pump tubes for sample (2 stop, white/white, 2 x 12/pk, 5005-0020), waste (3 stop, yellow/blue, 1 x 12/pk, 5005-0022), internal standard (2 stop, blue/orange, 2 x 12/pk, 5005-0021) PFA sample tubing, 0.5 mm id, 1.6 mm od, 5 m EzyFit sample inlet, 0.5 mm id, 10/pk Online internal standard addition kit Drain tubing assembly Spray chamber Tubing for drainage, 4.0 mm id, 2.5 m Quartz connector tube with dilution port Gas connector for dilution gas port Nebulizer EzyLok gas connector Plug for dilution port, 4 mm Clamps for spray chamber, 2/pk Nebulizer/make up/dilution gas tubing Torch, quartz, 2.5 mm id Long-life Pt shield plate Bonnet for shield torch Plasma/auxiliary gas tubing with inner sleeve Connectors for plasma/auxiliary gas RF coil Graphite gaskets for sampling cone, 3/pk Screw and spacer kit for x-lens Screw/spacer/O-ring for cell PTFE tubing for reaction cell gas Octopole assembly Polishing paper kit for ion lens, 5 sheets, no. 400 and 1200	G3690A

Then select your preferred skimmer and sampling cones, and oil/filter to suit your application needs by adding one from each of the three following options

Option one – Select your sampling cone

Part No.	Description
G3690A#100	Adds Ni sampling cone (G3280-67040)
G3690A#101	Adds Ni-plated sampling cone (G3280-67061)
G3690A#102	Adds Pt sampling cone (G3280-67036)

Option two – Select your skimmer cone

Part No.	Description
G3690A#200	Adds Ni skimmer cone (G3280-67041)
G3690A#201	Adds Pt sampling cone (G3280-67060)*

(continued)

### Configurable Supplies Kits for 7700/8800 Series

Description	Kit Contents	Part No.
Option three – Select the oil/filter element for your vacuum pump		
Part No.	Description	
G3690A#300	Adds 2 x AVF Platinum oil, 1 L, (X3760-64004) and oil mist filter element (1535-4970) for the Edwards E2M18 vacuum pump	
G3690A#302	Adds 2 x AVF Platinum oil, 1 L (X3760-64004) and oil mist filter element (9499201) for the Agilent MS40+ vacuum pump	

\*Requires the brass skimmer base, p/n G3280-60621, which is not included in the kit.

### Configurable Supplies Kits for 7900 Series

Description	Kit Contents	Part No.
For 7900 ICP-MS systems fitted with x- or s-lens	Easy-fit peristaltic pump tubes for sample (2 stop, white/white, 2 x 12/pk, 5005-0020), waste (3 stop, yellow/blue, 1 x 12/pk, 5005-0022), internal standard (2 stop, blue/orange, 2 x 12/pk, 5005-0021) PFA sample tubing, 0.5 mm id, 1.6 mm od, 5 m Online internal standard addition kit Drain tubing assembly Spray chamber for UHMI Tubing for drainage, 4.0 mm id, 2.5 m Straight quartz connector tube Gas connector for dilution gas port Dilution nozzle for UHMI Plug for dilution port, 4 mm Clamp Torch ball joint connector, 2/pk Nebulizer/make up/dilution gas tubing Torch, quartz, 2.5 mm id Long-life Pt shield plate Bonnet for shield torch Low impurity gas tubing kit Connectors for plasma/auxiliary gas Work coil assembly Graphite gaskets for sampling cone, 3/pk Screw/spacer/O-ring for cell Tubing for reaction cell gas Octopole assembly Polishing paper kit for ion lens, 5 sheets, no. 400 and 1200 Exhaust filter	G1131A

Then select the mandatory option, your preferred skimmer/sampling cones, and pump oil to suit your application needs by adding one of the four following options

(continued)

## Configurable Supplies Kits for 7900 Series

Option one – Select the mandatory option

Part No.	Description
G1131A#100	Mandatory option for a 7900 with x-lens (adds UniFit sample connector, 0.5 mm id, 10/pk (G3266-80012), nebulizer EzyLok gas connector (G3266-80015), and screw and spacer kit for x-lens (G8400-67003))
G1131A#101	Mandatory option for a 7900 with s-lens (adds nebulizer gas line connector for MicroFlow nebulizer (G1833-65583), and screw and spacer kit for s-lens (G3280-67038))

Option two – Select your sampling cone

Part No.	Description
G1131A#200	Adds Ni sampling cone (G3280-67040)
G1131A#201	Adds Ni-plated sampling cone (G3280-67061)
G1131A#202	Adds Pt sampling cone (G3280-67036)
G1131A#203	Adds Pt sampling cone, with 18 mm insert (G3280-67056)

Option three – Select your skimmer cone

Part No.	Description
G1131A#300	Adds Ni skimmer cone, for 7900 with x-lens (G8400-67200)
G1131A#301	Adds Pt skimmer cone, with Cu base (G8400-67201) and brass skimmer base (G8400-60625), for 7900 with x-lens
G1131A#302	Adds Pt skimmer cone, with Ni base (G8400-67202) and brass skimmer base (G8400-60625), for 7900 with x-lens
G1131A#303	Adds Pt sampling cone (G3280-67064), for 7900 with s-lens
G1131A#304	Adds Ni skimmer cone (G3280-67066) and stainless steel skimmer base (G8400-60627), for 7900 with s-lens

Option four – Select the oil for your vacuum pump

G1131A#402	Adds 2 x AVF Platinum oil, 1 L (p/n X3760-64004) for the Agilent MS40+ vacuum pump
------------	--



## Configurable Supplies Kits for 7800 Series

Description	Kit Contents	Part No.
For 7800 ICP-MS systems fitted with x-lens	Nebulizer EzyLok gas connector UniFit sample connector, 0.5 mm id, 10/pk Easy-fit peristaltic pump tubes for sample (2 stop, white/white, 2 x 12/pk, 5005-0020), waste (3 stop, yellow/blue, 1 x 12/pk, 5005-0022), internal standard (2 stop, blue/orange, 2 x 12/pk, 5005-0021) PFA sample tubing, 0.5 mm id, 1.6 mm od, 5 m Online internal standard addition kit Drain tubing assembly Spray chamber Tubing for drainage, 4.0 mm id, 2.5 m Quartz connector tube with dilution port Gas connector for dilution gas port Plug for dilution port, 1/8 inch Clamp Torch ball joint connector, 2/pk Nebulizer/make up/dilution gas tubing Torch, quartz, 2.5 mm id Long-life Pt shield plate Bonnet for shield torch Low impurity gas tubing kit Connectors for plasma/auxiliary gas Work coil assembly Graphite gaskets for sampling cone, 3/pk Screw and spacer kit for x-lens Screw/spacer/O-ring for cell Tubing for reaction cell gas Octopole assembly Polishing paper kit for ion lens, 5 sheets, no. 400 and 1200 Exhaust filter Rough pump oil, AVF Platinum, 1 L, 2/pk	M5141A

Then select your preferred skimmer/sampling cones, and oil mist filter to suit your application needs by adding one from each of the three following options

(continued)

## Configurable Supplies Kits for 7800 Series

Option one – Select your sampling cone

Part No.	Description
M5141A#100	Adds Ni sampling cone (G3280-67040)
M5141A#101	Adds Ni-plated sampling cone (G3280-67061)
M5141A#102	Adds Pt sampling cone (G3280-67036)
M5141A#103	Adds Pt sampling cone, with 18 mm insert (G3280-67056)

Option two – Select your skimmer cone

Part No.	Description
M5141A#200	Adds Ni skimmer cone (G3280-67041)
M5141A#201	Adds Pt skimmer cone (G3280-67060) and brass skimmer base (G3280-60621)
M5141A#202	Adds Pt skimmer cone, with Ni base (G3280-67063) and brass skimmer base (G3280-60621)

Option three – Select your foreline pump type

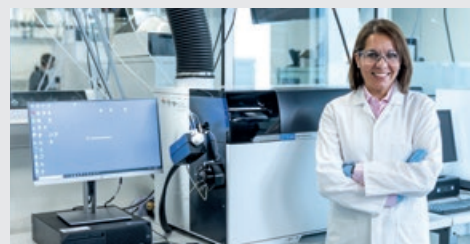
Part No.	Description
M5141A#300	Adds oil mist filter element, for DS402 pump
M5141A#301	Adds oil mist filter element, for MS40+ pump

## Tips and Tools

### ICP-MS Resource Hub

Ensure that you have the right information at the right time, so you can achieve great results.

Visit [www.agilent.com/chem/icp-ms-resource](http://www.agilent.com/chem/icp-ms-resource)





## Configurable Supplies Kits for 8900 Series

Description	Kit Contents	Part No.
For 8900 ICP-MS systems fitted with x- or s-lens	Easy-fit peristaltic pump tubes for sample (2 stop, white/white, 2 x 12/pk, 5005-0020), waste (3 stop, yellow/blue, 1 x 12/pk, 5005-0022), internal standard (2 stop, blue/orange, 2 x 12/pk, 5005-0021) PFA sample tubing, 0.5 mm id, 1.6 mm od, 5 m Online internal standard addition kit Drain tubing assembly Tubing for drainage, 4.0 mm id, 2.5 m Clamp Torch ball joint connector, 2/pk Nebulizer/make up/dilution gas tubing Torch, quartz, 2.5 mm id Long-life shield plate Bonnet, quartz, for shield torch Plasma/auxiliary low impurity gas tubing kit (with inner sleeves) Connectors for plasma and auxiliary gas Work coil assembly, for ICP-MS Graphite gaskets for sampling cone, 3/pk Tubing for reaction cell gas Polishing paper kit for ion lens, 5 sheets, no. 400 and 1200 Exhaust filter, for MS40+ rotary vane pump Rough pump oil, AVF Platinum, 1 L, 2/pk	G1091A

Then select the mandatory option, your preferred skimmer/sampling cones, and ion lenses to suit your application needs by adding one of each of the four following options

Option one		
G1091A#100	Mandatory option for 8900 with x-lens	
1	UniFit sample connector	G3266-80012
1	Gas connector, for nebulizer	G3266-80017
1	Screw and spacer kit	G8400-67003
1	Spray chamber, with UHMI	G8400-67150
1	Dilution nozzle, UHMI, for 7900 ICP-MS	G8400-67026
1	Gas connector, dilution gas port, for 8900	0100-2703
1	Blank plug for dilution port, PTFE, for 8900	G3666-20391
G1091A#101	Mandatory option for 8900 with s-lens (semicon)	
1	Nebulizer* gas line connector	G1833-65583
1	Screw and spacer kit	G3666-67038
1	Spray chamber, without UHMI	G3280-80008

(continued)

## Configurable Supplies Kits for 8900 Series

Description	Kit Contents	Part No.
Option two		
G1091A#200	Adds Ni sampling cone	G3280-67040
G1091A#201	Adds Ni-plated sampling cone	G3280-67061
G1091A#202	Adds Pt sampling cone	G3280-67036
G1091A#203	Adds Pt sampling cone, 18 mm insert	G3280-67056
Option three		
G1091A#300	Skimmer cone (Ni), for 7900/8900 with x-lens	G8400-67200
G1091A#301	Skimmer cone (Pt/Cu), for 7900/8900 with x-lens and brass skimmer base, for 8900 with x-lens (G3666-60311)	G8400-67201
G1091A#302	Skimmer cone (Pt/Ni), for 7900/8900 with x-lens and brass skimmer base, for 8900 with x-lens (G3666-60311)	G8400-67202
G1091A#303	Skimmer cone (Ni), for 8900 with s-lens	G3666-67421
G1091A#304	Skimmer cone (Pt/Cu), for 8900 with s-lens	G3666-67401
G1091A#305	Skimmer cone (Pt/Ni), for 8900 with s-lens	G3666-67411
Option four		
G1091A#400	Mandatory option for an 8900 with ORS3 without acceleration	
1	Octopole assembly without acceleration, for 8900	G3666-67046
1	Screw/spacer/O-ring, for 8900 non-AA cell	G3666-67044
1	Quartz connector tube, straight	G3270-80025
G1091A#401	Mandatory option, for an 8900 with ORS3 and axial acceleration	
1	Octopole assembly with axial acceleration, for 8900	G3666-67045
1	Screw/spacer/O-ring, for 8900 AA cell	G3666-67049

(continued)



8900 triple quadrupole ICP-MS with I-AS autosampler

## Configurable Supplies Kits for 8900 Series

Description	Kit Contents	Part No.
1	Quartz connector tube, dilution, HMI kit	G3270-80024
1	Plug, for dilution port	G3280-20576
1	Gas connector, for dilution gas port	0100-2583

\*The term "carrier gas" has been replaced with "nebulizer gas" for ICP-MS (from July 2017 onwards).

## GC Interface Supplies

Description	Part No.
Transfer line, for GC interface	G3158-80060
Injector assembly, for GC interface	G3158-80150
Torch, for GC interface	G3158-80074
Preheating pipe with connector, stainless steel, 1/16 inch	G3158-80080
Stainless steel pipe, 1/16 inch (Sulfinert, 1.05 m)	G3158-80081
Polyimide/graphite reducing ferrule (1/8 to 1/16 inch, VG1, 10/pk)	0100-1344
Polyimide/graphite ferrule (1/4 inch, VG1, 10/pk)	0100-1331
Polyimide/graphite ferrule, for 320 µm columns (0.5 mm, VG1, 10/pk)	5062-3506
Polyimide/graphite ferrule (1/16 inch, VG2, 10/pk)	0100-1379
PFA tubing, 1/8 inch, 2 m	G3158-60010
3-way manual valve	G3158-80024
Swagelok plug, stainless steel, 1/8 inch	0100-0071
Nut with pipe	G3158-80009
Stainless steel tee for O <sub>2</sub> gas mix, 1/8 inch	0100-0542



8900 triple quadrupole ICP-MS coupled to the 8890 GC with the GC-ICP-MS interface

## Speciation Columns and Supplies

Description	Kit Contents	Part No.
As speciation column for drinking water		G3154-65001
As speciation column for environmental samples (including urine)		G3288-80000
As speciation guard column		G3154-65002
Cr speciation column for drinking water		G3268-80001*
Comprehensive LC connection kit	Suitable for LC-ICP-MS applications other than Cr in water and As in water/urine. This is a comprehensive pack of tubing and connectors required to set up LC-ICP-MS Includes sample tubing (PFA, 0.15 mm id, 0.7 m, 5/pk, PTFE, 0.8 mm id, 0.5 m, PTFE, 2.0 mm id, 5 m), peristaltic pump tubing (Tygon, 3 stop, 0.89 mm id, 12/pk), T-joint, 2/pk, union joint, 5/pk, PTFE nut for 3 mm od tubing, 10/pk, front and back ferrules for 3 mm od tubing, 10/pk, PTFE nut for 1.6 mm od tubing, 10/pk, front and back ferrules for 1.6 mm od tubing, 10/pk, peri-pump tubing adapters, 2/pk, APG remote cable, gender changer connector D9S-FF, and manual/setup guide	G1833-65200
Basic LC connection kit	Includes sample tubing (PFA, 0.3 mm id, 1.6 mm od, 3 m), union joints, 2/pk, PEEK finger-tight fitting, 3/pk, 10-32 male nut, 1/16 inch, 2/pk, APG remote cable, and gender changer connector D9S-FF	G1820-65541
Total consumption nebulizer for capillary LC interface		G3280-80602
Single-pass spray chamber for capillary LC interface		G3280-80603

\*Cr speciation handbook, p/n G3268-90001

## Miscellaneous Supplies

Description	Part No.
7700 maintenance video DVD	G3280-60910
7800/7900/8900 maintenance video DVD	G8400-60921
Agilent ICP-MS eFamiliarization video DVD	G8400-60934
Cooling water hose, 10 m	G1820-65020
Strainer for cooling water	G1833-67024
Cool Clear general purpose coolant fluid for recirculating chiller/heat exchanger, 2 gal/pk. Formulation includes corrosion inhibitor for the protection of your spectrometer's cooling circuit.	5799-0037
Fluid filter for G3292A chiller	G3292-80109
Air filter for G3292A chiller	G3292-80112
Water filter connector for Agilent ICP-MS	5069-4524

## Tips and Tools

**Don't put your instrument performance at risk.**

**Use genuine Agilent Cool Clear in your chiller or heat exchanger.**

Agilent Cool Clear has been specially formulated by our chemists to include the ideal corrosion inhibitor at the correct concentration. Cool Clear is supplied ready-to-use, straight from the bottle. The pack size (2 U.S. gallons) is optimal for replacing the fluid in the Agilent chiller and spectrometer cooling circuit, leaving you with a small amount of excess for any top ups required.

Annual replacement of your coolant is recommended. This can be completed by an Agilent service engineer as part of our instrument preventive maintenance service.

If you choose to replace the coolant yourself, remember to set an annual reminder with Early Maintenance Feedback (EMF) on your Agilent instrument software. Then, you never need to worry about problems with your cooling circuit.

Learn more:

[www.agilent.com/cs/library/technicaloverviews/public/technicaloverview-cool-clear-5994-4576en-agilent.pdf](http://www.agilent.com/cs/library/technicaloverviews/public/technicaloverview-cool-clear-5994-4576en-agilent.pdf)



Cool Clear coolant fluid  
2 gal/pk, 5799-0037



Plasma/auxiliary tubing with inner sleeve, G3280-67023



Connectors for plasma/auxiliary gas lines, G1820-65027



Nebulizer/make up/dilution gas tubing, G3280-67022

## Gas line supplies

### Gas Line Supplies

Description	Specifications	Use	Unit	Part No.
Tubing, plasma/auxiliary gas, with inner sleeve	0.2 m	For 7700 only	2/pk	G3280-67023
Tubing, plasma/auxiliary gas, with inner sleeve	0.2 m	For 78/79/88/8900 series	2/pk	G3660-67040
Connectors, PTFE, for plasma and auxiliary gas lines	4 and 6 mm	For gas line connection to torch		G1820-65027
Inner sleeve, for nebulizer*/auxiliary gas line	CTFE	For gas line connection to connector	5/pk	5042-0922
Inner sleeve, for plasma gas line	CTFE	For gas line connection to connector	5/pk	5042-0923
Tubing, for nebulizer*/make up/dilution gas				G3280-67022
Gas connector, for dilution gas port		For dilution gas line connection to dilution port		0100-2583 (77/8800)
Gas connector, for dilution gas port		For dilution gas line connection to dilution port		0100-2703 (79/8900)
Dilution nozzle, for ultrahigh matrix introduction		For 7900/8900		G8400-67026
Argon humidifier bottle, for 7800/7900/8900 series				G8400-60700
Tubing kit for argon humidifier used with 7800/7900/8900 series				G8400-60710
Argon gas filter				G1820-80341
Argon clean gas filter		For semicon applications		5064-8092
Argon gas tubing kit, for 7700x/e and 7900		For external line		G3280-60160
Argon gas tubing kit, for 7700s, 8800, and 7900 with semiconductor option		For external line		G3280-60163
Tubing, stainless steel	1/8 inch od, 6 m	For external cell gas line		G3270-65035
Gas tubing set, for argon gas purifier (Big Universal Trap)		For 8900 only		G3666-67026
Big Universal Trap, 1/8 inch fittings, argon, 750 cc (Ar gas filter set installed on the back panel of 8900 only)			1/pk	RMSA-2

\*The term "carrier gas" has been replaced with "nebulizer gas" for ICP-MS (from July 2017 onwards).

## Ultraclean ICP-MS Traps

Description	Part No.
Replacement Agilent Gas Clean nebulizer* gas filter	CP17973
O-rings, FPM, Gas Clean connecting unit, 2/pk	CP7983

\*The term "carrier gas" has been replaced with "nebulizer gas" for ICP-MS (from July 2017 onwards).

## High Purity Gas Regulators – U.S. Only

Description	Further Information	Part No.
Regulator for helium	Two-stage regulator with stainless steel body and stainless steel diaphragms. Maximum inlet pressure 3000 psi. Maximum delivery pressure of 15 psi with 0–30 psi outlet gauge and 1/8 inch compression tube fitting outlet. Supplied with wall mounting bracket, including 36 inch stainless steel-lined pigtail with check valve and CGA580 cylinder connection.	0101-1398
Regulator for hydrogen	Two-stage regulator with stainless steel body and stainless steel diaphragms. Maximum inlet pressure 3000 psi. Maximum delivery pressure of 15 psi with 0–30 psi outlet gauge and 1/8 inch compression tube fitting outlet. Supplied with wall mounting bracket, including 36 inch stainless steel-lined pigtail with check valve and CGA350 cylinder connection.	0101-1399
Regulator for argon	Two-stage regulator with stainless steel body and stainless steel diaphragms. Maximum inlet pressure 3000 psi. Maximum delivery pressure of 100 psi with 0–200 psi outlet gauge and 1/4 inch FPT outlet. Supplied with wall mounting bracket, including 36 inch stainless steel-lined pigtail with check valve and CGA580 cylinder connection.	0101-1400
Regulator for NH <sub>3</sub> /He	Two-stage regulator with stainless steel body and stainless steel diaphragms. Maximum inlet pressure 3000 psi. Maximum delivery pressure of 15 psi with 0–30 psi outlet gauge and 1/4 inch FPT outlet. Supplied with wall mounting bracket, including 36 inch stainless steel-lined pigtail with check valve and CGA705 cylinder connection.	5188-5374

## Gas Regulators – U.S. Only

Description	Further Information	Part No.
Regulator for helium	Two-stage regulator with brass body, stainless steel diaphragms, and PTFE seal. CGA580 inlet with maximum inlet pressure 3000 psi. Maximum delivery pressure of 15 psi with 0–30 psi outlet gauge and 1/8 inch Swagelok outlet fitting.	0101-1536
Regulator for hydrogen	Two-stage regulator with brass body, stainless steel diaphragms, and PTFE seal. CGA350 inlet with maximum inlet pressure 3000 psi. Maximum delivery pressure of 15 psi with 0–30 psi outlet gauge and 1/8 inch Swagelok outlet fitting.	0101-1535
Regulator for oxygen	Two-stage regulator with brass body, stainless steel diaphragms, and PTFE seal. CGA540 inlet with maximum inlet pressure 3000 psi. Maximum delivery pressure of 15 psi with 0–30 psi outlet gauge and 1/8 inch Swagelok outlet fitting.	0101-1537



Replacement Agilent Gas Clean nebulizer gas filter, CP17973



4210 microwave plasma atomic emission spectrometer

## MP-AES Supplies

### Agilent 4100/4200/4210 MP-AES supplies

The Agilent microwave plasma atomic emission spectrometer (MP-AES) is a high sensitivity atomic emission spectrometer that offers the perfect alternative to the traditional flame atomic absorption spectroscopy (AAS) technique.

The Agilent 4210 MP-AES has higher sensitivity, lower detection limits (down to sub-ppb levels), and is faster than conventional flame atomic absorption spectrometers (FAAS).

The MP-AES instrument uses a microwave plasma and runs on air instead of combustible gases, meaning it is safer to operate and delivers the lowest cost of ownership. This also eliminates the need for an ongoing supply of flammable or expensive gases and facilitates installation in either a centralized laboratory or a remote location.

The 4210 MP-AES is easy to use, with application-specific software applets and plug-and-play hardware to ensure you can set up quickly without method development or alignment, and with minimal training.

Agilent also offers a range of accessories, such as a humidifier, the AVS 4 four-port switching valve, and the IsoMist temperature-controlled spray chamber, to extend the instrument's capabilities.

### Tips and tools

Use balances, not pipettes, for diluting. Try to dilute on a weight/weight basis using calibrated balances; the uncertainty of a balance is much lower than that of a pipette.



## MP-AES Torches

Description	Further Information	Part No.
Easy-fit torch, for 4200/4210 MP-AES, with a blue base for easy identification	Suitable for the 4200/4210 MP-AES only	G8003-70000
Easy-fit inert torch, for 4200/4210 MP-AES, for use with HF digests	Features an inert alumina injector and is supplied with a PTFE ball joint coupler and inert torch clamp Recommended for use with the inert double-pass spray chamber, p/n G8014-68002 (not supplied)	G8003-60018
Easy-fit torch, for 4100 MP-AES	Suitable for the 4100 MP-AES only	G8000-70002
Torch cleaning stand, for MP-AES torches	Provides a stable platform that allows the whole torch to be suspended in the cleaning solution	G8003-68003
Torch clamp		G8000-64140
Torch clamp, for inert torch	Secures the ball joint socket between the inert spray chamber and the inert torch, for 4200/4210 MP-AES Not suitable for the standard torch	G8010-60227
Ball joint adaptor, for Easy-fit inert torch, used with 4200/4210 MP-AES	Connects the alumina injector of the inert torch to the ball joint connector of the inert spray chamber Not required with the standard torch	G8003-20011



Easy-fit torch, for 4200/4210 MP-AES, G8003-70000



Easy-fit inert torch, for 4200/4210 MP-AES, G8003-60018



Easy-fit torch, for 4100 MP-AES, G8000-70002



Torch cleaning stand, for MP-AES torches, G8003-68003



Torch clamp, G8000-64140



Torch clamp, for inert torch, G8010-60227



OneNeb series 2 inert concentric nebulizer, G8010-60293



Concentric nebulizer, G8000-70004



Nebulizer gas connector, G8000-64142

## MP-AES Nebulizers and Supplies

Description	Part No.
OneNeb series 2 inert concentric nebulizer Standard nebulizer for the MP-AES Recommended for high-sensitivity applications, organic samples, high TDS samples (with particle sizes <150 microns) and HF digests Includes replaceable sample connector and quick release connector for nebulizer gas inlet	G8010-60293
Concentric nebulizer Recommended for routine analysis of most sample types where high sensitivity is required	G8000-70004
Conikal glass concentric nebulizer Replaces the nebulizer supplied with the Conikal sample introduction kit, p/n G8007AA #012 Recommended for routine analysis of most sample types where high sensitivity is required Not suitable for use with HF digests or samples with suspended particulates	2010106800
Sample inlet fitting, for OneNeb series 2 nebulizer Includes capillary connector with captive sample capillary tubing 0.5 mm id x 1/16 inch od x 750 mm length capillary tubing	G8010-60345
Conical adapter, 1/16 inch od sample line, for OneNeb series 2 nebulizer Joins 1/16 inch od sample capillary to peristaltic pump tubing. Includes conical PTFE adapter with PTFE nut (female) and PTFE ferrule and lock ring.	5043-0502
EzyFit sample connector, for Conikal glass concentric nebulizer, 10/pk Fitted with 0.75 mm id x 700 mm length capillary tubing. Connects the peristaltic pump tubing for the sample line to the nebulizer. Used with the Conikal nebulizer, p/n 2010106800 only.	9910107700
Nebulizer capillary tubing, per m Joins to the peristaltic pump tubing for the sample to extend the length of the line, enabling sample to be drawn from a container	2410020500



### Humidifier accessory

Compatible with a range of Agilent ICP-OES, ICP-MS, and MP-AES instruments, the Agilent humidifier accessory can significantly improve signal stability for the analysis of challenging sample types.

For more information, turn to **Page 56**.

## MP-AES Spray Chambers and Supplies

Description	Part No.
Double-pass glass cyclonic spray chamber Standard spray chamber supplied with 4200/4210 MP-AES Recommended for use with organic solvents, high matrix, or high TDS samples	G8000-70007
Single-pass glass cyclonic spray chamber For use with aqueous and low matrix samples where best sensitivity is required	G8000-70006
Inert double-pass cyclonic spray chamber For use with HF digests and high TDS samples. Removable baffle enables this to be used as a single-pass design for improved sensitivity when required.	G8014-68002
UniFit drain connector, 2.0 mm od x 0.86 mm id, 3/pk Drain connector, for inert spray chambers, used with 4200/4210 MP-AES Fitted with 480 mm length capillary tubing Connects the peristaltic pump tubing for the waste line to the spray chamber outlet	G8010-80036
Nebulizer locking nut, for glass cyclonic and inert spray chambers Features two O-rings inside to center and seal the nebulizer	G8003-60019
Drain tube kit	G8000-64143
Removable baffle, for inert spray chamber	G8014-20002
O-ring kit, for inert spray chamber (3/pk)	G8014-68005
Replacement drain fitting, for base of the inert spray chamber, male luer slip fitting with 10-32 thread	G8014-68007



Single-pass glass cyclonic spray chamber, G8000-70006



Double-pass spray chamber, G8000-70007



Inert spray chamber for MP-AES and 5000 series ICP-OES, G8014-68002



Nebulizer locking nut for glass cyclonic spray chamber, G8003-60019

## MP-AES Peristaltic Pump Tubing

Description	Unit	Part No.
Pump tubing, Solvaflex, orange/green, flared ends, for most sample types including aqueous, HF digests, and some organic solvents	6/pk	3710068100
Pump tubing, blue/blue, for spray chamber waste, for most sample types including aqueous, HF digests, and some organic solvents	12/pk	3710067900
Pump tubing, orange/green, for organic solvents and high TDS samples	12/pk	3710068000
Organic peristaltic pump tubing kit for MP-AES Includes PVC Solvaflex pump tubing with orange/green tabs, for sample inlet and with blue/blue tabs for waste line. Suitable for low volatile organic solvents.		G8003-67003
Pump tubing, PVC, white/white, for aqueous samples	12/pk	3710034400
Pump tubing, PVC, orange/green, for aqueous and high TDS samples	12/pk	3710068200
Pump tubing, PVC, orange/green, flared ends, for aqueous and high TDS samples	12/pk	3710068300

(continued)



Pump tubing, blue/blue,  
3710067900



Pump tubing, orange/green,  
3710068000



Inlet cooling air filter,  
G8000-68002



Onboard argon bottle, for  
plasma ignition, G8000-70001

### MP-AES Peristaltic Pump Tubing

Description	Unit	Part No.
Pump tubing, PVC, blue/blue, for spray chamber waste with aqueous samples	12/pk	3710034600
Pump tubing, Marprene, orange/green tabs with flared ends, for semivolatle organic samples	12/pk	3710068500
Pump tubing, Marprene, blue/blue tabs, for semivolatle organic waste	12/pk	3710044400
Pump tubing, FPM, orange/green tabs with flared ends, for volatile organic samples	12/pk	3710068700
Pump tubing, FPM, blue/blue tabs, for volatile organic waste	12/pk	3710043900

### Application Kits for 4200/4210 MP-AES

Description	Recommended For	Kit Contents	Part No.
Routine aqueous sample introduction kit	Routine analysis of aqueous or acidic samples	Includes single-pass glass cyclonic spray chamber, Conikal nebulizer, and PVC peristaltic pump tubing with white/white tabs for sample	G8003-67001
High sensitivity sample introduction kit, for routine aqueous samples	High sensitivity analysis of aqueous or acidic samples	Includes single-pass glass cyclonic spray chamber, concentric nebulizer, and PVC peristaltic pump tubing with white/white tabs for sample	G8003-67000
Inert sample introduction kit	Use with HF digests	Includes inert double-pass spray chamber with ball joint socket, Easy-fit inert torch with alumina injector and clamp for inert torch Requires but does <i>not</i> include the inert OneNeb series 2 nebulizer or pump tubing	G8003-67005
Organic peristaltic pump tubing kit, for MP-AES	Low volatile organic solvents	Includes PVC Solvaflex pump tubing with orange/green tabs for sample inlet and with blue/blue tabs for waste line	G8003-67003

### MP-AES Miscellaneous Supplies

Description	Further Information	Part No.
Pre-optic window		G8000-64112
Inlet cooling air filter		G8000-68002
Onboard argon bottle, for plasma ignition	Contains 60 L of welding grade (99%) argon Disposable Requires but does <i>not</i> include regulator and connecting hose (p/n G8000-63006)	G8000-70001*
Air inlet filter kit, for Agilent 4107 nitrogen generator	Includes replacement filter elements, large 5 µm particle filter (white filter element), small 1 µm particle filter (blue filter element), and activated carbon filter (mesh filter element) for residual oil vapor	G8001-64004

\*Not available for sale in China, Japan, or New Zealand.

(continued)

## MP-AES Miscellaneous Supplies

Description	Further Information	Part No.
Drain tubing for aqueous solutions		
Tubing, 1/8 inch id, 1/4 inch od, 1/16 inch wall, per m	Connects spray chamber to peristaltic pump waste line	3710031500
Tubing, 1/4 inch id, 1/16 inch od, per m	Connects sample tray to waste container	3710033400
Drain tubing for organic solvents		
Tubing, 1/8 inch id, 1/4 inch od, per m	Connects spray chamber to peristaltic pump waste line	3710035400
Tubing, spray chamber to torch, per m	Connects sample tray to waste container	3710037800

## Multimode Sample Introduction System (MSIS)

The Agilent MSIS provides simultaneous vapor generation of environmentally sensitive hydride-forming elements, including As, Se, and Hg, with low  $\mu\text{g/L}$  detection limits. It enables better performance through thin-film hydride technology, while offering a choice of three modes that eliminate changeover and allow routine and hydride elements to be determined using the same setup.

Description	Further Information	Part No.
Multimode Sample Introduction System (MSIS)	Includes the MSIS, drain tubing assembly, capillary tubing (0.01 in id x 0.03 in od) to join to peristaltic pump tubing for reductant inlet, and peristaltic pump tubing for reductant and waste (1 tube each).  We recommend the MP-AES be fitted with a five-channel peristaltic pump for simultaneous hydride/nonhydride operation	G8000-63003
MSIS Supplies		
Peristaltic pump tubing, black/black, 12/pk	Required to pump reagents to MSIS	3710027200
Peristaltic pump tubing, black/white, 12/pk	Required to pump waste from MSIS	3710068900
MSIS nebulizer bushing	Includes O-rings	G8479-20020
O-rings for MSIS nebulizer bushing	Includes 1 pair of replacement O-rings for the nebulizer bushing (1 internal and 1 external O-ring)	G8479-67000

(continued)



Multimode Sample Introduction System (MSIS)

MSIS drain tube assembly	Includes 0.2 m length of 1/8 in id drain tubing with bushing for waste outlet, plus barb adapter and a single peristaltic pump tube, 2 bridged PVC with black/white tabs	G8479-60100
MSIS reaction cone assembly	Includes reaction cone, bushing, threaded barb adapter, and tubing connector for sample inlet	G8479-60300
MSIS reagent tubing kit	Includes O-rings for nebulizer bushing (1 pair), tubing connectors for reagent/sample inlets, and capillary tubing (0.01 inch id, 0.03 inch od) to join to peristaltic pump tubing for reductant inlet	G8479-68100



External gas control module (EGCM)

## External gas control module (EGCM)

Add the Agilent EGCM to enable determination of organic solvents and sulfur. The EGCM injects air into the plasma, minimizing carbon buildup and reducing background noise.

Description	Part No.
External gas control module (EGCM)	G8000-63005

## Organics kit for 4100 MP-AES

The MP-AES organics kit includes all items required to adapt the 4100 MP-AES for determination of organic solvents.

Description	Part No.
MP-AES organics kit Includes external gas control module (EGCM), OneNeb nebulizer, and solvent resistant tubing	G8000-68004

## AVS 4 advanced valve system, for 4200/4210 MP-AES

The Agilent advanced valve system (AVS 4) is an optional accessory for the Agilent 4200/4210 MP-AES instruments. It is designed to increase sample throughput and reduce matrix loads on the sample introduction system. It consists of a four-port switching valve, positioned between the peristaltic pump and the sample introduction components.

The AVS 4 rinses the sample introduction system during uptake of the next sample, reducing both the rinse time and the total analysis time. Shorter analysis times mean lower costs and improved sample throughput.

For more details, see the **AVS 4 Technical Overview** or search for 5991-7249EN on the Agilent website.



Advanced valve system four-port switching valve (AVS 4) fitted to a 4210 MP-AES

### Supplies for AVS 4, for 4200/4210 MP-AES

Description	Further Information	Part No.
Spare valve, 4 port, 2 position, for AVS 4 switching valve	Replacement valve assembly for AVS 4	G8493-60000
Stator and rotor for 4 port valve, for AVS 4 switching valve		G8493-60003
Nebulizer connection kit, for AVS switching valve		G8010-60304
Autosampler connection kit, for AVS switching valve	Includes super flangeless one-piece fitting, 1/4-28 flat bottom, for 1/16 inch od tubing, used to join the probe line to the valve assembly	G8010-60306
Waste tube kit, for 4 port AVS switching valve	Includes swivel barb adaptor fitted with 2 m length of 1/8 inch id PVC tubing, for the AVS waste line	G8010-60334
Sample/rinse connection kit, for AVS switching valve, 2/pk	Includes super flangeless one-piece fitting, 1/4-28 flat bottom, for 1/16 inch od tubing, fitted with 1/16 inch od PFA tubing and a conical adapter to join to the peristaltic pump tubing	G8010-60335
Autosampler peristaltic pump connection kit	Allows the user to bypass the switching valve when required, for example, for wavelength calibration. Includes ferrule fitting for the autosampler line plus a conical PTFE adapter to enable connection to the peristaltic pump tubing.	G8010-60348
UniFit sample line, 0.75 mm id x 1/16 inch od	Replacement part for UniFit nebulizer connection kit (p/n G8010-60336) supplied with the AVS 4	8003-0493
Nebulizer adaptor kit, for AVS switching valve	Includes super flangeless one-piece fitting, 1/4-28 flat bottom, for 1/16 inch od tubing and 1/16 inch od FEP tubing sleeve, used to join the sample capillary of the OneNeb nebulizer to the valve assembly	G8010-60333

(continued)

## Supplies for AVS 4, for 4200/4210 MP-AES

Description	Further Information	Part No.
Rotor seal for 4 port valve, for AVS 4 switching valve		G8493-60002
Drip tray, for 4 port valve, for AVS 4 switching valve		G8010-20080



Reagent uptake capillary tube with PTFE sinker, G8494-60007

## Miscellaneous Supplies for AVS Switching Valves, for 4200/4210 MP-AES

Description	Further Information	Part No.
Rinse (10 L) and waste (20 L) containers for AVS	Includes 10 L HDPE container for rinse solution and 20 L HDPE container for waste, both fitted with safety caps to prevent vapors reaching the lab Supply lines fitted with sinkers to ensure the capillary draws from the base of the container	G8494-60005
Reagent uptake capillary tube, 1.6 mm od x 1.0 mm id x 1400 mm length, with heavy PTFE sinker		G8494-60007
Mounting clamp, for AVS 4/6/7 switching valve		G8494-60004



IsoMist temperature-controlled spray chamber, for MP-AES

## IsoMist temperature-controlled spray chamber

The Agilent IsoMist temperature-controlled spray chamber accurately controls the temperature of the sample introduction system. This delivers excellent long-term stability for even the most difficult matrices, including volatile organic solvents and viscous oil samples.

The programmed temperature is controlled using a Peltier device, providing the ability to either heat or cool the sample introduction system and maintain a stable temperature.

## Supplies for IsoMist (LoL Configuration) Used with MP-AES

Description	Further Information	Part No.
PuraFlex transfer tube for IsoMist, used with 4200/4210 MP-AES	Connects the aerosol outlet from the IsoMist to the Easy-fit MP-AES torch	G8007-68000
MP-AES spray chamber, Twister style encapsulated, for IsoMist	Twister style (double-pass) glass cyclonic with thermal conductive polymer encapsulation, for use with IsoMist for MP-AES (LoL configuration) Will not fit the IsoMist for the 5000 series ICP-OES	G8007-68001
UniFit right angle drain fitting, for IsoMist, 3/pk	Fits to waste outlet of IsoMist spray chamber	G8010-68023



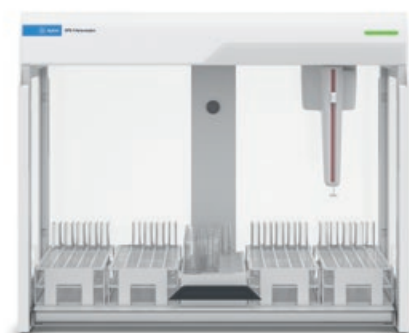
# Autosampler Supplies

## SPS 4 autosampler supplies

The next-generation Agilent SPS 4 is a high-performance autosampler for atomic spectroscopy applications. Designed to meet the needs of high-throughput laboratories requiring a fast, high-capacity (up to 360 samples or 768 microtiter wells), reliable autosampler. Small, quiet, easy-to-use, and affordable, the SPS 4 is suitable for ultratrace analysis using ICP-MS and robust enough for FAAS, MP-AES, and ICP-OES users.

Built around an innovative gantry design that supports the mechanical components between two rigid pillars, the SPS 4 provides improved accuracy and precision, high speed, ease-of-access, and corrosion resistance. This is all contained within a footprint that is nearly 40% smaller than other autosamplers in its class.

Learn more at [www.agilent.com/chem/sps4-autosampler](http://www.agilent.com/chem/sps4-autosampler)



SPS 4 autosampler

### SPS 4 Autosampler Probes

Description	Notes	Part No.
SPS 4 probe, 0.25 mm id, red markers, inert, FEP-sleeved	Recommended when using the SPS 4 autosampler with ICP-MS instruments	G8410-80100
SPS 4 probe, 0.5 mm id, yellow markers, inert, FEP-sleeved	Recommended when using the SPS 4 autosampler with ICP-MS instruments	G8410-80101
SPS 4 probe, 0.8 mm id, green markers, inert, FEP-sleeved	Recommended when using the SPS 4 autosampler with AA, ICP-OES, MP-AES, and ICP-MS instruments	G8410-80102
SPS 4 probe, 1.0 mm id, blue markers, inert, FEP-sleeved	Recommended when using the SPS 4 autosampler with AA, ICP-OES, and MP-AES instruments	G8410-80103
SPS 4 probe, 1.2 mm id, black markers, inert, FEP-sleeved	Recommended when using the SPS 4 autosampler with AA, ICP-OES, and MP-AES instruments with viscous solutions and high matrix samples	G8410-80104



SPS 4 probe, 0.8 mm id with green markers, inert, FEP-sleeved, G8410-80102

### SPS 4 Autosampler Probe Compatibility

Probe Type	Flame AAS	MP-AES	ICP-OES	ICP-MS
0.25 mm id				✓
0.5 mm id				Standard
0.8 mm id	Standard	Standard	Standard	✓
1.0 mm id	✓	✓	✓	✓
1.2 mm id	✓	✓	✓	

✓ Compatible part



Sample bottle, 250 mL, for 5 x 60 mm standard rack, 5043-0064



Optional cover kit for the SPS 4 autosampler shown in fixed open position, allowing easy access to samples, G8410-60100

## SPS 4 Standard Racks and Compatible Vessels

Description	Further Information	Part No.
Standards rack, 34 position, for SPS 4 autosampler	Rack provides 12 positions for 50 mL, 30 mm od, centrifuge tubes, plus 22 positions for 18 mm od test tubes. Standard rack for AA/MP-AES and ICP-OES configuration. (Not supported with the ICP-MS MassHunter software)	G8410-40000
Standards rack, 5 position, for SPS 4 autosampler	Rack provides five positions for 250 mL, 60 mm od, narrow neck sample containers. Standard rack for ICP-MS configuration. (Not supported with the atomic absorption SpectrAA software)	G8410-40001
Sample bottle, 250 mL, for 5 x 60 mm standard rack	Narrow neck, 60 mm od, LDPE, for five position standard rack used with SPS 4 autosampler	5043-0064

## Optional Update Kits for the SPS 4

Description	Further Information	Part No.
High uptake volume rinse kit, for SPS 4	Recommended for use with the AVS 6/7, SVS 2+, or ISIS 3. Allows rinse uptake rate to be increased to 25 mL/min. Includes sample quantity of wide bore peristaltic pump tubing with purple/black tabs (four pump tubes only), barb connectors, and PTFE tubing (2 m length).	G8410-68260
SPS 4 rinse tube kit, for low volatile organics	Allows use of low volatile organic solvents in rinse station. Includes capillary tubing 1 m, sample quantity of 3-bridged gray/gray PVC Solvaflex peristaltic pump tubing (four pump tubes only), barb connector, 2.5–1.5 mm, and solvent-resistant tubing for solvent inlet and waste outlet from the rinse station.	G8410-68261
Pump drain kit for SPS 4 autosampler	Provides the components required to allow the liquid overflow to be pumped from the rinse station. Includes sample quantity of wide bore peristaltic pump tubing with purple/white tabs (four pump tubes only), barb connectors, and PVC Solvaflex tubing, 2.5 m, to enable connection to a remote pump (not supplied).	G8410-68262
SPS 4 autosampler cover kit	Encloses the autosampler to help reduce sample and standard contamination from dust and drafts. Provision for optional purge or exhaust connection to remove corrosive or solvent fumes (requires but does not include the ducting hose, p/n 5043-0065, which should be ordered separately)	G8410-60100

### Optional Update Kits for the SPS 4 Used with ICP-MS (Only)

Description	Further Information	Part No.
Well plate startup kit, for SPS 4	Allows sampling from deep well 96-well plates. Includes well plates, 10/pk, well plate adapter, and sample probe. Supported when using MassHunter software with the ICP-MS.	G8410-68270
Microflow nebulizer PFA (200) with SPS 4 probe kit	Microflow PFA (200) nebulizer, with integrated probe for SPS 4 autosampler, flow rate 200 $\mu$ L/min, sample uptake tube ends as a sampling probe. Used with 7700,7800,7900, and 8800/8900 series ICP-MS for high purity and hydrofluoric acid samples.	G3139-68000
Nebulizer probe mount kit, for SPS 4 autosampler	Required to mount a nebulizer-integrated sample probe (supplied separately) onto the probe arm of the SPS 4 autosampler. Note: order G3139-68000 if ordering the PFA nebulizer together.	G8410-60180

### Well Plate Supplies for Use with SPS 4 (ICP-MS)

Description	Further Information	Part No.
Well plate tray adaptor kit, for SPS 4	Allows 96 position deep-well plates to be positioned on the sample tray of the SPS 4 autosampler (raises the height of the well plate on the autosampler). Requires, but does not include, the sample probe.	G8410-40003
SPS 4 sample probe, suits SPS 4 microtiter tray	Required when using the SPS 4 autosampler with microtiter tray for sampling from a 96 position well plate. Requires, but does not include, the well plate tray adaptor kit or any compatible well plates.	G8410-80105
Well plates, 96 position, 0.5 mL, polypropylene, 30/pk	Spare well plates suitable for use with the SPS 4 autosampler when using the optional microtiter tray for sampling from a 96 position well plate, round wells, 0.5 mL, U shape base	5043-9310
Well plates, 96 position, 0.5 mL, polypropylene, 120/pk	Spare well plates suitable for use with the SPS 4 autosampler when using the optional microtiter tray for sampling from a 96 position well plate, round wells, 0.5 mL, U shape base	5043-9311





Rinse reservoir, 6610011800

## Miscellaneous SPS 4 Supplies

Description	Further Information	Part No.
Single-port fixed wash reservoir, for SPS 4		G8410-60140
Dual-port fixed wash reservoir, for SPS 4		G8410-60150
Standard rack location mat, for SPS 4		G8410-80111
Spill tray kit, for SPS 4 autosampler		G8410-80605
Tube anchor, for SPS 4 autosampler, 2/pk	Secures transfer tubing from probe to instrument on arm of probe carriage to eliminate tangling	G8410-40004
Cable ducting, for SPS 4 autosampler		G8410-40005
Barb connector, straight through, 4.8–2.4 mm id		0100-2846
Barb connector, straight through, 2.4 mm id		0100-2848
Nipple, 5 mm id, PVDF, SPS 4 rinse station	Replacement nipple for outlet waste from rinse station of SPS 4 autosampler	G8410-80120
Nipple, 2.5 mm id, polypropylene, SPS 4 rinse station	Replacement nipple for inlet rinse supply to rinse station of SPS 4 autosampler	G8410-80121
Barb connector, 2.5–1.5 mm id, for SPS 4	Straight-through connector for rinse tube kit, used with low volatile organics when using low volatile organic solvents in SPS 4 rinse station	G8410-80124
Cable ties, natural, polypropylene, 10/pk		G8410-67001
Rinse reservoir, 10 L		6610011800

## Miscellaneous SPS 4 Tubing

Description	Notes	Part No.
Flexible ducting, PVC, 50 mm id, for SPS 4 autosampler, 5 m length	Spare ducting to enable removal of fumes from the autosampler with the cover fitted. Fitted with 56 mm od cuffs.	5043-0065
Waste tubing, PVC, for SPS4, 8 mm od, 5 mm id, 2 m length	Replacement tubing to connect from waste outlet of rinse station of SPS 4 autosampler	G8410-80122
Tubing, for supply of rinse solution to rinse station of SPS 4, 2.5 mm id, 1 m length	Replacement tubing to connect from rinse solution supply to inlet on rinse station of SPS 4 autosampler	G8410-80123
Tubing, solvent-resistant, 2.36 mm (0.093 inch) id, 2 m length	Replacement tubing for inlet solvent line to rinse station of SPS 4 autosampler. Allows use of low volatile organic solvents in rinse station.	G8410-20012
Tubing, solvent-resistant, 4.75 mm (0.187 inch) id, 2 m length	Replacement tubing for waste solvent outlet of rinse station of SPS 4 autosampler. Allows use of low volatile organic solvents in rinse station.	G8410-20013

## SPS 3 autosampler supplies

## SPS 3 Startup and Operating Supplies Kit

Description	Kit Quantity	Unit	Part No.
SPS 3 startup and operating supplies kit			190065400
Kit contents			
Inert probe, 0.8 mm id, PTFE-sleeved	1	Each	9910111900
Pump tubing, PVC Solvaflex, 3-bridged, gray/gray	2	12/pk	3710049000
Silicon tubing, 1 mm id, 3 mm od	1	Each	3710026400
Tubing, 1/8 inch id, 1/4 inch od, 1/16 inch wall, per m	2	Meter	3710031500
Nebulizer capillary tubing, per m	2	Meter	2410020500
Rinse reservoir, 10 L	1	Each	6610011800
Polypropylene tubes, 16 mm od	1	1,000/pk	190049700
Sample rack, for 30 mm od tube, 21 positions	3	Each	6610026600
Centrifuge tube, screw-capped, 29 mm od, 50 mL polypropylene	1	500/pk	190065200

## SPS 3 Autosampler Probes

Description	Further Information	Part No.
Inert probe, 0.8 mm id, PTFE-sleeved	For use with MP-AES and ICP-OES instruments without diluter	9910111900
Inert probe, 1.0 mm id, PTFE-sleeved	For use with AA, MP-AES, ICP-OES, and UV-Vis instruments (or diluter)	9910112000
Inert probe, 1.3 mm id, PTFE-sleeved	For use with viscous solutions and high matrix samples	9910130900
Inert carbon fiber probe, 1.2 mm id	For use with strong acid digests Straighter than a PTFE probe with good rigidity, meaning less chance of damage if it hits a tube Replacement probe only Requires carbon fiber update kit to be fitted	G8480-80002
Carbon fiber probe update kit	Allows installation of a carbon fiber probe in place of a standard PTFE probe Includes 3.0 mm od x 1.2 mm id carbon fiber probe, mounting block, nut and ferrule, 1.5 m x 0.8 mm id FEP sample tubing, cable ties, and tube anchors	G8480-80001



SPS 3 autosampler for AA, MP-AES, ICP-OES, and UV-Vis instruments (now replaced by the SPS 4)



Inert probe, 0.8 mm id, PTFE-sleeved, 9910111900



Standard rack for 29 mm od tubes,  
810167000



Replacement spill tray,  
6610025100



Integrated Autosampler (I-AS)  
for ICP-MS systems

## Standard Racks for SPS 3 Autosampler

Description	Part No.
Standard rack for 16 mm od tubes, 11 positions	810166900
Standard rack for 29 mm od tubes, 6 positions	810167000

## Miscellaneous SPS 3 Supplies

Description	Use	Part No.
Tubing, 1/8 inch id, 1/4 inch od, 1/16 inch wall, per m	For outlet rinse vessel	3710031500
Silicon tubing, 1 mm id, 3 mm od	For connecting nebulizer capillary to SPS probe line	3710026400
Replacement spill tray		6610025100

## Integrated autosampler (I-AS) supplies

The Integrated Autosampler (I-AS) for ICP-MS is ideal for ultratrace analysis and small sample volumes (as low as 0.5 mL). It features a pumped rinse station and offers flexible rack configurations with a maximum capacity of 89 vials, plus three rinse vials. (Not compatible with Agilent AA, MP-AES, and ICP-OES instruments.)

## Integrated Autosampler (I-AS) Supplies

Description	Unit	Common Part No.
Tray A, 89 position, for 6 mL vials, polypropylene		G3160-80060
Tray B, 53 position, for 18 mL vials, polypropylene		G3160-80061
Tray C, 18 position, for 50 mL vials, polypropylene		G3160-80062
Tray D, 79 x 2 mL + 10 x 18 mL positions, polypropylene		G3160-80063
Tray E, 79 x 6 mL + 10 x 18 mL positions, polypropylene		G3160-80064
Tray F, 15 position, for use in special semiconductor applications, holds 15 vials up to 48 mm od x 55 mm high, polypropylene		G3160-80065
Tray G, 28 position, for 20 mL PFA vials, up to 28 mm od x 58 mm tall, polypropylene		G3160-80066
Vial, PFA, 1.5 mL, for use with tray D	10/pk	G3160-65317
Vial, polypropylene, 6 mL, for use with trays A and E	200/pk	G3160-65303

(continued)

## Integrated Autosampler (I-AS) Supplies

Description	Unit	Common Part No.
Vial, polypropylene, 18 mL, for use with trays B, D, and E	55/pk	G3160-65304
Vial, polypropylene, 50 mL, for use with tray C	20/pk	G3160-65305
Vial, polyethylene, 2 mL, for use with tray D	200/pk	G3160-65315
Needle, PFA, 0.3 mm id, standard probe		G3160-65306
Rinsing bottle, 100 mL	6/pk	G3160-65307
Tray cover		G3160-65321
Rinse fluid inlet/outlet tubing (for I-AS with diaphragm pump)		G3160-65320
Needle, PFA, 0.8 mm id, for use with the ISIS		G3160-65324
Tubing holder, PEEK, for use with MicroFlow nebulizer (without a sampling probe) and 2 mL vials		G3160-65325
Needle holder		G3160-80041
Holder, for carry tray cover		G3160-60015
Peristaltic pump tubing set with connectors	1 set	G3160-65326
Peristaltic pump tubing set with connectors	5/pk	G3160-65327
Drain tubing, Tygon, from peristaltic pump to rinse bottle or drain bottle	2/pk	G3160-65328
Serial-USB converter cable, for use with G7201A MassHunter		G3160-80200
I-AS table, for 7900		G3160-60016



Tray B, 53 position, for 18 mL vials, polypropylene, G3160-80061



Peristaltic pump tubing set with connectors, G3160-65326





ASX-520 autosampler



Sample rack, 60 position,  
G3286-80106



Sample probe, G3286-80102



Drain pump tubing and connector  
kit (Tygon), G3286-80118



Rinse station, G3286-80224

## ASX-500 series autosampler supplies

### ASX-500 Series Autosampler Supplies

Description	Common Part No.
Sample rack, 21 position, 50 mL vials	G3286-80103
Sample rack, for 25 mm od tubes, 24 positions	6610026500
Sample rack, for 20 mm od tubes, 40 positions	6610025500
Sample rack, 60 position, 14 mL vials	G3286-80106
Sample rack, for 13 mm od tubes, 90 positions	6610026400
Sample probe, 0.8 mm id (red band)	G3286-80100
Sample probe, 0.3 mm id (black band)	G3286-80101
Sample probe, 0.5 mm id (blue band)	G3286-80102
Carbon fiber sample probe, 0.8 mm id (red band)	G3286-80110
Carbon fiber sample probe, 0.3 mm id (black band)	G3286-80111
Carbon fiber sample probe, 0.5 mm id (blue band)	G3286-80112
Carbon fiber sample probe, 1.0 mm id (2 blue bands) For use with G3286-80300 Z-drive assembly	G3286-80119
Rinse/drain tubing hookup kit	G3286-80117
Drain pump tubing and connector kit (Tygon)	G3286-80118
Z-axis drive assembly with nylon cable, PEEK, antikink	G3286-80330
Rinse station	G3286-80224
USB 2.0 cable, 10 ft, for use with G7201A MassHunter	G1680-63720

### Tips and tools

At the end of each working day, always rinse the sample delivery lines and the sample introduction system thoroughly before shutting off the instrument. The rinse solution should be prepared in the same solvent as the samples being analyzed.



## Common autosampler supplies

## Racks for SPS 3/4 and ASX 500 Autosamplers

Description	Part No.
Sample racks	
Sample rack, for 13 mm od tubes, 90 positions	6610026400
Sample rack, for 16 mm od tubes, 60 positions	6610025400
Sample rack, for 20 mm od tubes, 40 positions	6610025500
Sample rack, for 25 mm od tubes, 24 positions	6610026500
Sample rack, for 30 mm od tubes, 21 positions	6610026600
Rack overlaps for sample racks	
Rack overlay, for 60 position sample rack Allows 13 mm od tubes to be used in 60 position rack (2 recommended per rack)	6610026100
Rack overlay, for 40 position sample rack Allows 18 mm od tubes to be used in 40 position rack (2 recommended per rack)	6610026000



Sample rack, 6610025400  
(shown with the optional rack overlay kit,  
p/n 6610026100, fitted)



Rack overlay, for 60 position sample rack,  
6610026100

## Peristaltic Pump Tubing for SPS 3/4

Description	Use	Part No.
Peristaltic pump tubing, PVC Solvaflex, 3-bridged, purple/white tabs, 12/pk	For use with SPS 4 when pumping acidic or aqueous-based rinse	5043-0063
Pump tubing, PVC Solvaflex, 3-bridged, gray/gray	Standard tubing supplied with the autosampler for the rinse pump For use with aqueous samples on AA, MP-AES, ICP-OES, and ICP-MS instruments	3710049000
Peristaltic pump tubing, PVC Solvaflex, 3-bridged, black/black tabs, 12/pk	For use with SPS 4 when pumping low volatile organic solvents	3710034800
Pump tubing, Santoprene, 3-bridged, gray/gray, 6/pk	For ketone-based solvents on AA, MP-AES, ICP-OES, and ICP-MS instruments	3710057500
Pump tubing, PVC Solvaflex, 3-bridged, orange/yellow, flared ends, 12/pk	For use with low volatile organic solvents on AA, MP-AES, ICP-OES, and ICP-MS instruments	3710069000
Pump tubing, PVC Solvaflex, 3-bridged, yellow/yellow, 12/pk	For use with low volatile organic solvents on AA, MP-AES, ICP-OES, and ICP-MS instruments	3710069300
Pump tubing, PVC Solvaflex, 3-bridged, purple/black, 12/pk	For use with aqueous samples on UV instruments	3710052000
Pump tubing, FPM, 3-bridged, black/black, flared ends, 12/pk	For use with aromatic organic solvents on AA, MP-AES, ICP-OES, and ICP-MS instruments	3710069100
Pump tubing, PVC Solvaflex, 3-bridged, black/black, flared ends, 12/pk	For use with low volatile organic solvents on AA, MP-AES, ICP-OES, and ICP-MS instruments	3710069200



Pump tubing, PVC Solvaflex,  
3710049000



Polypropylene test tubes, 3710051100

## Test and Digestion Tubes

Description	Unit	Part No.
Polypropylene tubes, 16 mm od, 125 mm height	125/pk	3710051100
	1,000/pk	190049700
Glass test tubes, 16 x 150 mm, 21 mL	250/pk	5190-9092
Polypropylene test tubes, 17 mm od, 16.5 mL	1,000/pk	00000001600L
Centrifuge tubes, screw-capped, 29 mm od, 50 mL, polypropylene	500/pk	190065200
Digestion tubes, polypropylene, for 36- and 54-well hot block	500/pk	190047900

## Sample Filtration

Description	Part No.
Agilent Captiva syringe filters	
Captiva premium syringe filter, PTFE membrane, 15 mm diameter, 0.45 µm pore, 100/pk	5190-5085
Captiva premium syringe filter, PTFE membrane, 25 mm diameter, 0.45 µm pore, 100/pk	5190-5087
Captiva Econofilter, PTFE membrane, 13 mm diameter, 0.45 µm pore, 1,000/pk	5190-5266
Captiva Econofilter, PTFE membrane, 25 mm diameter, 0.45 µm pore, 1,000/pk	5190-5268
FilterMate filtration system*	
FilterMate, 0.45 µm PTFE-faced polypropylene filter, 100/pk	190048100
FilterMate, 2 µm PTFE-faced polypropylene filter, 100/pk	190048000

\*For use with digestion tubes, p/n 190047900.

## Tips and tools

The shelf life of a standard defines the time that the standard can be stored without undergoing physical or chemical change. The chemical stability and transpiration losses (water loss) determine shelf life. Replace standards well before the expiry date to ensure accuracy and minimize contamination risks.

## AA/MP-AES, ICP-OES, and ICP-MS Standards

Agilent offers a comprehensive range of single and multi-element standards, ionization buffers, metallo-organic and biodiesel standards, solvents, and environmental standards for atomic spectroscopy. With the assurance of NIST traceability, Agilent Certified Reference Materials and standard mixes offer accurate, reliable calibrations at great value.

Agilent Certified Reference Materials and standards are manufactured in accordance with ISO Guide 34 and under our ISO 9001 registered quality system to ensure consistency. Every solution is manufactured using high-purity starting materials and ASTM Type I water. They are regularly tested in accordance with NIST guidelines to provide traceability and are confirmed against independent second-source standards.

### Our standards:

- Give you confidence in your AAS, ICP-OES or ICP-MS, and MP-AES results
- Are shipped from stock to maximize uptime
- Are supplied with a Material Safety Data Sheet (MSDS) and a CoA for complete assurance
- Are packaged in preleached HDPE bottles, secured with a tamper-evident seal

To learn more about the range of Agilent Certified Reference Materials, go to

[www.agilent.com/chem/spectroscopystandards](http://www.agilent.com/chem/spectroscopystandards) or see our catalog of

**Agilent single, multi-element, and metallo-organic standards for spectroscopy.**



Multi-element and metallo-organic standards for spectroscopy

### Wavelength Calibration Solutions for 5000 Series ICP-OES, 700 and Vista Series ICP-OES and MP-AES

Description	Further Information	Part No.
Wavelength calibration concentrate, for ICP-OES and MP-AES	500 mL, contains 50 mg/L Al, As, Ba, Cd, Co, Cr, Cu, Mn, Mo, Ni, Pb, Se, Sr, Zn, and 500 mg/L K in 5% HNO <sub>3</sub> Dilute 10 times before use	6610030000
Wavelength calibration solution, for ICP-OES and MP-AES	500 mL, contains 5 mg/L Al, As, Ba, Cd, Co, Cr, Cu, Mn, Mo, Ni, Pb, Se, Sr, Zn, and 50 mg/L K in 5% HNO <sub>3</sub> Ready to use	6610030100
Calibration blank solution, for ICP-OES and MP-AES	500 mL 0 ppm, contains pure ASTM Type 1A water with 5% HNO <sub>3</sub> Suitable for use as a calibration blank or for dilution of the wavelength calibration concentrate Ready to use	5190-7001

## IntelliQuant Calibration Standards for 5000 Series DV ICP-OES

The Agilent IntelliQuant is a fast, semiquantitative data acquisition routine for ICP-OES, which gives users extra insight into their samples by collecting and interpreting full-spectrum measurements, with minimal user input. IntelliQuant collects data across the entire spectral range from 167 to 785 nm for every sample, providing insights that can be used to improve traditional quantitative methods, or to provide standalone semiquantitative results quickly and with minimal setup.

After a full-spectrum scan has been collected, the advanced IntelliQuant algorithms identify the elements present. A star ranking feature provides a list of the best wavelengths to use for the analysis of every element present. It also gives a ranking to each wavelength to help identify interferences. By determining whether a potential interferent element is present in a sample, IntelliQuant makes wavelength selection for reporting or optimizing a quantitative method much easier. Users can also avoid reporting results that have been affected by an unexpected interference.

The Agilent IntelliQuant calibration kit provides a set of ready-made solutions that can be measured directly or used for greater accuracy to prepare matrix-matched standards for complex samples. Users can also create and measure their own IntelliQuant calibrations. User-defined calibrations can be fully customized and can include any set of elements measured over the user's desired concentration range.

For more details, please see the technical overview **Agilent IntelliQuant Software**, or search for 5994-1516EN at [www.agilent.com](http://www.agilent.com).

Each of these standards or the IntelliQuant calibration kit can be used to update the presupplied IntelliQuant calibration to achieve a greater level of accuracy for semiquantitative analysis with the 5000 series ICP-OES.

### IntelliQuant Calibration Standards for 5000 Series SVDV/VDV ICP-OES

Description	Contents	Part No.
IntelliQuant calibration kit for 5000 series ICP-OES	Contains 8 solutions for semiquantitative analysis. Includes multi-element standards #1 (5191-3933), #2 (5191-3934), #3 (5191-3935), #4 (5191-3936), #5 (5191-3937), #6 (5191-3938), #7 (5191-3939), plus the nitric acid blank (p/n 5190-7001).	5191-3932
IntelliQuant multi-element standard #1, 100 mL, 100 ppm (ready to use)	IntelliQuant multi-element standard #1, for semiquantitative analysis, 100 mL bottle, contains 100 mg/L Ag, As, Cr, Er, Lu, Mn, P, Pb, Rb, Sc, Tm, Y and Yb in 5% HNO <sub>3</sub>	5191-3933
IntelliQuant multi-element standard #2, 100 mL, 100 ppm (ready to use)	IntelliQuant multi-element standard #2, for semiquantitative analysis, 100 mL bottle, contains 100 mg/L Ce, Eu, Gd, Ho, La, Ni, S and Te in 5% HNO <sub>3</sub>	5191-3934

(continued)

## IntelliQuant Calibration Standards for 5000 Series SVDV/VDV ICP-OES

Description	Contents	Part No.
IntelliQuant multi-element standard #3, 100 mL, 100 ppm (ready to use)	IntelliQuant multi-element standard #3 for semiquantitative analysis, 100 mL bottle, contains 100 mg/L Co, Dy, Re, Sm, Th and V in 5% HNO <sub>3</sub>	5191-3935
IntelliQuant multi-element standard #4, 100 mL, 100 ppm (ready to use)	IntelliQuant multi-element standard #4 for semiquantitative analysis, 100 mL bottle, contains 100 mg/L B, Ba, Be, Bi, Ca, Cd, Cs, Cu, Ga, Hg, In, K, Li, Mg, Na, Se, Sr, Tl and Zn in 5% HNO <sub>3</sub>	5191-3936
IntelliQuant multi-element standard #5, 100 mL, 100 ppm (ready to use)	IntelliQuant multi-element standard #5 for semiquantitative analysis, 100 mL bottle, contains 100 mg/L Al, Fe, Mo, Nd, Pr, Tb and U in 5% HNO <sub>3</sub>	5191-3937
IntelliQuant multi-element standard #6, 100 mL, 100 ppm (ready to use)	IntelliQuant multi-element standard #6 for semiquantitative analysis, 100 mL bottle, contains 100 mg/L Ge, Hf, Nb, Sb, Si, Sn, Ta, Ti, W and Zr in 5% HNO <sub>3</sub> plus trace HF	5191-3938
IntelliQuant multi-element standard #7, 100 mL, 100 ppm (ready to use)	IntelliQuant multi-element standard #7 for semiquantitative analysis, 100 mL bottle, contains 100 mg/L Au, Ir, Os, Pd, Pt, Rh and Ru in 15% HCl	5191-3939
Bottle calibration blank solution for ICP-OES, 500 mL, 0 ppm (ready to use)	Pure ASTM Type 1A water with 5 % HNO <sub>3</sub> , 500 mL bottle Suitable for use as a calibration blank for semiquantitative analysis with the 5000 series ICP-OES	5190-7001

## Tips and tools

Store standards at controlled room temperature as per USP 35 (10.30.60). Do not freeze, heat, or expose to direct sunlight. Minimize exposure to moisture or high humidity.

### ICP-MS Installation and Checkout Solutions

Description	Kit Contents	Part No.
ICP-MS checkout solution kit for 7700/7800/7900/8800/8900 and 7500 ce/cx/cs	Contains tuning solution, dual mode (1), dual mode (2), wash, and water blank solutions	5185-5850

### ICP-MS Tuning Solutions

Description	Part No.
PA tuning solution kit	5188-6524
Tuning 1: 20 mg/L each of Zn, Be, Cd, and As; 10 mg/L each of Ni, Pb, and Mg; 5 mg/L each of Tl, Na, Al, U, Cu, Th, Ba, Co, Sr, V, Cr, Mn, <sup>6</sup> Li, Sc, In, Lu, and Bi; 2.5 mg/L each of Y, and Yb; matrix 5% HNO <sub>3</sub>	
Tuning 2: 10 mg/L each of Mo, Sb, Sn, Ge, Ru, and Pd; 5 mg/L of Tl, and Ir; matrix 10% HCl and 1% HNO <sub>3</sub> with trace amounts of HF	
Tuning solution Li, Y, Ce, Tl and Co; 100 mL, 10 mg/L; matrix 2% HNO <sub>3</sub>	5188-6564
Tuning solution Li, Mg, Y, Ce, Tl and Co; 100 mL, 10 mg/L; matrix 2% HNO <sub>3</sub>	5190-0465
Tuning solution Li, Y, Ce, Tl and Co; 2 x 500 mL, 10 µg/L; matrix 2% HNO <sub>3</sub>	5184-3566
Tuning solution Li, Mg, Y, Ce, Tl, and Co; 2 x 500 mL, 1 µg/L; matrix 2% HNO <sub>3</sub>	5185-5959

### Tips and tools

Don't underestimate the importance of good mixing when preparing standards.

A simple swirl is not enough. Make a habit of inverting and shaking the container several times.

## Agilent UV-Vis and UV-Vis-NIR Supplies

Agilent UV-Vis and UV-Vis-NIR spectrophotometers are synonymous with excellence and high performance. Our range of consumables for these products includes high-quality cuvettes and flow cells, fiber-optic probes, lamps, and detectors.

The cells, tubing, fittings, and supplies in this section have been tested with the Agilent range of UV-Vis and UV-Vis-NIR spectrophotometers for reliable and repeatable results. Agilent UV-Vis cells and supplies are manufactured in an EN ISO 9001:2000/EN ISO 14001:2004 certified environment using procedures that have been implemented in accordance with ISO/IEC 17025 and ISO 17034. Additionally, our UV-Vis cells are individually checked and certified to be within specifications, so you can be confident that they will conform to stringent protocols such as NIST, GLP, GMP, and NAMAS.

This section will help you identify the cells that fit your unique applications. You will also learn how to enhance your lab's productivity by choosing the correct spectrophotometer equipment, tubing, fittings, and dissolution testing supplies.



Cary 7000 universal measurement spectrophotometer (UMS)

## UV-Vis and UV-Vis-NIR flow cells and cuvettes

### Cell materials

Cells are available in four materials. Select the cell material depending on the wavelength range of your measurements.

For applications with a wavelength range of interest in the visible range, use our economical single-use cuvettes or our lower priced Agilent optical quality glass cells, made from exceptionally pure raw materials. Alternatively, if your application requires measurement in the UV range, select our quartz cuvettes, which give transmission values of >80% between 200 and 2,500 nm for an empty cell. Optical glass gives transmission values of >80% between 330 and 2,500 nm for an empty cell. To extend the measurement range into the NIR range, select the Infrasil quartz cells (made from Suprasil 300 material).

Material	Wavelength (nm)
Quartz	170 to 2,700
Infrasil quartz (NIR)	220 to 3,800
Optical glass	320 to 2,500
Polystyrene (disposable)	340 to 1,100



Cary 3500 double beam, multicell, UV-Vis spectrophotometer

## Cell shapes

### Rectangular cells

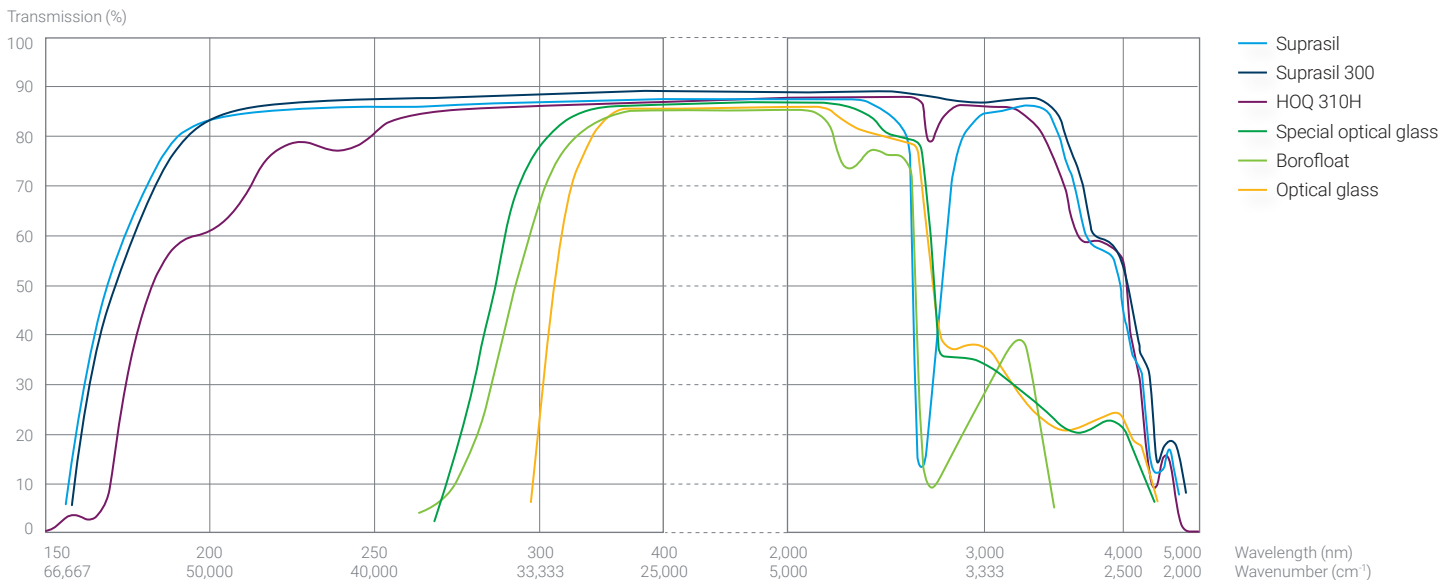
Rectangular cells are the most commonly used cell type and vary in shape from square to longer rectangles, depending on the cell path length. We offer standard cells, semi-microcells with about 40% of the volume of a standard cell of the same path length, microcells with about 20% of the volume of a standard cell, sub, and ultra-microcells that have microliter volumes, and disposable cells. Semi-microcells can be used with all Agilent UV-Vis multicell holders and with all standard single cell holders. In addition, they can be used with the temperature probe accessory for cell temperature monitoring.

Cells sold as matched pairs are used for most UV-Vis and UV-Vis-NIR routine analyses. Matched pairs ensure these cells will give a similar absorbance or transmission reading when empty or filled with water.

Long path length cells are ideal for when extra sensitivity is needed for low-concentration samples. These cells must be used with the long path length rectangular cell holder.

Short path length cells with optical path length of 1 mm, 2 mm, and 5 mm are also available. These are useful when measuring high-concentration samples where you want to avoid the need for dilution, or when you need to prevent absorption saturation due to the solvent being used. Short path lengths cells should be used with an appropriate spacer to ensure the cell and spacer can be positioned in the standard cell holder.

### Transmission of empty cells made from different materials





## Cell volumes

### Macrocells

The macrocell, which is defined by DIN 58963 as a rectangular cell with an inner width greater than 5 mm, has emerged as the standard for spectrophotometry. The most widely used macrocell is a rectangular cell with typical outer dimensions of 45 x 12.5 mm (height x width). The length of the cell is dependent on the desired path length. Macro or standard cells have approximately the same wall thickness on all sides, and are used for most liquid UV-Vis and UV-Vis-NIR measurements. They require the largest sample size for a given path length.

### Semi-microcells

Semi-microcells have an inner width of 2 to 4 mm. The thickness of the base is typically 9 mm. Semi-microcells also have thicker side walls to reduce the volume to about 40% of the volume of a standard cell of the same path length. These cells are useful when only small sample volumes are available for testing. The black, self-masking cells are listed with their aperture size. The aperture is located at the correct Z-height for Agilent UV-Vis and UV-Vis spectrophotometers, but note that the Cary 3500 and the 8453/8454 use a different Z-height, so please check the compatibility. Semi-microcells can be used with Agilent UV-Vis multicell holders and with all standard single cell holders. They can also be used with the temperature probe accessory for cell temperature monitoring.

### Microcells

Microcells have thicker sidewalls to reduce the volume to about 20% of the volume of a standard cell of the same path length. These cells are useful when limited sample volumes are available for testing.

### Ultra-microcells

Ultra-microcells are specifically designed for use in the  $\mu\text{L}$  range (with typical volumes from 5 to 135  $\mu\text{L}$ ). They fit into any standard cell holder and have the advantage of requiring much smaller sample volumes – so they are ideal for highly concentrated samples, highly absorbing solvents, or when sample volumes are very limited. These quartz cells offer low volume, short path lengths, and excellent heat transfer. They are optimal for temperature-controlled work, and all except the 1 mm path length cell can be used with the temperature probe. The black, self-masking cells are listed with their aperture size. The cells are constructed so that filling and emptying can be easily accomplished with commonly available pipette tips.



Cell tray, 5063-6577 (top)



The beam height for the UV-Vis system will determine the minimum fill volume for the cuvette

### Beam (z) height

The beam (z) height (or center height) for a cuvette is measured as the distance from the base of the cell to the center of the sample beam in the instrument.

For macro and semimicro cuvettes, the sample volume in the cuvette must be slightly more than the beam height to enable accurate measurement. For these cuvettes, the beam (z) height usually determines the minimum fill volume – although for some semimicro cuvettes, the base thickness may prevent that cuvette from being used with UV-Vis spectrophotometers that have low beam (z) heights.

For flow cells, sub, and ultramicro cuvettes that have small apertures or windows, it is critical that the incident light beam passes through the center of the window or aperture. If the cuvette does not have the right beam (z) height for the instrument it is used with, the light beam may not pass through the sample at all, causing erroneous or noisy measurements.

Always check the compatibility for your instrument by verifying that the beam (z) height for the selected cuvette matches that of your instrument.

### Beam (z) Height for Agilent UV-Vis and Fluorescence Spectrophotometers

Instrument Model	Beam (z) Height (mm)
Cary 3500	15
8454/8453	15
Cary 50/60	20
Cary 4000/5000/6000/7000	20
Cary 100/300	20
Cary Eclipse	20

### Tips and tools

The best way to clean quartz or glass cuvettes is to soak them in a dilute 2% solution of cell cleaning solution (p/n 5190-0530).

This is suitable for use with glass, quartz, sapphire, porcelain, ceramics, plastics, and ferrous metals. The use of demineralized water improves the cleaning characteristics.

## Macrocells

These macrocells are compatible with all Agilent and other UV-Vis spectrophotometers, although cell spacers or long path length cell holders are required for cells that do not have a 10 mm path length.

### Macrocells with PTFE Lid

Path Length (mm)	Ext. Dimensions (H x W x T (mm))	Int. Dimensions (H x W (mm))	Volume (µL)	Part No. Glass	Part No. Quartz
1	45 x 12.5 x 3.5	43.5 x 9.5	350	5063-6546**	5061-3384**
2	45 x 12.5 x 4.5	43.5 x 9.5	700	5063-6547**	5061-3385**
5	45 x 12.5 x 7.5	43.5 x 9.5	1750	5063-6548**	5061-3386**
10	45 x 12.5 x 12.5	43.5 x 9.5	3500	5063-6549	5061-3387
10	45 x 12.5 x 12.5	43.5 x 9.5	3500	5063-6550*	1000-0544*
10	45 x 12.5 x 12.5	43.5 x 9.5	3500	6610008800*	6610008800*
					6618000100 (Infrasil quartz)
20	45 x 12.5 x 22.5	43.5 x 9.5	7000	5063-6551	5063-6553
20	45 x 12.5 x 22.5	43.5 x 10	7000		6610016200
50	45 x 12.5 x 52.5	43.5 x 9.5	17500	6610016400	6610016100
100	45 x 12.5 x 102.5	43.5 x 9.5	35000		6610016000
				6610016300	

\*\*Spacers are required for cells with an outer thickness of less than 12.5 mm to hold them securely in the cell holder.

\*Matched pair



Macrocell with PTFE lid, 10 mm path length, 6610008800



Macrocell with PTFE lid, 20 mm path length, 6610016200



Macrocell with PTFE stopper,  
6610001100



Spacer for 2 mm path length cell,  
5061-3389

## Macrocells with PTFE Stopper

Path Length (mm)	Ext. Dimensions (H x W x T (mm))	Int. Dimensions (H x W (mm))	Volume (µL)	Part No. Glass	Part No. Quartz
5	46 x 12.5 x 7.5	44.5 x 9.5	1750		5063-6557**
10	46 x 12.5 x 12.5	44.5 x 9.5	3500	5063-6556	5062-2477
10	46 x 12.5 x 12.5	44.5 x 9.5	3500		6610001100*

\*\*Spacers are required for cells with an outer thickness of less than 12.5 mm to hold them securely in the cell holder.

\*Matched pair

## Quartz Block Inserts

Description	Part No.
1.0 or 5.0 mm insert	190029200
1.0 or 2.0 mm insert	190029201
1.0 or 0.5 mm insert	190029202
1.0 or 0.05 mm insert	190029203

Inserts are used with standard rectangular 10 mm path length cells when a reduced path length is required. This avoids the need for a specialized cell. Each insert provides two different path lengths as indicated, by rotating through 90 degrees.

## Consistent quality ensures reproducible results

Agilent high-precision cells are individually tested to meet the highest optical standards. Every Agilent cell is certified to confirm that the following areas have been tested and are within specifications:

- Homogeneity of the raw material
- Dimensional and angle tolerances of the component parts
- Flatness and finish of the optical surfaces
- Transmission of the cells
- Path length tolerance exceeds the allowed tolerance of +/- 0.5% percent required by the European Pharmacopoeia

Test equipment is calibrated regularly using standards certified by PTB (Physikalisch-Technische Bundesanstalt) or the National Institute of Standards and Technology.



### Spacers\*

Description	Part No.
Spacer for 1 mm path length cell	5061-3388
Spacer for 2 mm path length cell	5061-3389
Spacer for 5 mm path length cell	5061-3390

\*Spacers are required to hold cells with an outer thickness of less than 12.5 mm in the cell holder, where there is no path length adjustment facility on the cell holder.



Microcell, polystyrene, 6610018700

## Disposable polystyrene cells

Disposable polystyrene cells are usable from 340 to 1,100 nm. They are economical and can be used with magnetic stirrers, but cannot be used at elevated temperatures.

### Disposable Cells

Description	Cell Type	Cell Material	Volume (mL)	Path Length (mm)	Sample Chamber Width (mm)	Unit	Part No.
Standard cell	Rectangular	Polystyrene	3.5	10	10	500/pk	6610018800
Microcell	Rectangular	Polystyrene	1.5	10	4	500/pk	6610018700



Standard cell, disposable, 6610018800

## Tips and tools

The number on the top of a spacer indicates the path length of the cuvette it should be used with. For example, a #1 spacer is to be used with a 1 mm path length cuvette; a #2 spacer is to be used with a 2 mm path length cuvette.

To ensure the correct orientation of the spacer, the engraved number located on top of the spacer should be readable to the operator.

The spacer can be located before or after the cuvette in the light path because the light is collimated.





Semi-microcell with PTFE lid



Macrocell with PTFE stopper, 6610012700



Cary 50/60 semi-microcell, 6610021100

## Semi-microcells with self masking black walls

These semi-microcells are compatible with all Agilent and other UV-Vis spectrophotometers that can accept a 10 mm path length cell measuring 12.5 mm thick, with a beam (z) height of 15 or 20 mm.

### Semi-microcells with PTFE Lid

Path Length (mm)	Ext. Dimensions (H x W x T (mm))	Int. Dimensions (H x W (mm))	Volume (µL)	Part No. Glass	Part No. Quartz
10	45 x 12.5 x 12.5	41.8 x 2	700		5061-3391
		36 x 4	1000	5063-6558	5063-6559

### Semi-microcells with PTFE Stopper

Path Length (mm)	Ext. Dimensions (H x W x T (mm))	Int. Dimensions (H x W (mm))	Volume (µL)	Part No. Glass	Part No. Quartz
5	48 x 12.5 x 12.5	39 x 4	450		6610019800 *
2	48 x 12.5 x 12.5	39 x 4	180		6610019700 *
1	48 x 12.5 x 12.5	39 x 4	90		6610019600 *
10	45 x 12.5 x 12.5	42.5 x 4	1400		6610001800
		45.5 x 4	1300		6610015400 **
		36 x 4	900		6610012700 *
		37 x 4	1000	5063-6560	5063-6561

Use with Cary 50/60 only

Top section features two black walls and two translucent side walls

10	45 x 12.5 x 12.5	3 x 4.5	135		6610021100
----	------------------	---------	-----	--	------------

\*Matched pair

\*\*Designed for use with a magnetic stir bar (supplied) and includes a circular recess in the base for the stir bar. Additional magnetic stirrer bars are available (p/n 6610018900).

## Sub-microcells

### Sub-microcells (for UV-Vis Spectrophotometers With a Beam (z) Height of 20 mm)

Path Length (mm)	Ext. Dimensions (H x W x T (mm))	Int. Dimensions (H x W (mm))	Volume (μL)	Part No.
5	45 x 12.5 x 12.5	4 x 2	40	6610024000***
10	45 x 12.5 x 12.5	4 x 2	80	6610024100***
	45 x 12.5 x 12.5	2.5 x 2	50	6610010400***
	45 x 12.5 x 12.5	4 x 2	80	6610014900*
Use with Cary 50/60 only				
Top section features two black walls and two translucent side walls				
10	45 x 12.5 x 12.5	2 x 2	40	6610019500

\*\*\*Low headspace design for thermal melt applications.

\*Matched pair

### Ultra-microcells with PTFE Stopper

Path Length (mm)	Ext. Dimensions (H x W x T (mm))	Aperture	Center Height (mm)	Filling Volume (μL)	Unit	Part No.
For UV-Vis spectrophotometers that have a beam (z) height of 15 mm						
10	45 x 12.5 x 12.5	2.5 x 2	15	50	1/ea	5062-2496
For UV-Vis spectrophotometers that have a beam (z) height of 20 mm						
1	45 x 12.5 x 12.5	4 x 2	20	8	1/ea	6610023900 ***
5	48 x 12.5 x 12.5	0.8 mm round	20	5	1/ea	6610013700
10	48 x 12.5 x 12.5	1 x 1	20	10	1/ea	6610013800

\*\*\*Low headspace design for thermal melt applications.

## Tips and tools

Flow cells should be cleaned by pumping a dilute 2% solution of cleaning solution (p/n 5190-0530) through the cell. This cleaning solution can be recirculated.

The cell should then be rinsed by pumping de-ionized water through it and into a waste container.



Sub-microcell, black wall, 6610024100



Semi-microcell with PTFE stopper, supplied with magnetic stirrer bar, 6610015400



Microvolume TrayCell,  
G6871C

## TrayCell 2.0

The microvolume TrayCell is a fiber-optic ultra-microcell designed for the UV-Vis analysis of DNA/RNA and proteins. The dimensions of the TrayCell are equivalent to a standard cuvette, ensuring compatibility with most spectrophotometers\*. The TrayCell allows simple, rapid absorbance and transmission measurements in ultralow volumes using the UV-Vis spectrophotometer.

The TrayCell consists of a measuring cell and a cap with an integrated mirror. The sample drop is pipetted onto the measuring window, then the cap is applied. The distance between the window and the mirror in the cap ensures a defined light path. The internal optics in the TrayCell, which incorporate a prism and optical fiber, ensure that the light is transmitted through the sample and to the detector.

### TrayCell

Description	Part No.
Microvolume TrayCell with 1.0 mm and 0.2 mm lid	G6871C
Add 2.0 mm path length lid	G6871-68005
Add 0.1 mm path length lid, for highly concentrated samples	G6871-68002
TrayCell 2.0 – 0.2 mm path length lid	G6871-68003
TrayCell 2.0 – 1 mm path length lid	G6871-68004

### Specifications

Volume capacity	0.7 – 10 $\mu$ L
Path length	0.2 – 2.0 mm
Width x depth	12.5 mm x 12.5 mm
Center height	8.5 mm, 15 mm, or 20 mm (using the adapters supplied)
Maximum temperature	50 °C
Wavelength range	210 – 1100 nm
Measuring range	From approx. 6 – 8,500 ng/ $\mu$ L (dsDNA) From approx. 0.1 – 100 mg/mL (protein)

\*Single cell holder with optimum tilt and height adjustment.

### Tips and tools

Care is required when using cuvettes that are sealed with a PTFE stopper. The stopper should be loose in the joint to allow for expansion of the liquid. If the PTFE stopper is fitted tightly, temperature changes can cause the liquid to expand, cracking or damaging the cuvette.



## Cylindrical cells

A cylindrical cell is a cell with plane-parallel optical surfaces, whose inner volume is cylindrical in shape, and has a longitudinal axis parallel to the direction of the radiation beam. These cells are recommended when sample volume is not a limitation and when very short to long path lengths are needed. All cylindrical cells can be used with the cylindrical cell holder or the thermostatted cylindrical cell holder. Cylindrical cells are available as standard 10 mm path length cells or long path length cells for extra sensitivity when measuring low concentrations.



Cylindrical cell with PTFE stoppers,  
6610002300

### Cylindrical Cells with Two PTFE Stoppers

Path length (mm)	Ext. Dimensions (L x od (mm))	Int. Dimensions (id mm)	Volume (mL)	Part No. Quartz	Part No. Glass
10	12.5 x 22	19	2.8	6618000600*	
50	52.5 x 22	19	14	6610002200	
100	102.5 x 22	19	28	6610002300	
	102.5 x 22	19	28	5061-3392	
	102.5 x 22	19	28		5063-6566

\*Supplied with only a single PTFE stopper.





Flow cells are available with different apertures and internal measurement chambers to cater for different applications

## Flow-through cells

Flow cells allow the sample to pass through the cell and are connected to the sample source via tubing. Flow cells require the use of a pump to ensure that the sample is pumped into the cell for measurement and out again afterwards. This can improve productivity, but care needs to be taken to ensure there is no carryover from one sample to another and there are no bubbles in the cell during measurement. Long path length flow cells are useful for low-concentration samples and require the long path length rectangular cell holder. They can be used with a Cary series routine sampler accessory or a Cary 50/60 series sipper. Submicro flow cells are suitable for use with the Cary series routine sampler accessory.

Until recently, flow-through cells had measuring chambers that were either rectangular or circular in shape. These shapes were dictated by limitations in the manufacturing process and did not offer the best geometry for clean flushing and reduction of contamination. Agilent has developed oval aperture cells that combine low volume with excellent flow characteristics. These oval flow cells are strongly recommended for automated analyses such as dissolution testing. Black quartz is used in the vicinity of the aperture to ensure that no light passes through the side walls of the cell.

### Flow-through Cells with Round Aperture and Screw Fitting Connection

Path length (mm)	Ext. Dimensions (H x W x T (mm))	Aperture (Diameter (mm))	Center Height (mm)	Volume (µL)	Part No. Quartz
For UV-Vis spectrophotometers that have a beam (z) height of 15 mm					
10	35 x 12.5 x 12.5	3	15	80	0100-1225*
For UV-Vis spectrophotometers that have a beam (z) height of 20 mm					
10	40 x 12.5 x 12.5	3	20	70	6610008900*

\*Supplied with inlet and outlet PTFE tubing (1.6 mm od), fitted with M6 threaded connectors.

### Flow-through Cells with Rectangular Aperture and Screw Fitting Connection

Path length (mm)	Ext. Dimensions (H x W x T (mm))	Aperture (H x W (mm))	Center Height (mm)	Volume (µL)	Part No. Quartz
For UV-Vis spectrophotometers that have a beam (z) height of 15 mm					
0.1	35 x 12.5 x 12.5	17.5 x 3.5	15	6.2	5188-8003
0.2	35 x 12.5 x 12.5	17.5 x 3.5	15	12.4	5188-8004
0.5	35 x 12.5 x 12.5	17.5 x 3.5	15	31	5188-8005
1	35 x 12.5 x 12.5	17.5 x 3.5	15	62	5061-3396
2	35 x 12.5 x 12.5	17.5 x 3.5	15	124	5061-3397
10	35 x 12.5 x 12.5	11 x 3.5	15	390	5061-3398
10	35 x 12.5 x 12.5	8 x 2	15	160	5062-2476

**Flow-through Cells with Rectangular Aperture and Screw Fitting Connection**

Path length (mm)	Ext. Dimensions (H x W x T (mm))	Aperture (H x W (mm))	Center Height (mm)	Volume (µL)	Part No. Quartz
For UV-Vis spectrophotometers that have a beam (z) height of 20 mm					
10	35 x 12.5 x 12.5	11 x 4	20	450	6610012600*
50	35 x 12.5 x 12.5	6 x 3	20	1,000	6610010000*
100	45 x 12.5 x 12.5	6 x 3	20	2,100	6610010100*
For use with Cary 50/60					
1	40 x 12.5 x 12.5	11 x 6.5	20	113	6610019900*
2	40 x 12.5 x 12.5	11 x 6.5	20	227	6610020000*
5	40 x 12.5 x 12.5	11 x 6.5	20	568	6610020100*
10	40 x 12.5 x 12.5	11 x 6.5	20	715	6610020200*
				420	6610015200*

\*Supplied with inlet and outlet PTFE tubing (1.6 mm od), fitted with M6 threaded connectors.

**Flow-through Cells with Oval Aperture and Screw Fitting Connection**

Path length (mm)	Ext. Dimensions (H x W x T (mm))	Aperture (H x W (mm))	Center Height (mm)	Volume (µL)	Part No.
For UV-Vis spectrophotometers that have a beam (z) height of 15 mm					
1	39 x 12.5 x 12.5	10 x 2	15	40	5063-6570
2	39 x 12.5 x 12.5	10 x 2	15	80	5063-6571
5	39 x 12.5 x 12.5	10 x 2	15	200	5063-6572
10	39 x 12.5 x 12.5	10 x 2	15	430	5063-6573

**Tips and tools**

Flow-through cells do not include tubing/fittings (unless indicated otherwise).



Magnetic stirring bar, 9301-1161



Magnetic stirrer bars, 6610018900



Cell cleaning solution, 5190-0530



Lens cleaning paper, lint-free, 9300-0761



Cell tray, 5063-6577

## Miscellaneous

Description	Further Information	Unit	Part No.
UV convenience kit	Includes open top UV quartz cell, 10 mm, 3.0 mL volume, 2/pk, disposable polystyrene cells, 10 mm, 3.5 mL volume, 500/pk, cell tray with capacity for 16 cells, lens cleaning paper, lint-free, and cell cleaning solution, 1 L		5067-4666
Magnetic stirrer bar, 7 mm long x 4 mm diameter, PTFE coated*		2/pk	9301-1161
Magnetic stirrer bar, PTFE, star type, 7.9 mm diameter x 9.5 mm high			7418000400
Magnetic stirrer bar, 6 mm long x 3 mm diameter, PTFE coated	Suitable for use with spectrophotometer cells designed specifically to accommodate magnetic stirrer bars (includes p/n 6610015400)	10/pk	6610018900
Cell cleaning solution	An alkaline liquid concentrate, which is mixed with water to a concentration of 2% to yield an effective cleaning solution for all quartz and glass cells. Also suitable for cleaning other sensitive optical components made of glass, quartz, sapphire, and porcelain.	1 L	5190-0530
Lens cleaning paper, lint-free		50/pk	9300-0761
Cell tray with capacity for 16 cells		10 mm	5063-6577

\*For use with Agilent 89054A cell-stirring multicell transport and Agilent 89090A Peltier temperature controller. Stirrer bars are for use with cells that have internal dimensions of 10 x 10 mm (W x D) and cell holders with magnetic stirring capability.

## Tips and tools

Never use an ultrasonic bath for cleaning cuvettes. This can permanently damage the cuvette, especially if it is placed on the bottom of the cleaning chamber.

## Cell holders and accessories

### Cell Holders and Bases

Description	Further Information	Use With	Part No.
Standard cell holder		8453/8454	08451-60104
Cell base		Cary 50/60	110648190
Cell holder, spare		Cary 50/60	110645090
Cell holder base		Cary 4000/5000/6000	110716190
Standard cell holder, 10 mm	Includes cell lifter and cell height adjustment screw. Supplied as standard with Cary 100/300 and Cary 5000/6000i.	All Cary instruments	110260190
Standard cell holder, 10 mm, with Z-height adjustment from 0 – 20 mm, lifter, and ball bearing cuvette stabilizer	Supplied as standard with Cary 4000	All Cary instruments except Cary 50/60	110721900
Test tube holder	Allows use of 16 mm od test tubes in the sample compartment instead of conventional cuvettes	Cary 50/60	7910033500
Long path length rectangular cell holder	Holds 20, 50, and 100 mm rectangular cells and rectangular flowcells	All Cary instruments	110059900
Variable path length cell holder	For use with rectangular cells of 5, 10, 20, 30, 40, and 50 mm path lengths and a solid sample holder. Must be fitted in slide-mount solid sample holder kit in Cary 50/60 (p/n 10072300) or Cary 100/300 (p/n 10046500).	All Cary instruments	210125300

(continued)



Standard cell holder, 08451-60104



Cell base, 110648190



Cary 50/60 cell holder, spare, 110645090



Standard cell holder, 110721900



Standard cell holder, 10 mm, 110260190



Variable path length cell holder, 210125300



Cylindrical single cell holder, ambient, 110026900

## Cell Holders and Bases

Description	Further Information	Use With	Part No.
Variable path length cell holder	For use with rectangular cells of up to 100 mm path length and a solid sample holder. Must be fitted in slide-mount solid sample holder kit in Cary 50/60 (p/n 10072300) or Cary 100/300 (p/n 10046500).	All Cary instruments	6610014000
Dual rectangular thermostattable cell holder	Allows thermostating of standard 10 mm path length cuvettes with a height of 45 mm. Requires the extended sample compartment and an external water bath.	All Cary instruments	10046800
Cylindrical single cell holder, ambient	Allows use of cylindrical cells with up to 100 mm path length	All Cary instruments	110026900
Dual cylindrical thermostattable cell holder	Allows use of cylindrical cells with up to 100 mm path length. Requires extended sample compartment and an external water bath.	All Cary instruments	G9837A#100

## Tips and tools

Dirt on the outer surfaces of the cuvette can be removed with a damp, lint-free cloth. If required, moisten the cloth with a dilute 2% solution of cell cleaning solution (p/n 5190-0530), or another suitable solvent, such as alcohol.

Do not wipe the windows with paper tissues. Tissues are abrasive and can potentially scratch the surface. They may also leave fibers and brightening agents on the surfaces, which can reduce transmission.

# Agilent 8453/8454 UV-Vis supplies

## 8453/8454 tubings and fittings

### 8453/8454 Tubings and Fittings

Description	Unit	Part No.
PTFE tubing, 1.6 mm od	10 m	5041-2191
Pump tubing, 2.06 mm id	15/pk	5041-2166
Pump tubing, 1.3 mm id	12/pk	5041-2184
Pump tubing, 2.8 mm id	12/pk	5041-2185
Tefzel ferrules and stainless steel lock rings, 1/16 inch	10/pk	5022-2154
Union, 1/4-28 thread, polypropylene	10/pk	5022-2155
Cell fittings, black (short, 4/pk, and long, 4/pk) Replacement fittings used to connect the tubing to the flow cell, used with the Sipper system for the 8453/8454 Includes headless PPS M6 nuts, 4/pk, and short PEEK M6 nuts, 4/pk	8/pk	5022-2156
Conical adapter kit Replacement fittings for the flow cell pump tubing, used with the Sipper system for the 8453/8454 Includes conical PTFE adapters, 2/pk, PTFE female nuts, 2/pk, and PTFE ferrules, 2/pk	2/pk	5022-2157
PTFE nuts, for 1/16 inch od tubing	10/pk	5022-2158
Tubing, heat exchanger, FER, 12 cm		5042-1336
Fittings and ferrules, 1/16 in, PEEK, for 8-port valve	10/pk	5042-1337
Mounting tool, for flangeless nut		0100-1710



Cary 8454 UV-Visible spectrophotometer



Union, 5022-2155



Cell fittings (black), 5022-2156



Conical adapter kit, 5022-2157



PTFE nuts, 5022-2158

PEEK fittings and ferrules,  
5042-1337



Stirring module kit, G1120-60006



Tubing, heat exchanger, FEP, 5042-1336



Deuterium lamp assembly, 2140-0605



Tungsten lamp assembly, G1103-60001



Autosampler tubing and fittings kit, 5042-1334



Needle, beveled edge, for G1811A, G1811-23200

## 8453/8454 UV accessory supplies and lamps

### G1120A 8-Position Multicell Transport Supplies

Description	Part No.
Stirring module kit Stirrer is driven by circulating water from water bath (not included)	G1120-60006
Magnetic stirrer bar for use with 10 x 10 mm (W x D) cells, 2/pk	9301-1161
Multicell transport adjustment tool	89075-23800

### 89090A Peltier Temperature Controller Supplies

Description	Part No.
Union, cell holder	5021-1870
Flow cell, 10 mm, 8 x 2 mm aperture, 160 µL	5062-2476
Quartz cuvette, 10 mm, with PTFE stopper	5062-2477
Tubing, heat exchanger, FEP	5042-1336
Magnetic stirrer bar	9301-1161

### Spectrophotometer Lamps

Description	Part No.
Deuterium lamp assembly	2140-0605
Tungsten lamp assembly	G1103-60001

### Autosampler Supplies

Description	Part No.
Needle, beveled edge, for G1811A	G1811-23200
Test tubes, 12 x 100 mm, 250/pk	5022-6531
Autosampler tubing and fittings kit	5042-1334



## Sipper Supplies

Description	Part No.
Sipper tubing kit Includes inlet tubing (1.5 m), inlet to flow cell tubing (0.35 m), flow cell to pump tubing (0.35 m), flow cell to pump tubing (0.5 m), flow cell to waste tubing (1.5 m) with fittings and connectors	5042-1333
Flow cell, 10 mm, 80 µL	0100-1225
Cassette, variable pressure	5042-1356



Sipper tubing kit, 5042-1333

## Dissolution testing supplies

### Dissolution Testing Supplies for 8453/8454

Description	Part No.
Multicell system tubing kit	5042-1330
Valve tubing kit, for one bath	5042-1331
Dissolution probes kit, 0.9 mm id, tubes with fittings	5042-1332
Fittings and ferrules, 1/16 in, PEEK, for 8-port valve	5042-1337
8-port valve, for dissolution system	5063-6575
Rotor seal, for 5063-6575 valve (UV-Vis) dissolution system	5067-1539
Dissolution filters, for 1/8 inch probe, 45 µm pore size	5181-1246



Cassette, variable pressure, 5042-1356



Multicell tubing kit, 5042-1330



Valve tubing kit, 5042-1331



Dissolution probes kit,  
5042-1332



8-port valve, for dissolution  
system, 5063-6575



PEEK fittings and ferrules,  
5042-1337



Dissolution filters for 1/8 inch  
probe, 5181-1246



Cary 5000 UV-Vis-NIR spectrophotometer



Cary 60 UV-Vis spectrophotometer



Fiber-optic dip probe,  
Torlon, body only,  
7910032600

## Agilent Cary UV-Vis and UV-Vis-NIR Supplies

Stainless steel probes are the best choice for general use, but these are not recommended for acidic samples. Torlon plastic probes are chemically-resistant and make a great choice where chemical resistance might be important, or in cases where nonmetallic probes are essential. Quartz probes offer the best chemical resistance and are ideal for corrosive samples, or for measurements at high temperatures.

Each probe uses an SMA connector and is encased in protective foam and supplied in a hard plastic carry case. They are also supplied with a product test certificate, probe compatibility matrix, routine maintenance and cleaning guide, troubleshooting guide, and a guide to verifying the health of your probe.

### Cary fiber-optic probes

#### Fiber-optic Probes

Use With	Description	Part No.
Cary 50/60 Wavelength range 200-1100 nm	Fiber-optic dip probe, stainless steel, body only, variable path length using interchangeable tips Requires stainless steel tip, see the section on Replaceable Tips for compatible tips	7910035700
	Fiber-optic dip probe, stainless steel, fixed 10 mm path tip	7910036400
	Fiber-optic dip probe, stainless steel, replaceable 10 mm path tip Tip supplied can be exchanged for other path lengths using interchangeable threaded stainless steel tips	7910036500
	Fiber-optic dip probe, Torlon probe, 7.9 mm in diameter x 155 mm, fixed 10 mm path tip	7910029900
	Fiber-optic dip probe, Torlon, body only, variable path length available using interchangeable tips Probe is 7.9 mm in diameter x 144 mm (excluding tip) Requires Torlon tip, see the section on Replaceable Tips for compatible tips	7910032600
	Fiber-optic dip probe, Torlon, 7.9 mm in diameter x 159 mm, replaceable 10 mm path tip (tip can be exchanged for other path lengths)	7910035100
	Fiber-optic microprobe, stainless steel, 3.05 mm in diameter x 140 mm, fixed 10 mm path length Not recommended for use with strong acids	7910035600

(continued)

### Fiber-optic Probes

Use With	Description	Part No.
Cary 100/300	Handheld fiber-optic probe, quartz, long body, 265 mm, 10 mm path length Suitable for use up to 150 °C and with corrosive acids	7910032100
	UV-Vis reflectance probe and probe holder for measuring total reflectance from a sample surface, illumination area is 1 mm	7910036200
	Handheld UV-Vis reflectance probe. Probe only, for measuring total reflectance from a sample surface. Excludes probe holder.	7910035500
Cary 50/60/100/300	Handheld stainless steel fiber-optic probe, with interchangeable tips, which allow users to select the measurement path length 6.38 mm diameter x 101.6 mm, 3 m fiber. Supplied with 10 mm path length replaceable tip and light shield.	9910076600
Cary 4000/5000/ 6000i	UV-Vis absorption probe, stainless steel, 2.5 m, 10 mm path length	9910069400



Handheld fiber-optic probe  
with replaceable tip,  
9910076600





Replaceable tip, Torlon,  
20 mm path length,  
7910034600



Replaceable tip, stainless steel,  
10 mm path length,  
7910035800

## Replaceable tips and miscellaneous supplies

The stainless steel probe tips are suitable for use with the two stainless steel dip probes – either the stainless steel probe body (p/n 7910035700) or the stainless steel probe with the replaceable tip (p/n 7910036500).

The Torlon probe tips are suitable for use with the Torlon probe body (p/n 7910032600) or the Torlon fiber-optic dip probe with the replaceable tip (p/n 7910035100). They feature a single arm design to reduce bubble formation. The tip is 7.9 mm in diameter and is suitable for operation in temperatures up to 85 °C.

### Replaceable Tips and Miscellaneous Supplies

Use With	Description	Part No.
Cary 50/60	Replaceable tip, stainless steel, 2 mm path length	7910036000*
	Replaceable tip, stainless steel, 5 mm path length	7910035900*
	Replaceable tip, stainless steel, 10 mm path length	7910035800*
	Replaceable tip, stainless steel, 40 mm path length	7910036100*
	Replaceable tip, Torlon, 2 mm path length	7910032800**
	Replaceable tip, Torlon, 5 mm path length	7910032900**
	Replaceable tip, Torlon, 10 mm path length	7910033000**
	Replaceable tip, Torlon, 20 mm path length	7910034600**
All Cary instruments	Replaceable tip, Torlon, 40 mm path length	7910034500**
	Path length tips, 10 mm, to suit the Versi remote fiber-optic probe (p/n 190055700)	190055900
	Fiber-optic alignment loop	7910027200
	Fiber-optic probe light shield. Provides light immunity for fiber-optic probes used with Cary 100/300.	7910028900
	UV-Vis reflectance probe holder, spare, to hold fiber-optic reflectance probe vertically	9910068500

\*For use with stainless steel dip probe body, p/n 7910035700 or 7910036500.

\*\*For use with Torlon probe body, p/n 7910032600 or 7910035100.

## Kits and supplies for UV-Vis and UV-Vis-NIR accessories

## Accessory Supplies

Description	Further Information	Part No.
Sipper flow cell pump for Cary 3500		
Tubing kit for Sipper	Includes inlet and outlet capillaries, a waste tube with barb connector, and PVC peristaltic pump tubes (purple/black), 12/pk.	G9853-68000
Tube guide bracket kit for Sipper	Tubing guide brackets locate and secure the inlet and outlet capillaries. Enables simple management of the inlet and outlet capillaries of one flow cell.	G9853-68001
Peristaltic pump tubing for Sipper	Peristaltic pump tubing for sample, purple/black tabs, 12/pk	3710027300
Temperature probe accessory supplies		
Probe holder	Includes square end probes, 2/pk, for use in rectangular cuvettes with internal dimensions of 10 x 10 mm and regular end probe, 2/pk, for use in rectangular cuvettes with internal dimensions of 10 x 9.5 mm	9910066800
Probe holder, tapered end	Includes tapered end probes, 4/pk, suitable for use in microcells	9910066900
Extension lead, short, for probe holder	Required for mounting the probe inside the sample compartment	110381100
Extension lead, long, for probe holder	Required for mounting the probe outside the sample compartment	110380500
Cary 50/60 solid sample holder accessory supplies		
End holder	Side mounting support for the solid sample holder for Cary 50/60 Used to position the polarizer/depolarizer or other accessories	810137000
Solid sample holder spares kit #2	Includes V plate, 3 x 45 mm, 2/pk, V plate, 6 x 45 mm, 2/pk, assorted screws and nuts for fixing samples onto the sliding plates on the sample holder	9910056200
Cary 7000 UMA solids autosampler sample holder		
Sample holder, 1 inch round	Two configurations provided. Mount up to 32 x 1 in diameter samples up to 10 mm thick with maximum angle of incidence 45°, or mount up to 24 x 1 in diameter samples up to 10 mm thick with maximum angle of incidence 65°.	G6876-60003
Sample holder, 8 inch round	Wafer holder: Mount single 8 in diameter samples, up to 3 mm thick. Maximum angle of incidence 65°.	G6876-60002
Sample holder, universal	Permits mounting of irregular-shaped samples of up to 10 mm thickness. The universal sample holder has 24 x 1 inch holes, evenly spaced around the 200 mm (8 inch) diameter ring. %R or %T measurements can be made through any of these 24 holes.	G6876-60004
Cary 7000 UMA sample holders		
Standard sample holder	Supplied as standard with all UMA and UMS systems	G6874A#100
Cube beam splitter holder	For use with cube beam splitters from 1 cm <sup>3</sup> to 5 cm <sup>3</sup>	G6874A#200

(continued)



Cary temperature probe accessory

Sample holder, 8 inch round, for the  
Cary 7000 UMA solids autosampler

# Agilent Cary UV-Vis and UV-Vis-NIR Supplies

## Accessory Supplies

Description	Further Information	Part No.
Edge mount sample holder	Fully adjustable, for use with samples 1 in (25.4 mm) to 6 in (150 mm) in diameter and 5 mm thick	G6874A#300
Round sample holder	Three fixed diameter sample holders. Designed for %R or %T measurements of round samples of 1 in, 1.5 in, or 2 in diameters. Each holder has a 2 mm selvaige perimeter which will contact the sample. Horizontal cutouts ensure large angles of incidence can be achieved.	G6874A#400
Cary 4000/5000/6000 solid sample holder accessory supplies		
Film holder spares kit #1	Includes magnetic strips, 4/pk, V plates, 20/pk, gel-boat holders, resting plates, 2/pk, masks, 8/pk, clamps, 4/pk	9910064600
Solid sample end support	Solid sample mount for the attachment of polarizers, depolarizers, or apertures to the standard solid sample mounting accessory for the Cary 4000/5000/6000	5810008100
Solid sample masking aperture, 1 mm	Replacement aperture plate with 1 mm hole	410204100
Solid sample masking aperture, 5 mm	Replacement aperture plate with 5 mm hole	410204300
Solid sample masking aperture, 10 mm	Replacement aperture plate with 10 mm hole	410203900
Solid sample mounting plate	Provides attachment points for solid sample supports	410204500
Solid sample holder spares kit #1	Includes aperture sample slide holder, 10 mm, aperture sample slide holder, 5 mm, aperture sample slide holder, 1 mm, V plate, 3 x 45 mm, 2/pk, V plate, 6 x 45 mm, 2/pk, assorted screws and nuts for fixing samples onto the sliding plates on the sample holder	9910059400
Solid sample holder spares kit #2	Includes V plate, 3 x 45 mm, 2/pk, V plate, 6 x 45 mm, 2/pk, assorted screws and nuts for fixing samples onto the sliding plates on the sample holder	9910056200
<b>Diffuse reflectance accessory (DRA) supplies</b>		
Cary 100/300 internal DRA supplies		
Powder cell holder kit	Includes a prepacked PTFE powder cell, for use as a reflectance standard and powder cell holder. The quartz window covers the sample so the holder can be positioned at the port of the sphere.	7910036600
Path length cuvette holder, 10 mm, for DRA-CA-30I	Suitable for positioning 10 mm path length cells in the transmittance port	7910028200
Fabric sample holder, for DRA-CA-30I	Includes UG11 filter	7910027900
Light trap (for performing 0% T baseline correction)		7910028100
Transmittance sample holder, for DRA-CA-30I		7910028000
Calibrated 1.25 inch diameter 99% Spectralon reflectance standard for DRA-CA-30I		7910036900
Cary 4000/5000/6000 internal DRA supplies		
Small reference disk	PTFE-packed diffuse reflectance disk, 30 mm diameter	410198890
Large reference disk	PTFE-packed diffuse reflectance disk, 45 mm diameter	410143990
Cuvette holder	Suitable for both transmission and reflectance measurements using 10 mm path length cells	210187900
Powder cell kit	Includes a prepacked PTFE powder cell (for use as a reflectance standard), powder cell holder, funnel, and small sample holder	9910111400

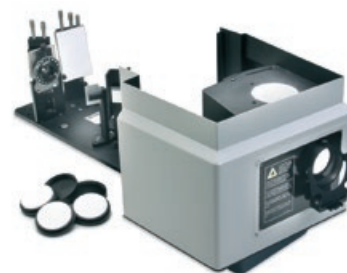
(continued)

## Accessory Supplies

Description	Further Information	Part No.
Cary 4000/5000/6000 external DRA supplies		
Spectralon 99% reflectance standard	Calibrated, for diffuse reflectance, 2 inch diameter, in durable Delrin holder with protective cover. Includes diffuse reflectance data from 250 – 2500 nm, at 50 nm intervals.	7910037700
Center mount cuvette holder	Suitable for mounting a standard 10 mm path length cuvette inside the sphere, normal to the incident beam. Ideal for measuring turbid samples, such as proteins and other biological solutions.	7910038700
External mount cuvette holder	Suitable for measuring the transmission or absorbance of liquid samples using standard 10 mm path length cuvettes. Mounts on the transmission holder and can be positioned in either the sample or reference beams.	7910038300
Center mount holder, clip type	Allows samples to be positioned at the center of the DRA for measurement. The clip style holder is suitable for mounting thin and flexible samples. Incorporates a rotating dial so the user can quickly set the desired incidence angle to the nearest degree.	7910047600
Center mount holder, jaw type	Allows samples to be positioned at the center of the DRA for measurement. The jaw style holder is suitable for mounting rigid, opaque samples, such as mirrors and painted samples. Incorporates a rotating dial so the user can quickly set the desired incidence angle to the nearest degree.	7910047500
Powder cell holder	Allows reflectance measurements of powdered samples and pastes. Mounts on the standard sample holder against the reflectance port. Includes a prepacked PTFE powder cell for use as a reflectance standard and an empty powder cell holder for the sample. Sample is retained by a plunger.	7910047700
Small spot kit	Consists of an iris, mirror assembly, and three lens options to focus the beam to a smaller diameter spot at the selected measurement location. The beam size is ~3 mm diameter at the transmission position and 3.5 mm tall by 1.5 mm wide at the reflectance position.	7910047200
Variable angle transmittance holder	Allows transmittance measurements of solid samples at various incident angles. The sample can be positioned through 360 degrees to the incident beam and is selectable to 1 degree. Suitable for rigid samples such as mirrors and glasses.	7910047400
Miscellaneous accessory supplies		
Aperture mask kit, for the variable angle specular reflectance accessory	Contains 1 inch disk holder, 2/pk, and two each of the 2, 10, and 20 mm sample holders	9910064700
Attenuation filter kit with neutral density screens and blue filter, for use with the variable angle specular reflectance accessory	Used to attenuate the reference beam when measuring highly absorbing samples from 0.5 Abs to 3.1 Abs	9910047700



Cary 4000/5000/6000 solid sample holder



Cary 4000/5000/6000 diffuse reflectance accessory



Deuterium lamp, for Cary 100/300 UV,  
G9820-80000



Visible source lamp, for Cary 100/300 UV,  
5610021700



Xenon lamp module for Cary 50/60,  
110639690



Visible QI lamp, for Cary 4000 to 7000,  
5610013900



Deuterium lamp, for Cary 4000 to 7000,  
110713990

## Cary UV-Vis source lamps

Agilent offers high-quality lamps that produce top level performance for your Cary spectrophotometer.

### Cary Source Lamps

Description	Compatible Instruments	Part No.
Deuterium UV lamp	Cary 100/300	G9820-80000
Visible source lamp	Cary 100/300	5610021700
Xenon lamp module	Cary 50/60	110639690
Deuterium UV lamp	Cary 4000 to 7000	110713990
Visible QI lamp	Cary 4000 to 7000	5610013900
Mercury lamp Used for UV-Vis wavelength validation	Cary 4000 to 7000	5610136300

## Cary tubing

### Tubing

Description	Further Information	Part No.
Silicon pump tubing, 3/16 inch id, 5/16 inch od, per m	Tubing only, no connectors	2410023800
Peristaltic pump tubing replacement kit for routine sampler accessory	Includes silicon pump, tubing, and fittings	9910052900
PTFE tubing (to sample) for routine sampler accessory, per m		3710030800
Silicon tubing, 1 mm id, 3 mm od		3710026400
Silicon tubing, used to connect routine sampler accessory to flow cells, per m		910146400
Dissolution tubing spares kit, Cary 50/60		6610020500



# UV Filters, Standards, and Reagents

## Optical Filters

Description	Further Information	Part No.
Attenuator filter kit with neutral density screens and blue filter, for use with Cary 100/300/4000/5000/6000i	Used to measure photometric linearity, confirm baseline correction operation, and attenuate the reference beam when measuring highly absorbing samples from 0.5 Abs to 3.1 Abs.  Two filter holders (V-Holders) are supplied with three neutral density mesh filters (0.5 Abs, 1.1 Abs, and 1.5 Abs). Also supplied are three blue glass filters.  The blue glass filters are mounted in the V-holders supplied, which can be fitted to the cell holder base to position them in the optical path.	9910047700
Holmium oxide filter	Uncertified holmium oxide glass filter mounted in a 10 mm rectangular cell holder, for wavelength accuracy testing	118020790
Holmium oxide/didymium glass filter kit	Includes holmium oxide and didymium glass filters (uncertified) in a 10 mm rectangular cell holder, for wavelength accuracy testing	10030200
Certified holmium glass filter	Holmium glass filter mounted in a 10 mm rectangular holder, with certificate	2010094300
Certified didymium glass filter	Didymium glass filter mounted in a 10 mm rectangular holder, with certificate	2010094400
Photometric linearity neutral density filter kit	Contains tandem cell holder and two neutral density filters for each size (0.3, 0.5, 1.0, and 1.5 Abs)	9910056100



Photometric linearity neutral density filter kit, 9910056100



The Agilent Cary 7000 UV-Vis-NIR universal measurement spectrophotometer provides a powerful approach to measuring solid samples



OQ/PV chemical standards kit I,  
5063-6503



OQ/PV chemical standards kit II,  
5063-6521



OQ/PV hardware kit,  
5063-6523



Tubing kit for UV-Vis OQ/PV test,  
5063-6522



Caffeine OQ/PV sample for dissolution test,  
5042-6476

## Standards and reagents

Our single-use chemical standards and accessory kits provide an inexpensive and time-saving solution for operational qualification and performance verification (OQ/PV) of UV-Vis spectrophotometers. The kits are designed for analysts who need to verify the analytical performance of their UV-Vis spectrophotometer.

The chemical kits can be used with any UV-Vis spectrophotometer and consist of preprepared solutions in sealed ampoules. The solutions are traceable to NIST standards, and include holmium oxide for wavelength accuracy, potassium dichromate for testing photometric accuracy, sodium nitrite, sodium iodide, and potassium chloride for testing stray light at 340, 220, and 198 nm, and toluene in hexane for testing resolution.

Each standard includes a certificate of analysis for traceability.

### Certified Calibration Standards and Accessory Kits (Single Use)

Description	Kit Contents	Part No.
OQ/PV chemical standards kit I, for photometric accuracy, stray light, and resolution measurements	Contains 14 x 10 mL ampoules, including 4 potassium dichromate in sulfuric acid (2 each of 60 and 600 mg/L), 4 sulfuric acid (blank), sodium nitrite, sodium iodide, potassium chloride, toluene in hexane, and 2 n-hexane (blank)	5063-6503
OQ/PV chemical standards kit II, for wavelength accuracy	Contains ampoules, 10 mL each, 2/pk, including perchloric acid (blank) and holmium oxide in perchloric acid	5063-6521
OQ/PV hardware kit	Contains flow cells, 2/pk, cell passivating fluid, tubing kit, MCT adjustment tool, temperature sensor support, syringes, and OQ/PV manual	5063-6523
Tubing kit, for UV-Vis OQ/PV test	Contains tubings, fittings, and adapter to flush flow cell	5063-6522
Caffeine OQ/PV sample, for dissolution test, 150 mg/L caffeine in water, 500 mL		5042-6476
Toluene in hexane resolution test kit	Includes 10 mL ampoules of 0.02% toluene in n-hexane, 2/pk, and 10 mL ampoules of n-hexane, 6/pk	9910101000

### 8453/8454 Checkout Samples

Description	Part No.
Test sample for UV-Vis (caffeine solution, 10 µg/mL in water)	5063-6524

### Tips and tools

The single-use chemical standards for OQ/PQ can be used with 10 mm path length macrocells, but to simplify testing and minimize cross-contamination, use of a flow cell is recommended. The tubing kit (p/n 5063-6523) includes all the necessary items.

## Certified Calibration Standards and Accessory Kits (Multiple Use)

Description	Kit Contents	Part No.
UV instrument qualification set, USP/EP	UV instrument USP/EP qualification set of 18 sealed cells for testing performance of a UV spectrophotometer (wavelength accuracy, photometric accuracy, stray light and resolution). Includes 5 and 10 mm path length cuvettes to allow stray light testing using the filter ratio method outlined in USP Chapter 857. Includes potassium dichromate in perchloric acid at 40, 60, 120 and 600 mg/L, plus perchloric acid blank for photometric accuracy tests, holmium perchlorate (holmium oxide) 4% in 10% perchloric acid plus 0.05% m/v cerium oxide in 0.03% m/v sulfuric acid (rare earth) for wavelength accuracy tests, potassium chloride solution 12 g/L in both a 10 mm and a 5 mm path length cell, sodium nitrite solution 50 g/L in both a 10 mm and a 5 mm path length cell, sodium iodide 1% in both a 10 mm and a 5 mm path length cell, plus a water blank and acetone in both a 10 mm and 5 mm path length cell for stray light tests, 0.02% v/v solution of toluene in hexane plus a hexane blank for resolution tests. Each solution is sealed in a quartz cuvette. A certificate of traceability and performance is included for each solution.	G9864-80009
Calibrated solution standards kit	Solution validation test kit of 12 sealed cells for testing performance of a UV spectrophotometer (wavelength accuracy, photometric accuracy, stray light). Includes potassium dichromate 40 mg/L, 60 mg/L, 120 mg/L, 600 mg/L plus perchloric acid blank for photometric accuracy tests, holmium perchlorate 4% in 10% perchloric acid for wavelength accuracy tests, potassium chloride solution 12 g/L, sodium nitrite solution 50 g/L, sodium iodide 1% solution plus water blank for stray light tests, 0.02% toluene in hexane plus a hexane blank for resolution tests. Each solution is sealed in a quartz cuvette. A certificate of traceability and performance is included for each solution.	9910085200
Holmium perchlorate 4% in perchloric acid, sealed in a quartz cuvette	Includes certificate of traceability and performance	6610022100
Certified standard, for specular reflectance at 7 degree angle of incidence	Features Al coating on 40 mm diameter Pyrex substrate. Covers range 250–2500 nm with >80% reflectance >250 nm and >85% reflectance >800 nm. Includes NIST traceable certification at 10 nm intervals (250–1100 nm) and 25 nm intervals (1100–2500 nm).	G6874-80000
Spectralon 99% reflectance standard, calibrated, for diffuse reflectance, 2 inch diameter	PTFE diffuse reflectance standard, which has typical reflectance value of 99% and is spectrally flat over the UV-VIS-NIR spectrum in the range from 250–2500 nm. Reflective area 2 inch diameter. Supplied with complete diffuse reflectance data from 250–2500 nm. Housed in a durable Delrin holder with a protective cover. For use with the Cary 7000/UMA when performing scattering measurements that need to be referenced (ratioed) to a scattering material.	7910037700
Calibrated color standard, 2 inch od, 4/pk	Includes 2 inch od calibrated colored standards (red, green, blue, yellow) with values traceable to NIST for stable, reproducible spectral reflectance. Also contains tristimulus values, chromaticity coordinates, UCS coordinates, and CIELAB and CIELUV values.	7910037600
Calibrated color standard, 1.25 inch od, 4/pk	Includes four colored standards (red, green, blue, yellow) with values traceable to NIST. Includes tristimulus values, chromaticity coordinates, UCS coordinates, and CIELAB and CIELUV values. Certified values are in 10 nm increments from 380–830 nm.	9910084300
Certified diffuse reflectance wavelength and wavenumber standard	PTFE diffuse reflectance standard, which has typical reflectance value of 99% and is spectrally flat over the UV-VIS-NIR spectrum in the range of 250–2500 nm. Reflective area 2 inch diameter. Supplied with complete diffuse reflectance data in both wavelength and wavenumbers, directly traceable to NIST. Housed in a durable Delrin holder with a protective cover.	9910081100
Certified diffuse reflectance wavenumber standard	PTFE diffuse reflectance standard, which has typical reflectance value of 99% and is spectrally flat over the UV-VIS-NIR spectrum in the range of 250–2500 nm. Reflective area 2 inch diameter. Supplied with complete diffuse reflectance data in wavenumbers, directly traceable to NIST. Housed in a durable Delrin holder with a protective cover.	9910081000
Certified reference standard for certification of UV instruments to USP requirements	Includes 0.006% potassium dichromate plus perchloric acid blank and neutral density filters of 0.5, 0.7, and 1.0 Abs for photometric accuracy tests. Also includes 4% holmium perchlorate in 10% perchloric acid for wavelength accuracy tests. Each solution is sealed in a quartz cuvette. A certificate of calibration with NIST traceability is included for each solution/filter.	190034200
Certified Neutral Density standards, set of three	Set of three neutral density glass filters of 0.5, 0.7, and 1.0 Abs, required for the determination of photometric accuracy. Traceable to NIST.	190032100
Didymium standard for USP857	Didymium standard for UV certification to USP857, certified, NIST traceable. Comprises didymium in perchloric acid in sealed cuvette for wavelength accuracy measurements.	G6860-80001
Acetone standard for USP857	Acetone standard for UV certification to USP857, certified, NIST traceable. Comprises didymium in perchloric acid in sealed cuvette for wavelength accuracy measurements.	G6860-80002



The Agilent Cary Eclipse fluorescence spectrophotometer

## Agilent Cary Eclipse Fluorescence Supplies

Agilent fluorescence spectrophotometers are augmented by a wide range of accessories and supplies, including a Fast Filter accessory, solid sample holder, 96- and 384-well microplates, and fiber-optic probes and couplers.

### Kits and supplies for fluorescence accessories

#### Fast Filter accessory supplies

The Fast Filter accessory quickly adapts the Cary Eclipse into a filter-based instrument for measurement of rapid intracellular ion movements into and out of cells using ratiometric fluorescent probes. Such measurements are used in processes exhibiting fast kinetics that cannot be measured using high-speed scanning monochromators. A pair of bandpass filters appropriate to the fluorophore under investigation must be mounted in the Fast Filter accessory. Agilent offers filter pairs appropriate for measurement of the calcium binding dyes Fura-2 and Indo-1. The filters are 25 mm in diameter and are mounted in a black anodized aluminum ring.



Fura-2 filters for Ca<sup>++</sup> measurements, 7910043800



Indo-1 filters for Ca<sup>++</sup> measurements, 7910043900

#### Kits and Supplies for Fluorescence Accessories

Description	Part No.
Fura-2 filters for Ca <sup>++</sup> measurements (340 and 380 nm bandpass filters, 20 nm SBW), requires Fast Filter accessory.	7910043800
Indo-1 filters for Ca <sup>++</sup> measurements (405 and 495 nm bandpass filters, 20 nm SBW), requires Fast Filter accessory	7910043900

#### Tips and tools

For the latest news, articles, and product updates about Agilent Molecular Spectroscopy technologies, including UV-Vis and UV-Vis-NIR, FTIR, Raman, fluorescence, and LDIR, visit the Molecular Spectroscopy News and Resource Hub.

Visit [www.agilent.com/en/product/molecular-spectroscopy/news-resource-hub](http://www.agilent.com/en/product/molecular-spectroscopy/news-resource-hub)

## Cary Eclipse Fluorescence Accessory Supplies

Description	Further Information	Part No.
Solid sample holder accessory supplies		
Edge mounting sample holder	Used with solid sample holder accessory. Allows measurement of optical components, including optical filters and other samples that cannot be mounted using the standard solid sample holder kit. Consists of an adjustable sample clamp plate, additional sample brackets, 2/pk, a sliding bracket, ball driver, and positioning screws (4/pk).	9910102900
Powder cell and single crystal holder	Used with solid sample holder accessory. Allows measurement of powders and various small crystals, gems and rocks. Consists of a mounting bracket, positioning screws (4/pk), cylindrical powder holder shell and powder holder lid, sample cups (2/pk), silica disks, and a crystal holder bracket.	9910103000
Cuvette sample holder	Allows measurement of liquid samples located in traditional cuvettes. Consists of a cuvette holder for standard 10 mm path length cuvettes and mounting screws (2/pk), to secure the cuvette holder to the solid sample holder mounting plate. Allows for flexible front face cuvette measurements at various angles for highly scattering or absorbing samples.	9910103100
Temperature probe accessory supplies		
Probe holder	Includes square end probes, 2/pk, for use in rectangular cuvettes with internal dimensions of 10 x 10 mm and regular end probes, 2/pk, for use in rectangular cuvettes with internal dimensions of 10 x 9.5 mm	9910066800
Probe holder, tapered end	Includes tapered end probes, 4/pk, suitable for use in microcells	9910066900
Extension lead, short, for probe holder	Required for mounting the probe inside the sample compartment	110381100
Extension lead, long, for probe holder	Required for mounting the probe outside the sample compartment	110380500



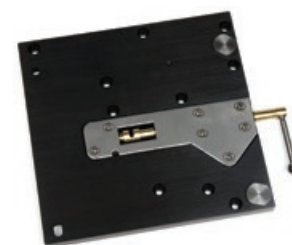
Cary Eclipse solid sample holder

## Base plate for custom accessories

This base plate incorporates locating holes and the Cary Eclipse rapid lockdown mechanism, common to most Eclipse accessories. It can be used to mount custom accessories in the Eclipse sample compartment.

## Accessory Base Plate

Description	Part No.
Base plate for custom accessories, fluorescence	210167490



Base plate for custom accessories, fluorescence, 210167490



Using cuvettes with the Cary Eclipse enables accurate measurements of biological samples



Fluorescence flow cell, 40  $\mu$ L, 10 mm path length, supplied with inlet and outlet PTFE tubing (1.6 mm od) fitted with M6 threaded connectors, 6610023700



Fluorescence microcell with PTFE stopper, 4 x 10 mm aperture, 10 mm path length, 6610021500

## Fluorescence cuvettes and flow cells

Rectangular cells are the most commonly used cell type. We offer standard cells, sub-microcells with approximately 40% of the volume of a standard cell of the same path length, and microcells with about 20% of the volume of a standard cell. Low-volume triangular cells that fit directly into the standard 10 mm cuvette holder are also available. The microcell cuvettes are ideal for when you have only a small amount of sample. All the listed cuvettes have the optimum Z-height (the distance between the base of the cell and the center of the light beam) for the Cary Eclipse fluorescence spectrophotometer.

### Fluorescence Cuvettes and Flow Cells

Cell Type	Description	Cell Material	Volume	Path Length (mm)	Part No.
Flow cell	Flow cell, 2 x 2 mm excitation windows, plus an emission window at 90 degrees	Far UV quartz	40 $\mu$ L	10	6610023700
Rectangular	Fluorescence cell, open top, pair	Far UV quartz	3.5 mL	10	6610000900*
	Fluorescence cell, stoppered, pair	Far UV quartz	3.5 mL	10	6610001200*
	Fluorescence cell, anaerobic	Far UV quartz	3 mL	10	6610021400
	Fluorescence cell, two sides mirrored with black-backed mirrored sides	Far UV quartz	3 mL	10	6610023500
	Sub-microcell, 4 x 10 mm window	Far UV quartz	400 $\mu$ L	10	6610021500
	Sub-microcell, 2 x 2 mm window	Far UV quartz	40 $\mu$ L	10	6610021600
Triangular	Sub-microcell, low headspace, stoppered	Far UV quartz	40 $\mu$ L	10	6610024200
	Microcell, stoppered, square base	Far UV quartz	1.7 mL	10	6610021200
	Microcell, open top, square base	Far UV quartz	1.7 mL	10	6610021300

\*Matched pair

### Cell Holder and Base

Description	Part No.
Cell holder, fluorescence	110664700
Cell holder base, fluorescence	210167200

## Microplates

These microplates are recommended for the Cary Eclipse microplate reader accessory. Our microplates are available in white for best overall well-to-well reproducibility, or black for the lowest background signal levels. Both types have high binding surfaces that bind medium and large biomolecules (greater than 10 kDa) with hydrophobic or ionic groups.

### 96-well Microplates

Surface Treatment	Sterile	Color	Unit	Part No.
High binding	No	White	10/pk	6610022400
High binding	No	Black	10/pk	6610022500
Untreated	Yes	White	10/pk	6610022300



96-well microplate, 6610022300

### 384-well Microplates

Surface Treatment	Sterile	Color	Unit	Part No.
High binding	No	White	10/pk	6610022600
High binding	No	Black	10/pk	6610022700



Fiber-optic dip probe coupler accessory, fluorescence, 10076800

## Fiber-optic probes and couplers

### Fiber-Optic Probes and Couplers

Description	Further Information	Part No.
Fiber-optic dip probe coupler accessory, fluorescence	Allows a fiber-optic dip probe to be connected using SMA 906 connectors. Includes a remote read connection to enable a read triggering from the probe mounting arm. Requires the fiber-optic dip probe (p/n 7910043100).	10076800
Fiber-optic coupler accessory, fluorescence	Allows a remote read fiber-optic probe to be connected using SMA 906 connectors. Allows remote sample measurement. Requires the remote read fiber-optic probe (p/n 7910043000).	10076700
Fiber-optic dip probe, fluorescence	Stainless steel fiber-optic dip probe. For use with fiber-optic dip probe coupler accessory. Probe tips must be ordered separately. Select from the fluorescence fiber-optic liquid tips kit for quantitative work and the fluorescence fiber-optic probe tip for solids.	7910043100
Fiber-optic remote read 2 m probe, fluorescence	Handheld stainless steel fiber-optic probe with remote read switch. For use with fiber-optic coupler accessory. Probe tips must be ordered separately. Select from the fluorescence fiber-optic liquid tips kit for quantitative work and the fluorescence fiber-optic probe tip for solids.	7910043000



Transmission probe and holder, 10076700



Fiber-optic remote read 2 m probe, fluorescence, 7910043000



Fluorescence fiber-optic liquid tips kit, 9910104500



Fluorescence fiber-optic solid tip kit, 7910043200



Silica diffuser, spare, 110674800



Rhodamine B, concentrated solution sealed in triangular cuvette, 6610021700



Fluorescence samples, set of six hydrocarbons in polymer blocks, 6610010300

## Tips for Fiber-Optic Probes

Description	Kit Contents	Part No.
Fluorescence fiber-optic liquid tips kit	Includes two stainless steel liquid probe tips with black quartz bases, angled to minimize back-scattering, 10 and 20 mm path lengths	9910104500
Fluorescence fiber-optic solid tip kit	Includes stainless steel probe tip for solids, designed to bring light into the sample at 30 degrees to minimize back-scattered excitation	7910043200

## Standards and reference materials

### Standards and Reference Materials

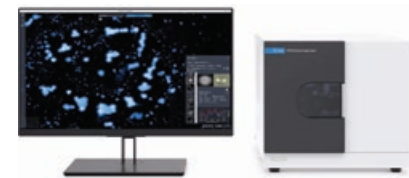
Description	Further Information	Part No.
Water-filled fluorescence cuvette, sealed	Used for signal-to-noise measurements of Raman band of water	6610021800
Silica diffuser, spare		110674800
Neutral density attenuator 1.5 Abs, spare		110677500
Rhodamine B in polymer block		6610021900
Europium in polymer block		6610022200
Rhodamine B, concentrated solution, sealed in triangular cuvette	Saturated Rhodamine B solution in triangle cell for collecting excitation correction factors	6610021700
Holmium perchlorate 4% in perchloric acid, sealed in a quartz cuvette	Sealed cell used to measure wavelength accuracy on the emission monochromator. Requires cell holder p/n 110678600. Includes certificate of traceability and performance.	6610022100
Cell holder for holmium perchlorate cuvette	Special cell holder for mounting a cuvette before the standard cell holder. Used for mounting the holmium perchlorate for the wavelength accuracy test. Allows diffuser to be positioned in standard cell holder and the perchlorate cell to be positioned in this cell holder. Required for Cary Eclipse wavelength accuracy test using holmium perchlorate solution.	110678600
Fluorescence samples, set of six hydrocarbons in polymer blocks	Four have broad fluorescence bands for 300 – 700 nm, and two have sharp emission bands for wavelength calibration and bandpass checking. Samples include anthracene/naphthalene, ovalene, p-terphenyl, tetraphenyl butadiene, compound 610, and rhodamine B in PMMA block.	6610010300



## Agilent 8700 LDIR and Sample Planer Supplies

Laser Direct Infrared (LDIR) imaging provides a rapid and simplified path to molecular imaging using a quantum cascade laser (QCL) coupled with rapidly scanning optics. The Agilent 8700 Laser Direct Infrared (LDIR) chemical imaging system provides a sophisticated new approach to chemical imaging and infrared spectral analysis, and is suited to the analysis of microplastics. Automated workflows reduce costs and potential errors, and simplify the microplastics analysis process giving you the results you need, fast.

Agilent supplies for the 8700 Laser Direct Infrared (LDIR) chemical imaging and sample planer systems enable simple preparation of a flat surface at the required thickness and easy sample mounting.



The Agilent 8700 LDIR brings high-speed analysis and ease of use to infrared spectroscopy

### Glass Microscope Slides for Mounting Samples

Description	Contents	Part No.
Glass microscope slide, 75 x 25 mm, 100/pk	Glass microscope slide, 75 x 25 mm (3 x 1 inch), 1 mm thick, ultrasonic cleaned and packed in a clean room, 100/pk	M7300-61042
Glass microscope slide, 25 x 25 mm, 200/pk	Glass microscope slide, 25 x 25 mm (1 x 1 inch), 1 mm thick, ultrasonic cleaned and packed in a clean room, 200/pk	M7300-61043

### Agilent Sample Planer Supplies

Description	Contents	Part No.
Glue dispensing tips, tapered 18GA 150/p	Dispensing tip for glue, smooth flow, tapered, 18 ga, double helix Luer lock fitting, green polyethylene, max. pressure 100 psi (6.89 bar), 150/pk	M7300-68001
Adhesive UV-cured low-shrink, white, 10 mL	Adhesive, UV-cured, low-shrink, white acrylated urethane. Low outgassing, low coefficient of thermal expansion. Bonds to metal, glass, ceramic, and various plastics, 10 mL syringe.	M7300-68002
Sacrificial laminate strip, 128/pk	Sacrificial laminate strip for laminate sample preparation, 128/pk. Used to prepare samples for analysis of multilayer laminates.	M7300-61014
Microtome blade, diamond-finish, 50/pk	Microtome blade, disposable, diamond finish, ceramic-coated, high profile, 76 mm x 14 mm x 0.43 mm, 35 degree cutting angle, ideal for tough applications, fits all microtome blade holders, 50/pk	M7310-68000

### Slides/Filters for Direct Analysis of Particles and Microplastics using LDIR

Description	Part No.
Low-E (Kevley) slide, Box25	M7300-68010
Gold-coated filters, 25 mm (10)	M7300-68009



Cary 630 flexible benchtop FTIR instrument

## Agilent FTIR Supplies

FTIR (Fourier transform infrared) spectroscopy is a fast, easy, and reliable technique for material identification and quantification of constituents in a sample. Agilent offers a range of FTIR instruments, from flexible handheld FTIR spectrometers and robust portable FTIR analyzers for field applications, to reliable benchtop FTIR instruments for routine testing and cutting-edge research. Our FTIR instrumentation delivers efficient performance for your specific measurement type. With accessories and supplies, including a range of attenuated total reflection (ATR) options, Agilent instruments are quick and easy to optimize for every application. Our range of consumables for these products includes desiccant, replacement windows and sources, filters, crystals, and high-quality reference sources, such as polystyrene test films.

### Cary Series FTIR Instrument Supplies and Sources

Description	Part No.
Simple polystyrene test card (uncertified)	2010128000
Replacement desiccant cartridge for spectrometer Used to prevent water vapor diffusing into the spectrometer enclosure. Replace when the indicator crystals turn pink.	899-1794
Sample compartment filter kit Includes 12.5%, 25%, and 50% filters	9910141100
KBr window assembly, for sample compartment	110834990
KBr window assembly, pair (spare only)	210228390
Window retaining ring	810207300
KRS5 window assembly, for sample compartment	110835000
KRS5 window assembly, pair, for 640 FTIR	210228490
Source assembly, Mid-IR	110805990
Assembly source element, NIR, FTS 7000	013-3243
Source element, FTIR, FTS 4060	013-3300
NIR source lamp	5610136500



Replacement desiccant cartridge for spectrometer, 899-1794



KBr window assembly for sample compartment, 110834990



Window retaining ring, 810207300



NIR source lamp, 5610136500

### Agilent Cary 630 FTIR System Supplies

Description	Part No.
Replacement infrared source with purge fitting	G8043-67400
Replacement dessicant cartridge with purge fitting	G8043-67401
KBr window with removal tool and purge fitting	G8043-67402
ZnSe window with removal tool and purge fitting	G8043-67403
Polystyrene film, for Diamond ATR/Transmission sampling accessory	G8043-67405
Polystyrene film, for TumbIR/DialPath sampling accessory	G8043-67406
Replacement flat tip, for Diamond ATR	G8043-67483
Replacement pellet tip, for Diamond ATR	G8043-67484



Cary 630 FTIR with the DialPath module

### Agilent 4200 FlexScan FTIR System Supplies

Description	Part No.
Diffuse gold reflectance reference cap, for diffuse reflectance	0023-300
Polystyrene frequency reference cap, for diffuse reflectance	0023-301



Replacement infrared source with purge fitting, G8043-67400

### Agilent 4100 ExoScan FTIR System Supplies

Description	Further Information	Part No.
Interface cable, for 4100 ExoScan FTIR	Includes Y-interface cable for AC power and USB	0023-200

### Agilent 4500 FTIR Oil Analysis System Supplies

Description	Further Information	Part No.
Biodiesel reference standards kit	Test standards for 4500/5500 series biodiesel in diesel method Includes 12 sets of a three-standard kit: blank, 0.05%, and 0.5% biodiesel in diesel, 2 year shelf life	0020-905



KBr window with removal tool and purge fitting, G8043-67402



4300 Handheld FTIR

## Agilent 4300 Handheld FTIR System Supplies

Description	Part No.
Reference cap, gold, coarse, for 4300 handheld FTIR	G8180-67560
Reference cap, mirror, stainless steel, for 4300 handheld FTIR	G8180-67562
Reference cap, diffuse, coarse, for 4300 handheld FTIR	G8180-67563
Reference cap, mirror, gold, for 4300 handheld FTIR	G8180-67564
Reference sample, polystyrene, for 4300 handheld FTIR	G8180-67300
Retro-reflector, mercury cadmium telluride (MCT), for 4300 handheld FTIR	G8180-67610
Retro-reflector, deuterated triglycine sulfate (DTGS), for 4300 handheld FTIR	G8181-67611
Reference cap, high-reflectivity mirror, used with the external reflectance and diffuse reflectance sample interfaces for 4300 handheld FTIR	G8184-68000

## Replacement Batteries and Power Supplies for Handheld FTIR Systems

Description	Part No.
Handheld PC battery Used with Agilent 4100 ExoScan, 4200 FlexScan, and 4500 series portable FTIR systems	800-2004
Lithium-ion battery Used with Agilent 4100 ExoScan and 4200 FlexScan FTIR systems	800-2005
Replacement battery, for 4300 handheld FTIR	G8180-67147
Battery charger, for 4300 handheld FTIR	G8180-67000
Power supply, 15 V DC, for 4300 handheld FTIR	G8180-67135



Polystyrene test film, NIST traceable, 925-0128

## FTIR Standards

Description	Further Information	Part No.
Polystyrene test film, NIST traceable	Polystyrene test films, 2/pk, mounted to 2 x 4 inch cardstock holder that fits in the universal slide mount. Includes certificate of traceability to five NIST 1921b frequencies.	925-0128
KBr powder, spectroscopic grade, 100 g		HARRICK-KBR-100

## Agilent Oil Analyzer Supplies

Description	Further Information	Part No.
40-bottle autosampler rack	Holds bottles of up to 1 $\frac{5}{16}$ inch diameter in a configuration of 4 rows x 10 columns	697-5392-2
55-bottle autosampler rack	Holds bottles of up to 1 $\frac{1}{16}$ inch diameter in a configuration of 5 rows x 11 columns	697-5392-3
Replacement ZnSe sample cell assembly		013-5353
Polystyrene card		884-2829
Replacement pump head, easy load		899-1599
Pump tubing, FPM fluoroelastomer polymer		815-0631
Tygon fuel tubing		815-0639
PTFE tubing		815-0616
Tool/parts kit for oil analyzer	Includes 400 mesh stainless steel filters, 2/pk, 2 ft of 3/32 in x 5/32 in PTFE tubing, 2 ft of FPM pump tubing, 4 ft of Tygon fuel tubing, wash bottle, 1 gal capacity plastic bottle, 3/pk, 2 x 3/8 in id FPM O-rings, wrenches for filter holder, and probe fittings	013-4825-1



Replacement ZnSe sample cell assembly, 013-5353



FPM fluoroelastomer polymer pump tubing, 815-0631



## Put more than 40 years of innovation behind your results

By continually raising the standards for technologies that support your routine analyses, Agilent's R&D efforts have led to breakthroughs, such as:

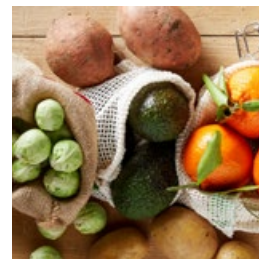
- **New GC columns** that help you achieve higher levels of inertness and column-to-column reproducibility
- **LC column choices** that deliver the sensitivity and reliability you need for demanding applications
- **Cutting-edge sample preparation products** that promote reliable extraction and concentration
- **Fresh atomic and molecular spectroscopy ideas** for identifying and confirming targets and unknowns

Customers who have been with Agilent for a long time have experienced our commitment firsthand. Now, we look forward to demonstrating how the Agilent approach to relentless innovation can work to your advantage, too.

## Chemical Analysis Solutions

### Food

From high-volume pesticide screening in food products to rapid identification of pathogens, Agilent understands the analytical needs of food producers, shippers, and regulators. Utilizing our easy-to-use analyzers and up-to-date screening libraries, customers can quickly develop robust and reliable methods. Our leading gas chromatography and mass spectrometry systems are widely regarded as valuable food testing techniques for an array of different analyses.



### Environmental

Agilent offers more than 40 years of environmental testing and regulatory expertise. We help government and private labs with a full range of assays, from routine testing of soils for heavy metals to detection of pharmaceuticals in groundwater, in concentrations down to parts per trillion.



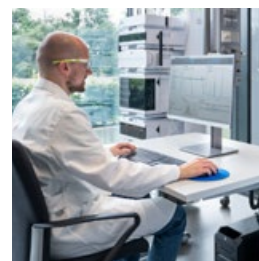
## Forensics

Whether testing for poisons in a forensics investigation, screening athletes for performance enhancing drugs, analyzing samples for recreational drugs, or checking a crime scene for explosive residue—lives and professions may be dependent on the accuracy of your equipment. Agilent leads the industry with a comprehensive portfolio of workflow solutions that provide the ability to identify, confirm, and quantify thousands of substances.



## Lab informatics

The way a lab captures, analyzes, and shares data profoundly affects its efficiency. Agilent offers a rich, integrated suite of software products built on customer-driven architectural values with the Agilent OpenLab software. OpenLab delivers superior performance and connections across multiple systems, providing open systems integration and investment protection. Our commitment is to deliver value across each step of the life cycle of scientific data—from collection and analysis to interpretation and management.



## Energy and chemicals

Agilent collaborates closely with process industry customers to offer analytical systems that meet their needs for separation, detection, throughput, and support. We'll even preconfigure custom or standard analyzers so they arrive at the lab ready to go. From crude oil, natural gas, and refining, to specialty chemicals and alternative fuels, Agilent provides the latest technologies and solutions to increase quality, safety, and profitability for energy and chemical labs, while meeting the industry's stringent quality requirements. Agilent leads the way in ASTM collaborations that have evolved—and will continue to evolve—into industry standards.



## Materials science

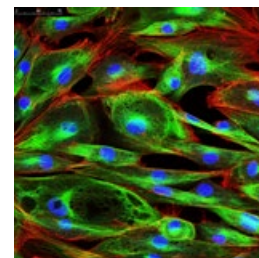
Agilent offers a newly expanded portfolio of instruments used for the research, manufacturing, and testing of advanced materials, from precision optics to pulp and paper. Tools for atomic spectroscopy, molecular spectroscopy, chromatography, and X-ray crystallography all support continuous progress in materials science.



# Life Science Solutions

## Biopharmaceutical

Biotherapeutics have enormous potential to improve human health, with growing numbers of protein and antibody therapeutics to address unmet medical needs. At every development stage, from disease research to QA/QC and manufacturing, Agilent can help you make the right choices for moving therapeutics to market. We understand the biopharmaceutical workflow, so our product families work together seamlessly, as engines of research, discovery, and development. Agilent columns deliver complete characterization of biomolecules using reversed-phase, size exclusion, ion exchange, and affinity chromatography. Our bio-inert supplies ensure that every part of your workflow delivers the performance you need to optimize your bioseparation.



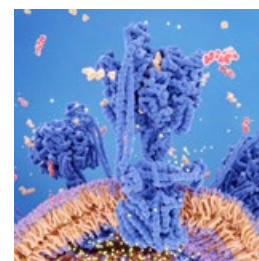
## Pharmaceutical

You need the most efficient processes to evaluate drug candidates, determine efficacy, and ensure safety and compliance during development and manufacture. Agilent has worked with pharma companies for many years to ensure reliability and reproducibility for regulatory compliance, from lab-to-lab and around the world. Our pharma solutions provide high-throughput capabilities at every stage of the product life cycle, with automated sample preparation, industry-leading HPLC and UHPLC systems, the largest family of fast LC columns, open access LC/MS, spectroscopy, and automated dissolution. A complete family of LC supplies and lamps help optimize every analysis and take day-to-day lab efficiency one step further.



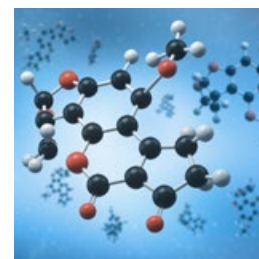
## Proteomics

Research into how large sets of proteins affect the health of an organism requires special sets of analytical tools. Agilent has built a formidable arsenal of liquid chromatograph/mass spectrometers, bio-informatics systems, multiple affinity protein removal columns, and OFFGEL electrophoresis supplies for protein identification and protein biomarker discovery. Accurate-mass mass spectrometry and microfluidic HPLC-Chip/MS are two Agilent innovations speeding the work of proteomics researchers around the globe.



## Metabolomics

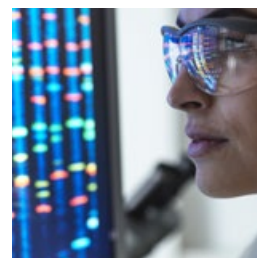
Collections of small molecules are increasingly being viewed as rich sources of biomarkers, but studying metabolites presents many challenges. The need for speed, accuracy, and powerful interpretation capabilities when looking at chemical profile snapshots is significant because molecules are constantly entering, leaving, or changing within the metabolome. The Agilent GC, LC, and MS portfolios, along with our excellent bio-informatics offerings, user-customizable METLIN metabolite database for LC/MS, and the industry's first commercial GC/MS retention time locked metabolite library align well with the needs of metabolomics researchers.





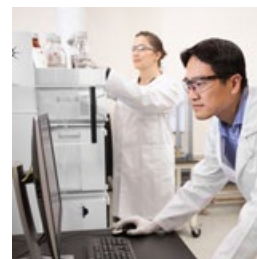
## Genomics

Agilent is a global leader in microarrays, scanners, and NGS reagents used in a wide variety of genomic-based disease research experiments. Our SureSelect and HaloPlex target enrichment systems dominate the category, streamlining next-generation sequencing studies. Agilent offers a wide range of catalog CGH and gene expression microarrays and a highly developed capability to produce custom arrays using our free online design tool, SureDesign. All Agilent microarrays feature sensitive, selective 60-mer probes, and, with as many as eight arrays printed on a slide, the cost-per-sample is cost efficient.



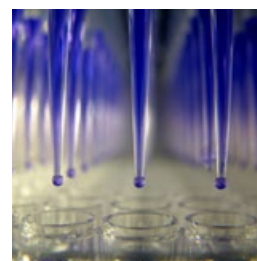
## Life science informatics

Mirroring its extensive instrument portfolio, Agilent offers the industry's most extensive suite of bio-informatics software, helping users derive knowledge from complex genomic, proteomic, metabolomic, and other biological data. The SureCall and CytoGenomics software analyzes NGS and aCGH data, and the GeneSpring suite provides multi-omic analysis and visualization capabilities to help compare complex datasets and explore biological questions from multiple perspectives. The GeneSpring suite includes the GX module for microarray-based gene expression and genotyping data, the PA module for pathway analysis and multi-omic analysis, and the MPP software, which analyzes mass spectrometry data from proteomics and metabolomics experiments.



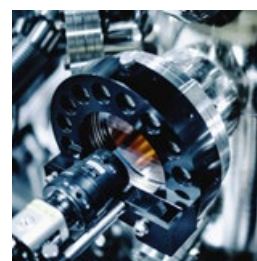
## Lab automation

To meet the skyrocketing demand for more throughput and automation, Agilent has substantially expanded its lab automation offerings. The Agilent line of liquid handlers and microplate processors is designed to streamline high-volume life science workflows. Agilent is also continually upgrading its advanced autosamplers for LC, GC, LC/MS, and GC/MS, adding functionality and speed to reflect the performance of its advanced instruments.



## Vacuum technology

Agilent works with customers to solve vacuum challenges from experiments in high-energy physics to developing systems for nanotechnology. Agilent manufactures vacuum systems used in its own mass spectrometry instruments, as well as those of other manufacturers. Our vacuum technology has been proven by the most powerful physics experiment ever built, CERN's Big Bang machine, which was used in the discovery of the Higgs boson.



# Services and Support

### Focus on what you do best

At Agilent, we look for ways to optimize your lab's performance. That is why you can rely on us to provide the tools you need and protect your investment with a broad portfolio of services, backed by a global network of experienced, Agilent-certified service professionals, dedicated to the productivity of your lab.

## Agilent CrossLab service plans

### The best service available for your Agilent instruments

The Agilent CrossLab services provide laboratories with comprehensive maintenance coverage to suit their specific needs and budget. We offer a range of service plans so that you can choose the level of coverage required.

- **Agilent CrossLab Gold**—Premium service for mission-critical systems
- **Agilent CrossLab Silver**—Maximize productivity, minimize workflow disruptions
- **Agilent CrossLab Bronze**—Timely repair coverage, budget control

Agilent CrossLab Virtual Tech Support lets you receive live technical help remotely through the latest video communication tools. Our Virtual Assist application uses a secure video connection that protects both customers and Agilent privacy. It supports digital annotations, enabling users and Agilent service engineers to highlight an object and provide clear instructions for remote problem solving. This ensures in-depth troubleshooting and fault diagnosis for improved remote-call resolution, and reduced downtime.

## Agilent CrossLab compliance services

### Helping you to maintain a compliant laboratory

Agilent offers a comprehensive set of laboratory compliance services, including instrument and software qualifications (IQOQ, OQ, and RQ), based on USP <1058> analytical instrument qualification (AIQ), and custom validation services, such as computer system validation, audits/assessments, custom procedure writing, and more. To help you ensure compliance, the Agilent automated compliance solution is used to support the end-to-end Analytical Instrument Qualification (AIQ) process. The automated compliance engine (ACE) is an electronic, audit-ready qualification solution that addresses data integrity and intended use requirements by:

- Minimizing your audit risk and improving qualification efficiency by harmonizing protocols across platforms
- Standardizing your entire compliance operation with robust test designs that work with all of your instruments and assure adherence to protocol
- Configuring tests and selecting specifications according to your SOP
- Reducing review/approval time and costs with electronic qualification plans and reports that ensure data integrity, easy storage, search and retrieval



### The Agilent Service Guarantee

If we cannot fix an instrument covered by an Agilent CrossLab service plan, regardless of manufacturer, our escalation process will resolve the issue up to and including replacing your instrument for free.\*

\*Conditions apply.



Unlock your lab's full potential with Agilent CrossLab  
[agilent.com/chem/crosslab](https://www.agilent.com/chem/crosslab)



Considering flexible payment plans?  
Visit: [agilent.com/chem/financing](https://www.agilent.com/chem/financing)

## Agilent instrument training and method services

### Reach optimal scientific and economic outcomes

Transform your lab operations by partnering with Agilent CrossLab to build job-ready skills that you can put to work. Learn the essentials of new techniques or master real-world applications with advanced methodologies.

- Method and application services are available to enhance your workflow – from method development to method maintenance
- Instrument bundled or standalone training and method support is available to transfer and optimize results on new and existing technologies
- We offer flexible training options to accommodate your needs and budget with online or classroom training, or training at your site
- Customers can use our online Cloud Lab solution to learn how to use their software

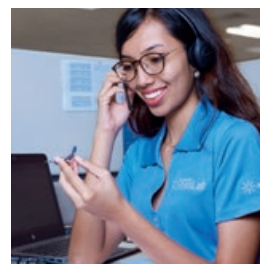


## The Agilent Value Promise—10 years of guaranteed value

In addition to continually evolving products, we offer something else unique to the industry—our 10-year value promise guarantee. The Agilent Value Promise guarantees you at least 10 years of instrument use from the date of your purchase, or we will credit you with the residual value of the system towards a replacement model upgrade. Because we stand behind our systems, our Value Promise maximizes your return on investment by assuring you that your purchase is safe. For more detailed information, please go to [agilent.com/chem/services](https://www.agilent.com/chem/services) or contact your local Agilent Services and Support representative.

## Technical support at work for you

Have a hardware, software, application, instrument repair, or troubleshooting question? Agilent's technical experts are available to answer your questions. With years of laboratory experience, our technical support specialists can provide in-depth knowledge and experience. For questions about supplies found in this catalog, contact your local Agilent office or authorized Agilent distributor, or visit [agilent.com/en/support](https://www.agilent.com/en/support).



## Need more information?

Visit [agilent.com/chem/contactus](https://www.agilent.com/chem/contactus) to:

- Locate your nearest Agilent office or distributor for expert technical support
- Get fast sales and product assistance by phone. Simply use the scroll-down menu to select your country.
- Receive email assistance using our convenient online forms

Contact us:

[www.agilent.com/chem/contactus](http://www.agilent.com/chem/contactus)

Buy online:

[www.agilent.com/chem/store](http://www.agilent.com/chem/store)

Get social with Agilent:

[www.agilent.com/chem/social](http://www.agilent.com/chem/social)

Explore our full range of catalogs:

[www.agilent.com/chem/catalog](http://www.agilent.com/chem/catalog)

### **Additional resources**

ICP-MS Resource Hub:

[www.agilent.com/chem/icp-ms-resource](http://www.agilent.com/chem/icp-ms-resource)

ICP-OES Resource Hub:

[www.agilent.com/chem/icp-oes-resource](http://www.agilent.com/chem/icp-oes-resource)

AAS Resource Hub:

[www.agilent.com/chem/aas-resource](http://www.agilent.com/chem/aas-resource)

DE14943049

This information is subject to change without notice.

© Agilent Technologies, Inc. 2023  
Published in the USA, May 1, 2023  
5994-5574EN

