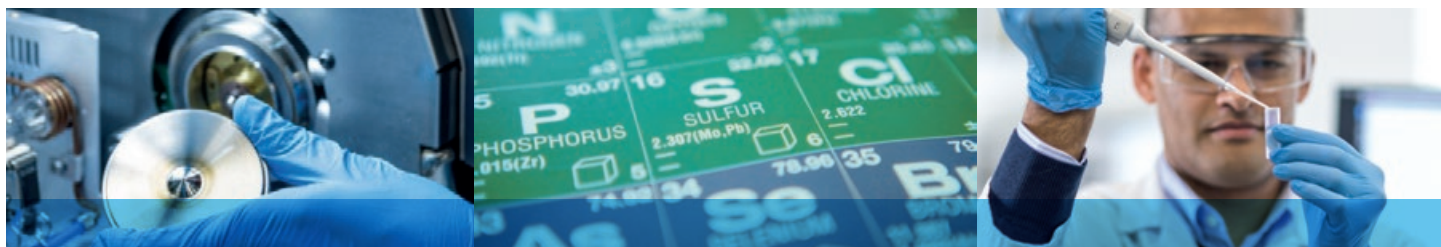


Spectroscopy Supplies

Your essential resource for spectroscopy





Put Our Insight to Work for You

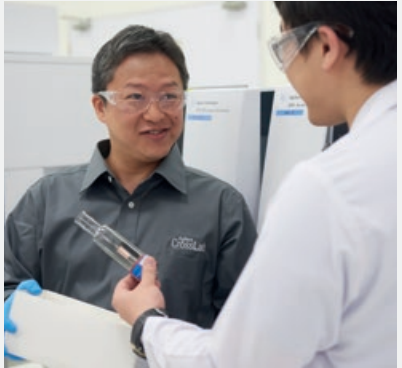
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CrossLab is an Agilent capability that integrates services and consumables to support workflow success, improve productivity, and enhance operational efficiency. In every interaction, we strive to provide insight that helps you achieve your goals. 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.

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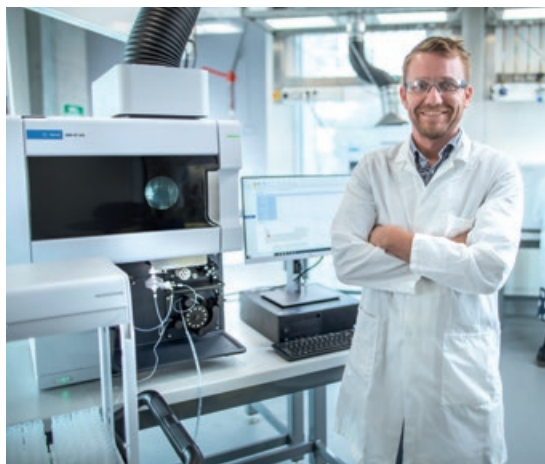


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Get in touch with an expert to support your lab at [agilent.com/crosslab/contactus](https://www.agilent.com/crosslab/contactus)

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.

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Agilent Atomic Spectroscopy Portfolio

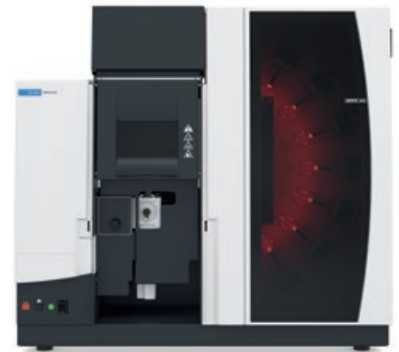
The value of knowing

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

www.agilent.com/chem/pespectrosupplies-icpoes

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

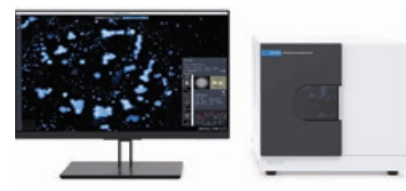
The Agilent 4500 portable FTIR spectrometer is a rugged analyzer, ideal for on-the-spot analysis in a range of nonlaboratory settings. The system is packaged in weather-resistant housing, making it great for outdoor use. It is also easy-to-use and a good match for applications requiring fast, high-quality 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.

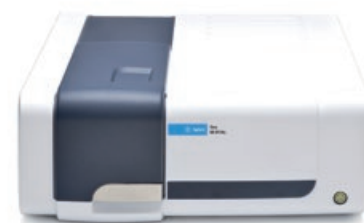


Agilent Cary 60 UV-Vis

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

*Not compatible with PerkinElmer systems. For Agilent hollow cathode lamps suitable for all PerkinElmer AA systems, see 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

For MP-AES, turn to **Page 106** or visit 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



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



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



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



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



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



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.

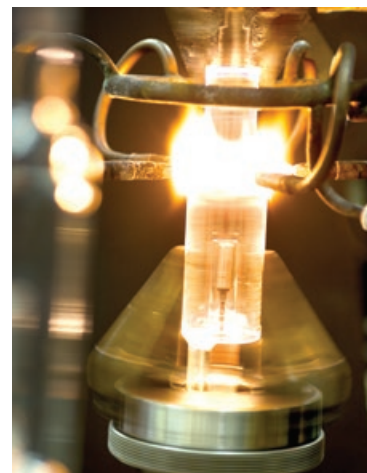
Visit www.agilent.com/chem/aas-resource to find out more.

Comprehensive quality control for performance consistency

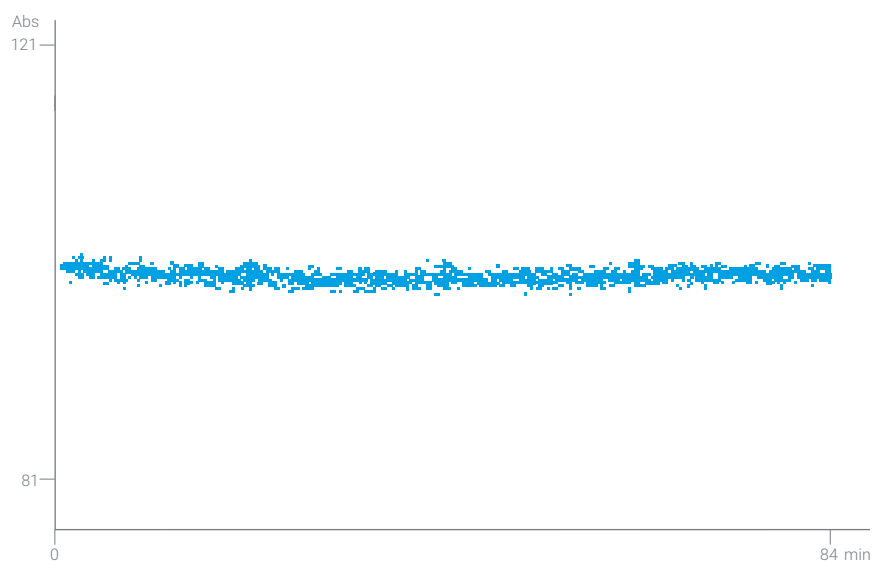
Agilent lamps are manufactured in an ISO 9001 certified environment using the purest cathode materials for optimal lifetime, economical operation, and superb performance. Our lamps provide high spectral purity, and the extended processing cycle and unique lamp conditioning procedures ensure minimal lamp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

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

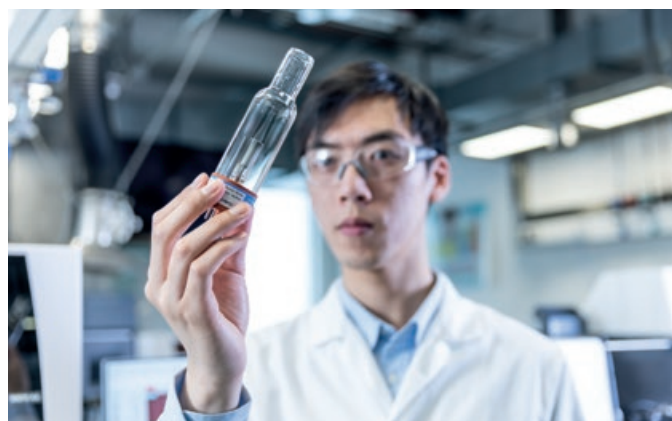
| Element | Part No. |
|--|------------|
| Aluminum/calcium/magnesium – Al/Ca/Mg | 5610133600 |
| Cobalt/chromium/copper/iron/manganese/nickel – Co/Cr/Cu/Fe/Mn/Ni | 5610134500 |
| Cobalt/molybdenum/lead/zinc – Co/Mo/Pb/Zn | 5610135200 |
| Copper/iron/manganese/zinc – Cu/Fe/Mn/Zn | 5610135000 |
| Copper/iron/silicon/zinc – 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 |



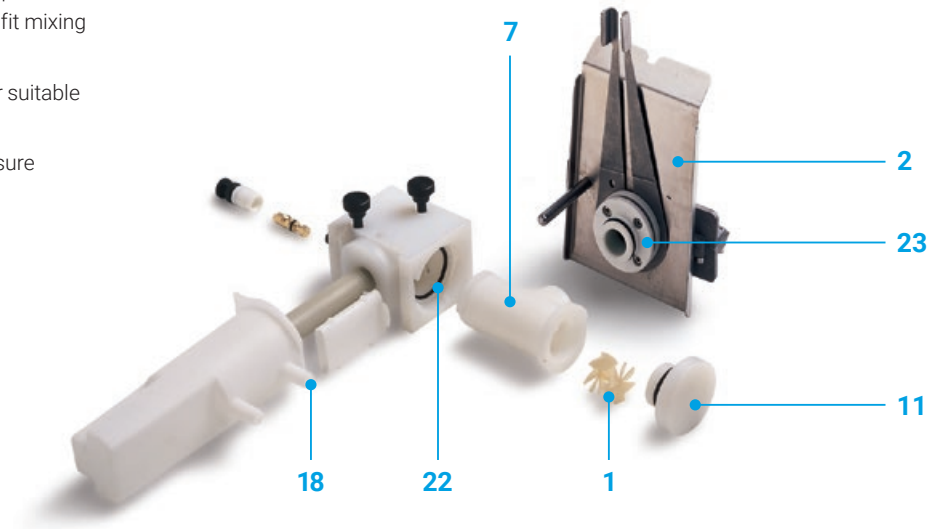
Quartz atomization cells,
for ACT 80, 9910054400

Tips and tools

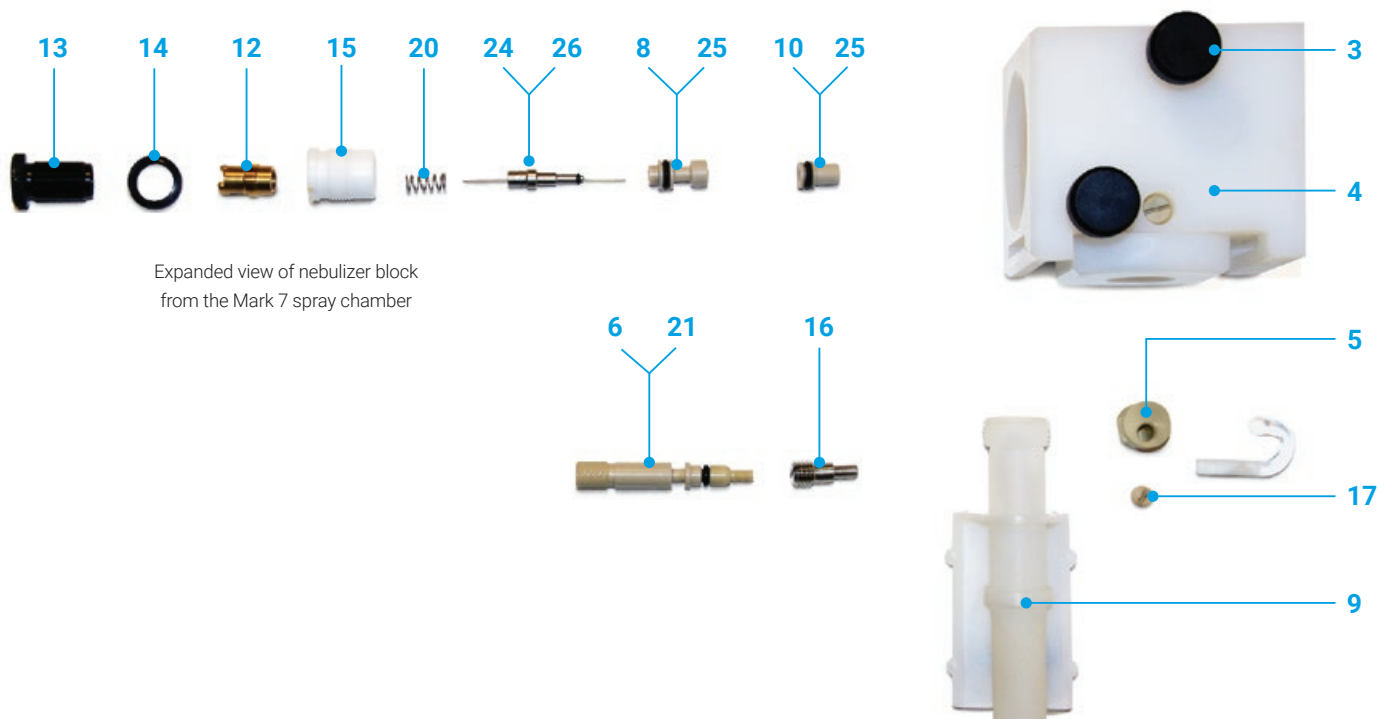
Deuterium background correction is only usable over a range from 185 to around 430 nm. There is no usable output from the lamp at higher wavelengths.

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 |
| 1 | Mixing paddle, fluorinated | 110637000 |
| | Mixing paddle, fluorinated, 5/pk | 9910093600 |
| 2 | Mark 7 air-acetylene burner | 210164000 |
| | Mark 7 nitrous oxide-acetylene burner | 210164100 |
| 7 | Spray chamber body, fluorinated | 6210092090 |
| 11 | Spray chamber bung, fluorinated | 1610118800 |
| 11 | O-ring for spray chamber bung, nitrile for aqueous solutions | 6910012100 |
| 11 | O-ring for spray chamber bung, organic solvent compatible | 6910015200 |
| 18 | Kit, fluorinated liquid trap, drain tube with integrated float and magnet | 9910105800 |
| 22 | O-ring spray chamber, nitrile | 6910037000 |
| 22 | O-ring spray chamber, organic solvent compatible | 6910036800 |
| 23 | O-ring burner base, nitrile, for aqueous solutions | 6910010500 |
| 23 | O-ring burner base, organic solvent compatible | 6910013100 |

Nebulizer Components for Mark 7 Spray Chamber

| Item | Description | Part No. |
|-----------|--|------------|
| 3 | Spray chamber mounting screw | 1510226600 |
| 4 | Nebulizer block, fluorinated (excludes integrated nebulizer and spray chamber mounting screws) | 9910093100 |
| 5 | Clamp bead adjuster | 810133400 |
| 6 | Screw bead adjuster | 1510225000 |
| 8 | Nebulizer capillary guide | 810134400 |
| 9 | Kit, fluorinated liquid trap, drain tube with integrated float and magnet | 9910105800 |
| 10 | Venturi nebulizer, PEEK | 1610117390 |
| 12 | Clamp bush guide | 810134300 |
| 13 | Screw nebulizer capillary adjuster, 1/pk | 1510226800 |
| 14 | Lock nut for nebulizer adjuster M12 x 0.5, 1/pk | 1510226700 |
| 15 | Bearing bush nebulizer | 310046600 |
| 16 | Locking screw M8, bead adjuster, 1/pk | 1510226000 |
| 17 | Impact bead securing screw M6 x 6LG, 1/pk | 1510226500 |
| 18 | Kit, fluorinated liquid trap, drain tube with integrated float and magnet | 9910105800 |
| 20 | Nebulizer spring | 4610017400 |
| 21 | O-ring screw bead adjuster, nitrile | 6910000100 |
| 21 | O-ring screw bead adjuster, organic solvent compatible | 6910036900 |
| 24 | O-ring, 1/32 inch id x 3/32 inch od x 1/32 inch, nitrile | 6910009700 |
| 25 | O-ring, 3/16 inch id x 5/16 inch od x 1/16 inch, nitrile | 6910009800 |
| 25 | O-ring, 3/16 inch id x 5/16 inch od x 1/16 inch, organic solvent compatible | 6910013600 |
| 26 | 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

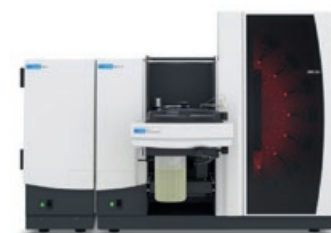
Maximize your uptime by keeping one of these kits handy.

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 µL | 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 µL | 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 μ L | 1 | 1/pk | 4710002300 |
| Plunger for 100 μ 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 |
| And | | | |
| Graphite electrodes for GTA 95/96/97/100/110 | 2 | 1 pair | 6310001600 |
| Or | | | |
| Graphite electrodes for GTA 96/100/110 Zeeman | 2 | 1 pair | 6310001700 |

Tips and tools

10 and 100 μ 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.

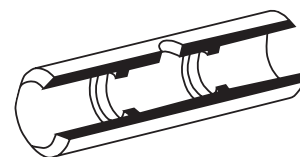
Omega platform tubes combine ease-of-use with excellent atomization. The integrated platform ensures an ideal thermal profile to produce dense atom clouds for good signal-to-noise ratios and the best detection limits.

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 |



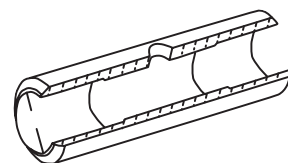
Partitioned tube,
6310001200



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 μ L | PSD 120 | 4710003200 |
| | PSD 95/96/97/100 | 4710002300 |
| Plunger for 100 μ 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 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/icp-oes-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 semivolatiles 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 semivolatiles 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 semivolatile 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 semivolatile 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 semivolatile 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 |



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

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 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 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 $\mu\text{g/L}$ 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

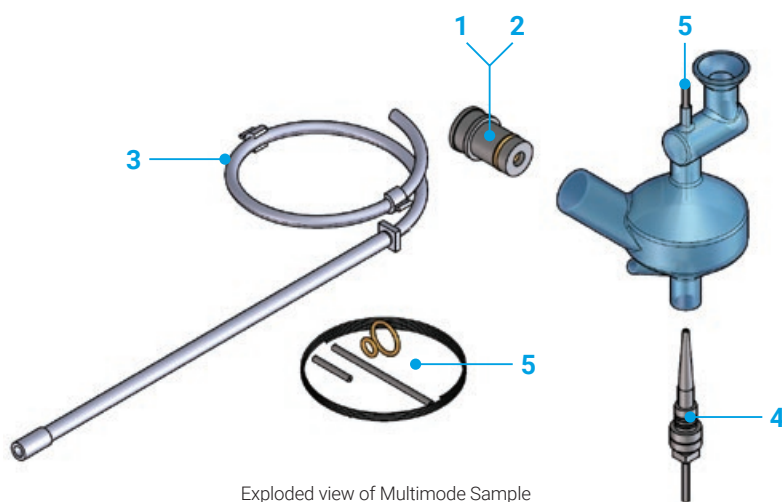
| Description | Part No. |
|---|-------------|
| Filters for 5000 series dual view ICP-OES | |
| Filter element for the cooling air inlet on the 5800/5900 ICP-OES | G8020-68016 |
| Argon gas inlet filter (requires annual replacement, customer replaceable) | G8010-60136 |
| Inlet cooling air filter, for 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 |



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True Story 82

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Clearing the air

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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



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

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



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 (check before starting work and over the course of daily analysis) |
| Drain vessel | Check, empty if required | |
| 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 | Monthly |
| Nebulizer | Run nebulizer test, take appropriate action as indicated | |
| Graphite gasket for sampler cone | Replace when creased, torn, or out of shape | |
| Cooling fluid | Check level and condition | 6 months |
| Foreline pump | Change oil | |
| Foreline pump oil mist filter | Replace mist filter | |
| ORS cell clean gas filters | Check and replace according to indicator | Annually |
| Water strainer | Check and clean | |
| Cooling fluid | Replace | |
| Argon gas filter and Big universal trap | Check and replace | Periodically |
| Extraction/Omega lenses | Clean or replace | |
| Shield contact | Replace | |
| Octopole | Replace | |
| Other ion lenses | Clean | |
| Sample introduction area, including spray chamber, end cap | Clean | |
| 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.

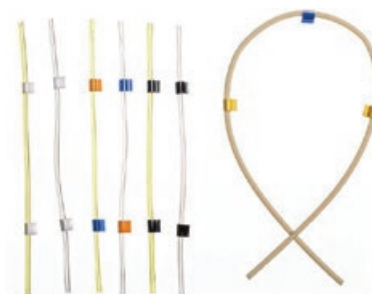
When qualifying this easy-fit peristaltic pump tubing range, we verified:

- **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

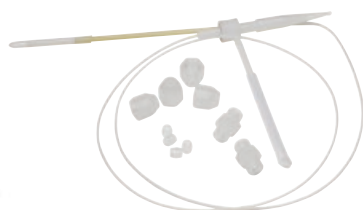
Nebulizers and Supplies

| 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 ₃ PO ₄ 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 ₃ PO ₄ 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 ₂ /Ar nebulizer* gas addition (p/n G4920A). A Pt sampling cone is also required when O ₂ /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 ₂ port, 1.5 mm id | Only for 7500 | G3285-80036 |
| Injector, platinum, for PFA inert kit, with O ₂ 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 |

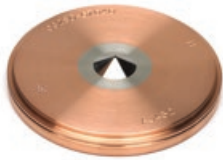
Note: See PFA Inert Sample Introduction Kit Supplies table for the appropriate torch for each inert kit on [Page 76](#).

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

| 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 ₄) 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 ₂ /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 ₄) 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 ₂ SO ₄ or H ₃ PO ₄) | | |



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

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 H₂SO₄ 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

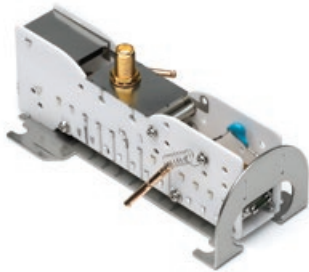
This is a complete set, to be replaced during routine lens maintenance when the standard lens assembly is taken apart for cleaning and polishing.

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 μ 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).



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True Story 41

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Optimizing lab ops

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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

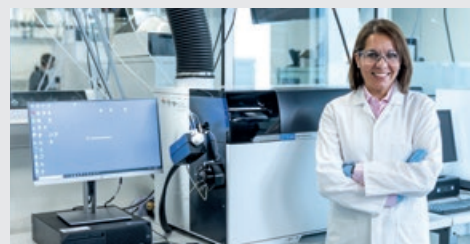
| Part No. | Description |
|------------|--|
| M5141A#300 | Adds oil mist filter element, for DS402 pump |
| M5141A#301 | Adds oil mist filter element, for MS40+ pump |

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



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 ₂ 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



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 ₃ /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 |

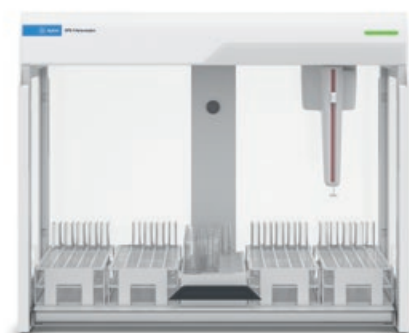
Autosampler Supplies

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



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 μ 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 |

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 |



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



Rack overlay, for 60 position sample rack,
6610026100



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 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 ₃ 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 ₃ 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 ₃ 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.

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 ₃ | 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 ₃ | 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 ₃ | 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 ₃ | 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 ₃ | 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 ₃ 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 ₃ , 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, ⁶ Li, Sc, In, Lu, and Bi; 2.5 mg/L each of Y, and Yb; matrix 5% HNO ₃ | |
| 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 ₃ with trace amounts of HF | |
| Tuning solution Li, Y, Ce, Tl and Co; 100 mL, 10 mg/L; matrix 2% HNO ₃ | 5188-6564 |
| Tuning solution Li, Mg, Y, Ce, Tl and Co; 100 mL, 10 mg/L; matrix 2% HNO ₃ | 5190-0465 |
| Tuning solution Li, Y, Ce, Tl and Co; 2 x 500 mL, 10 µg/L; matrix 2% HNO ₃ | 5184-3566 |
| Tuning solution Li, Mg, Y, Ce, Tl, and Co; 2 x 500 mL, 1 µg/L; matrix 2% HNO ₃ | 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.

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 7000 universal measurement spectrophotometer (UMS)



Cary 3500 double beam, multicell, UV-Vis spectrophotometer

Cell shapes

Rectangular cells

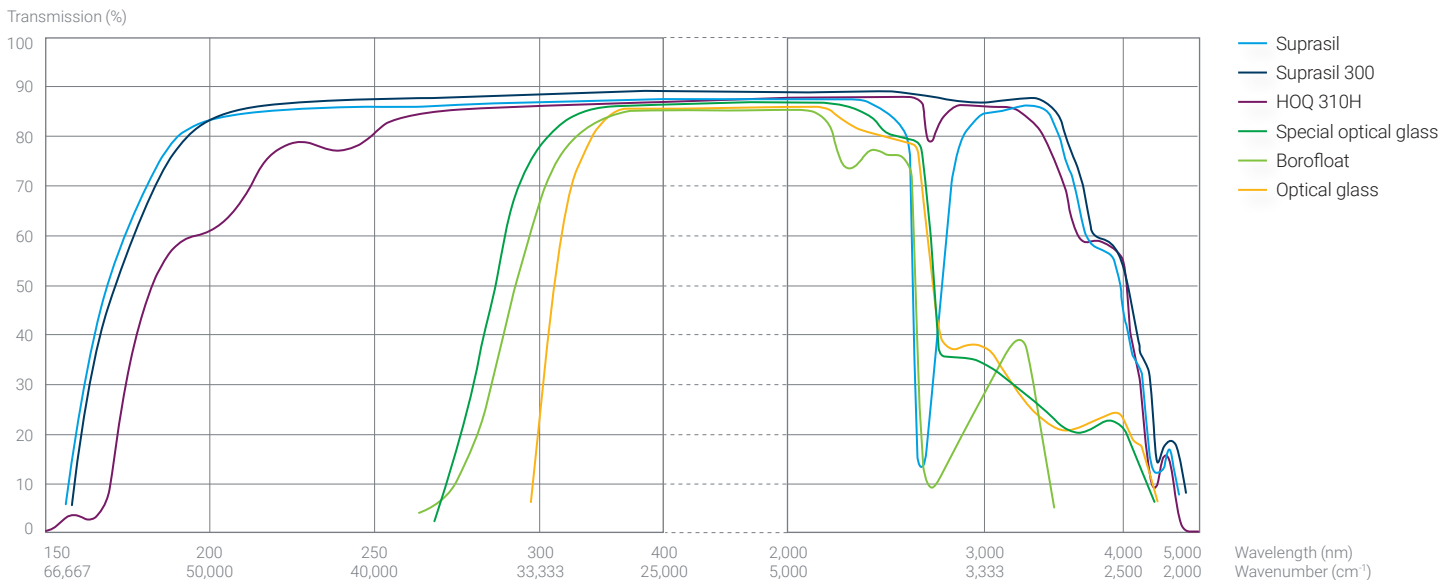
Rectangular cells are the most commonly used cell type and vary in shape from square to longer rectangles, depending on the cell path length. We offer standard cells, semi-microcells with about 40% of the volume of a standard cell of the same path length, microcells with about 20% of the volume of a 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 μL range (with typical volumes from 5 to 135 μL). 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* | 6610000800* |
| | | | | | 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, 6610000800



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 μ 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/ μ 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 ³ to 5 cm ³ | 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 |
| Diffuse reflectance accessory (DRA) supplies | | |
| 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 |

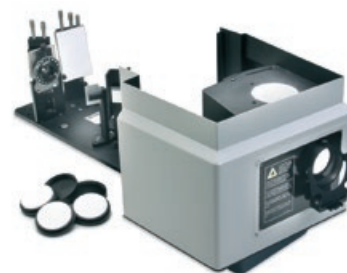
(continued)

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 | <p>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.</p> <p>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.</p> | G9864-80009 |
| Calibrated solution standards kit | <p>Solution validation test kit of 12 sealed cells for testing performance of a UV spectrophotometer (wavelength accuracy, photometric accuracy, stray light).</p> <p>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.</p> | 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 | <p>Features Al coating on 40 mm diameter Pyrex substrate. Covers range 250–2500 nm with >80% reflectance >250 nm and >85% reflectance >800 nm.</p> <p>Includes NIST traceable certification at 10 nm intervals (250–1100 nm) and 25 nm intervals (1100–2500 nm).</p> | G6874-80000 |
| Spectralon 99% reflectance standard, calibrated, for diffuse reflectance, 2 inch diameter | <p>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.</p> | 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 | <p>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.</p> | 9910081100 |
| Certified diffuse reflectance wavenumber standard | <p>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.</p> | 9910081000 |
| Certified reference standard for certification of UV instruments to USP requirements | <p>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.</p> | 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⁺⁺ measurements, 7910043800



Indo-1 filters for Ca⁺⁺ measurements, 7910043900

Kits and Supplies for Fluorescence Accessories

| Description | Part No. |
|--|------------|
| Fura-2 filters for Ca ⁺⁺ measurements (340 and 380 nm bandpass filters, 20 nm SBW), requires Fast Filter accessory. | 7910043800 |
| Indo-1 filters for Ca ⁺⁺ 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

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 |



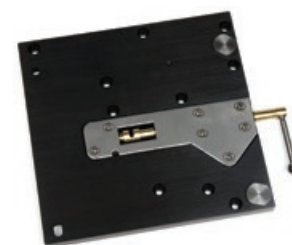
Cary Eclipse solid sample holder

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 μ 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 μ 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 μ L | 10 | 6610021500 |
| | Sub-microcell, 2 x 2 mm window | Far UV quartz | 40 μ L | 10 | 6610021600 |
| Triangular | Sub-microcell, low headspace, stoppered | Far UV quartz | 40 μ 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

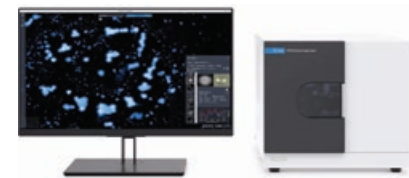
Standards and Reference Materials

| 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:

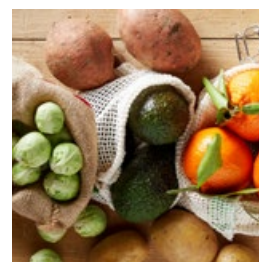
- **New GC columns** that help you achieve higher levels of inertness and column-to-column reproducibility
- **LC column choices** that deliver the sensitivity and reliability you need for demanding applications
- **Cutting-edge sample preparation products** that promote reliable extraction and concentration
- **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.



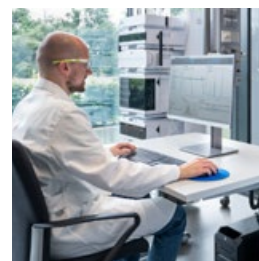
Forensics

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

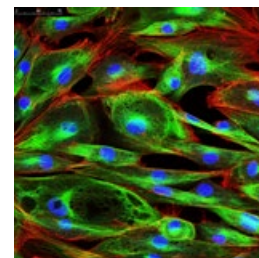
Agilent offers a newly expanded portfolio of instruments used for the research, manufacturing, and testing of advanced materials, from precision optics to pulp and paper. Tools for atomic spectroscopy, molecular spectroscopy, chromatography, and X-ray crystallography all support continuous progress in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



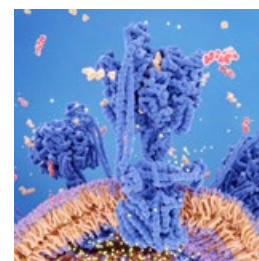
Pharmaceutical

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.



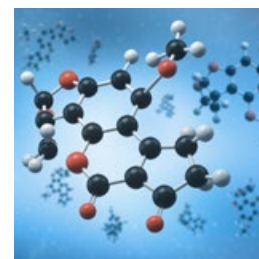
Proteomics

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.



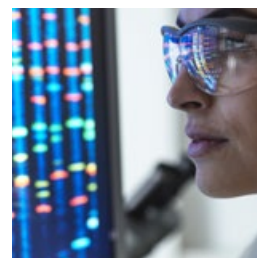
Metabolomics

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.



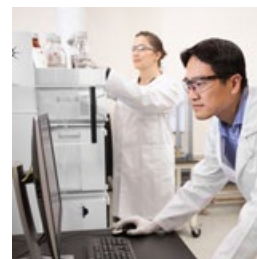
Genomics

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.



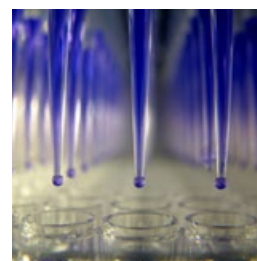
Life science informatics

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.



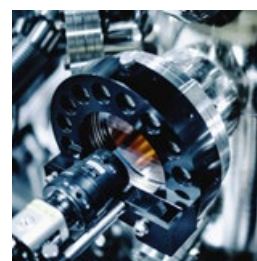
Lab automation

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.



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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.

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- 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

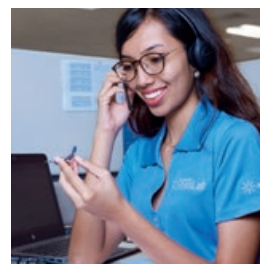


The Agilent Value Promise—10 years of guaranteed value

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).



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