



GENERAL CHROMATOGRAPHY

Your Essential Resource for Supplies

The Measure of Confidence



Agilent Technologies

GENERAL CHROMATOGRAPHY SUPPLIES



Minimize contamination and ensure accurate, reproducible results

As the world's premier measurement company, Agilent is uniquely positioned to offer you the widest selection of parts and supplies. All are engineered or selected by our experienced design teams, manufactured to our demanding specifications, and tested under the strictest conditions.



- **Vials, caps and septa** are designed to work flawlessly with your autosampler's gripping and injection mechanisms – eliminating breakage and leaks that can cause unnecessary downtime, expensive repairs, and sample loss. We have also expanded our portfolio to include MS analyzed kits, Agilent Certified Vials, and NEW Agilent CrossLab Vials for non-Agilent autosamplers.
- **Manual and autosampler syringes** boost performance along every step of your sampling process. Designed for accuracy, reliability and ease of use, Agilent syringes ensure exact measurement, transport, and delivery of liquids necessary for sample preparation and injection.
- **Renewable gas purification system** extends column life and reduces baseline noise by removing oxygen, water, and hydrocarbons from carrier gasses. One renewable cartridge can support up to four GC systems, while delivering the same filtration capacity as multiple competitive cartridges.
- **Gas Clean filter system** prevents dirty gas from jeopardizing your analysis. Oxygen, hydrocarbons, and moisture can decrease GC sensitivity; they can also activate glass wool in liners and accelerate septa degradation, causing high background noise and ghost peaks. Inserting a gas clean filter immediately before your GC inlet greatly reduces the level of impurities, improving trace analysis.
- **Fittings and tools** make life in the lab easier by keeping your instruments running in top form.
- **Electrochemistry meters** are designed by chromatographers for chromatographers to give you rugged simplicity and fast, reliable data. Features such as user-friendly controls, waterproof connectors, and multi-parameter measurement capabilities make Agilent pH, DO, ISE, conductivity and multi-parameter meters your first choice for a broad range of applications.



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PUT MORE THAN 40 YEARS OF RELENTLESS INNOVATION BEHIND YOUR EVERY RESULT

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

Longtime Agilent customers have experienced our commitment firsthand. And now, we look forward to demonstrating how Agilent's approach to relentless innovation can work to your advantage, too.

CHEMICAL ANALYSIS SOLUTIONS



Food

From high-volume screening of vegetables for large numbers of pesticides to rapid identification of pathogens, Agilent understands the analytical needs of food producers, shippers, and regulators. When a new toxin appears, we deploy substantial resources to quickly help customers develop robust and reliable methods. Agilent's leading separations, mass spectrometry, and spectroscopy solutions are emerging as valuable food testing techniques.



Environmental

Agilent offers more than 40 years of environmental testing and regulatory expertise. We help government and private labs with the 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.



Energy and Fuels

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. Agilent's expertise in both chemical analysis and life science is a powerful combination for researching and producing biofuels, including a wide range of analytical techniques for fatty acid methyl esters (FAMES). Our newly-expanded portfolio also offers powerful tools for developing and producing photovoltaic films and solar panels.



Forensics

Because the careers of world class athletes and many other individuals hinge on drug testing, it's critical that those doing the testing have the highest level of confidence in the results. Forensics analysts worldwide have grown to depend on Agilent tools for accuracy, reliability, and speed in this high stakes, high-throughput field. Our best selling GC, GC/MS and popular LC and LC/MS are workhorses in forensics labs.



Traditional Lab Informatics

The ways labs generate and store data profoundly affect their efficiency. Agilent offers a rich, integrated suite of software products built on a set of customer-driven architectural values with the Agilent OpenLAB Laboratory Software Suite. OpenLAB delivers superior performance, open systems integration and investment protection. Our commitment is to deliver more value across each step in the life cycle of scientific data – from data collection and analysis to interpretation and management.



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, paper and polymers. Tools for chromatography, atomic absorption spectroscopy, molecular spectroscopy, X-ray crystallography, and nuclear magnetic resonance all support continuous progress in materials science.



Biopharmaceutical

As "multi-omics" studies gain momentum in the search for new therapeutics, Agilent is uniquely positioned to provide the instruments, reagents, and powerful software needed for performing experiments in multiple disciplines and combining the massive amounts of data into biological insight.



Pharmaceutical

Drug manufacturing requires the accuracy, sensitivity and high throughput of other analytical applications, along with the demands of regulatory record-keeping and validation requirements. Agilent provides a potent combination of rugged, high-throughput tools and unmatched compliance services. Agilent now offers the market-leading family of dissolution apparatus and sampling systems that pair perfectly with our HPLC and UV systems.



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, bioinformatics systems, multiple affinity protein removal columns, and OFFGEL electrophoresis for protein identification and protein biomarker discovery. Accurate-Mass mass spectrometry and the microfluidic HPLC-Chip/MS are two Agilent innovations speeding the work of proteomics researchers around the globe.



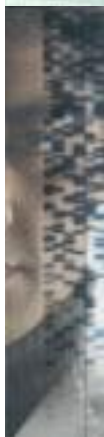
Metabolomics

Collections of small molecules are increasingly being seen as rich sources of biomarkers, but studying metabolites presents many challenges. The need for speed, accuracy, and powerful interpretation capabilities in looking at chemical profile snapshots is underscored because molecules are constantly entering, leaving or changing within the metabolome. Agilent's GC, LC, NMR and MS portfolios, along with our excellent bioinformatics 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 needs of metabolomics researchers.



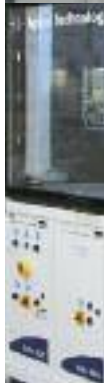
Genomics

Agilent is a global leader in microarrays, scanners, and reagents used in a wide variety of genomic-based disease research experiments. Our SureSelect Target Enrichment System dominates the category, streamlining next generation sequencing studies worldwide. Agilent offers a wide range of catalog microarrays and a highly-developed capability to produce custom arrays featuring ink jet-based SurePrint fabrication and the eArray on-line design tool. All Agilent microarrays feature highly sensitive, selective 60-mer probes. With as many as eight arrays printed on a standard 1 x 3 in. slide, the cost per experiment becomes very affordable.



Life Science Informatics

Mirroring its extensive instrument portfolio, Agilent offers the industry's most extensive suite of bioinformatics software, helping users derive knowledge from complex genomic, proteomic, metabolomic and other biological data. This includes DNA Analytics for analyzing CGH, ChIP and methylation microarray data. The GeneSpring suite includes informatics software for microarray-based gene expression data, genotyping data, and GeneSpring MS, which are useful for analyzing mass spec data from proteomics and metabolomics experiments and comparing complex datasets to explore biological questions from multiple perspectives.



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 are 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 producing flat panel displays. Agilent manufactures vacuum systems used in its own mass spectrometry instruments as well as those of other manufacturers. Agilent's vacuum technology has been proven by the most powerful physics experiment ever built, CERN's Large Hadron Collider machine, which was used in the discovery of the Higgs boson particle.



Get the Agilent Service Guarantee

Should your instrument require service while covered by an Agilent service agreement, we guarantee repair or we will replace your instrument for free.

No other company offers this level of commitment to keep your lab up and running at peak efficiency.



Laboratory decision makers and users ranked Agilent as their first choice for general laboratory compliance services.

Agilent Service and Support for Instrument Systems

Focus on what you do best

For over 40 years, Agilent has been building and maintaining the instruments you count on to stay competitive and successful. Trust us to protect your investment with a broad portfolio of services, backed by a global network of experienced service professionals dedicated to the productivity of your lab.

Agilent Advantage Service Plans

The best service available for your Agilent instruments

Agilent offers a flexible range of service plans so that you can choose the level of coverage that is best for your lab.

- **Agilent Advantage Gold** – Priority-one coverage for ultimate uptime and productivity
- **Agilent Advantage Silver** – Comprehensive coverage for dependable laboratory operations
- **Agilent Advantage Bronze** – Total repair coverage at a fixed annual price
- **Agilent Repair Service** – Basic coverage for reliable instrument repair

Agilent Advantage service plans include Agilent Remote Advisor for real-time remote monitoring and diagnostics. Through secure internet connections, you can interact with Agilent service professionals, receive detailed asset reports, and configure text or email alerts to notify you before problems occur – helping you to maximize instrument uptime and optimize laboratory workflows.

Agilent Compliance Services

Equipment qualification that meets the most stringent requirements

Enterprise Edition Compliance was developed to streamline compliance across your entire lab. Used globally in regulated labs, including standards organizations and regulatory agencies, Enterprise Edition enables you to:

- Improve qualification efficiency by automating protocols across platforms to ensure greater efficiency and minimize regulatory risk
- Standardize your entire compliance operation with robust test designs that work with all your instruments
- Add, remove or reconfigure tests based upon your unique user requirements
- Significantly reduce staff review time with consistently formatted, computer generated, tamper-proof reports

Agilent Education and Consulting Services

Our best minds, working for you

Make the most of your instrument with training and consulting from the same experts who designed the instruments, software and processes you use every day.

- Classroom and on-site training in instrument operation, troubleshooting and maintenance
- Customized consulting services to meet your lab's unique needs

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 guarantee. The Agilent Value Promise guarantees you at least 10 years of instrument use from your date of purchase, or we will credit you with the residual value of the system toward an upgraded model. Not only does Agilent ensure a reliable purchase now, but we also ensure that your investment is just as valuable in the future.

For more detailed information, please go to 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 pertaining to supplies found in this catalog, contact your local Agilent office or Authorized Agilent Distributor or visit www.agilent.com/chem/techsupport



Need more information?

Visit www.agilent.com/chem/contactus to:

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



Agilent Gas Clean Filters

The Agilent Gas Clean Filter System provides enhanced gas quality for maximum productivity. Clean gases reduce the risk of column damage, sensitivity loss, and instrument downtime. Oxygen, hydrocarbons and moisture can cause loss of sensitivity and accuracy of the GC, and damage your column and consumables. Inserting a Gas Clean Filter System in the gas line immediately before the instrument inlet greatly reduces the level of impurities and helps you detect any problems before they occur.

Turn to pages 96-99.

Agilent Ultra Inert Solutions

Agilent is leading the way in flow path inertness with their industry-leading Agilent J&W Ultra Inert GC Column family and the Agilent Ultra Inert Liner. Whether you are analyzing difficult, active food and environmental samples or screening for drugs of abuse, our Ultra Inert solutions help ensure an inert GC flow path for higher sensitivity, accuracy, and reproducibility...especially at trace levels. For more information, visit www.agilent.com/chem/ultraintert



Agilent Electronic Crimper and Decapper

The Agilent Electronic Crimper and Decapper is much easier to use than a manual crimper, and is more likely to give you a secure seal every time. The crimper also increases lab productivity because you don't waste time refixing poor seals and cleaning up broken glass and spilled samples. You can also be confident that you do not risk losing potentially valuable samples.

Turn to page 34.

Agilent Syringes

Whether you need an autosampler or manual syringe, there are two key features consider when choosing the right syringe – identifying your sample type and establishing the smallest volume to be dispensed or injected. Agilent offers syringes for all sample types in all the dimensions you are ever likely to need, for accurate and effective sampling.

Turn to page 60.



Agilent CrossLab

Agilent CrossLab Supplies

Agilent CrossLab is a growing portfolio of GC and LC supplies critical to instrument performance and productivity. They are manufactured to perform seamlessly with a variety of analytical instruments in your lab, regardless of make or model. When you choose Agilent CrossLab, you know you'll get:

- Over 40 years of chromatography expertise and on-going innovation
- The same commitment to quality inherent in all Agilent products
- Optimal performance for routine and challenging applications
- Convenience of consolidated purchasing

All with our risk-free, 90-day, money-back guarantee.



Agilent CrossLab HPLC supports instruments from Waters, Shimadzu, Dionex (now part of Thermo Scientific), CTC Analytics, and more. The comprehensive range includes detector lamps, autosampler vials and closures, well plates and sealing mats, autosampler syringes, pump and valve supplies, capillaries, tubing, and fittings, and performance maintenance kits. Put Agilent CrossLab HPLC quality supplies to work across your lab.

Agilent CrossLab GC works with instruments from Bruker (formerly Varian), CTC Analytics, PerkinElmer, and Shimadzu, with more on the way. The family comprises autosampler syringes to autosampler vials, Agilent Ultra Inert inlet liners to non-stick liner O-rings, capillary column ferrules to column nuts, vials, caps, septa, and more. Experience the same Agilent quality solutions you know and trust, now for your non-Agilent GCs.



All Agilent Crosslab high quality supplies are backed by Agilent's worldwide technical support and dependable availability and delivery.

For information on Agilent CrossLab Vials, turn to page 36

For information on Agilent CrossLab Syringes, turn to page 77-78



Agilent Vials and Closures

Common questions about Agilent vials and caps

Why is it important to use Agilent Certified vials on my Agilent autosampler?

Agilent Certified vials are the only vials in the industry designed and tested for full compatibility with our autosamplers. The same attention and precision that go into designing our instruments, columns, and parts also go into designing these vials. Many Agilent autosamplers use a robotic arm to grip vials by the neck. Therefore, it is critical that the vial neck and shoulder are the proper height to prevent dropped vials and lost samples. Only Agilent Certified vials are designed for use on Agilent autosamplers; competitor products simply do not meet our exact specifications, which can lead to costly instrument downtime and potential loss of your precious samples.

Is the same true for Agilent Certified caps and inserts?

To avoid leakage and sample loss due to evaporation, inserts must sit neatly in the vial – and the entire assembly must be tightly sealed when capped. You should also consider the depth of your autosampler needle when using an insert to prevent needle damage and ensure proper sample uptake.

The threads on the Agilent Certified screw vials are designed precisely to match the threads on Agilent Certified caps. Using a non-Agilent Certified cap on these vials will not create a secure, tight seal and will lead to sample loss. In addition, Certified crimp vials and caps are tested over 100,000 times on our Agilent autosamplers to confirm a proper fit and secure seal.

Do I need to be concerned about the compatibility of my sample with my vials?

For highly sensitive samples such as pesticides or semivolatiles, as well as samples that are prone to sudden shifts in pH, deactivated vials are best, because their surface is more hydrophobic and inert. For more exacting, demanding applications, such as mass spectrometry, deactivated vials are recommended to prevent sample interactions prior to analysis.

Polypropylene vials are an excellent choice for biological applications and for applications involving samples with high metal content, such as ion chromatography, AA, or ICP-MS. Agilent thoroughly tested and evaluated a variety of polypropylene materials prior to selecting the grade used in our polypropylene vials. Our polypropylene vials have the lowest levels of extractables to ensure integrity of your sample.

Can I count on consistency from one vial to the next?

Autosampler vials can vary from their stated size and wall weight if tolerances are not tightly controlled. This can affect the volume of sample in the vial, which is especially problematic when working with small amounts of sample. Our tight control of tolerances extends through the entire manufacturing process, from the initial design to the final opto-electronic screening process, which inspects every single vial and cap for accuracy.

Agilent Certified vials conform to the industry's tightest tolerances to ensure consistency from lot to lot, as well as from one vial to the next.

Why should I buy my vials from Agilent?

Vial integrity, cleanliness, and consistency are critical for today's demanding applications. That is why Agilent vials and caps are designed using the same engineering expertise that is built into Agilent instruments. All Agilent Certified vials are manufactured in ISO 9001 clean environments, must pass a 33-point visual inspection, and are uniquely packaged to stay clean and secure during shipment.

Why It Is Critical to Use Agilent Certified Vials and Closures on Agilent Autosamplers

| Common Problems | Effects | Benefits of Agilent Certified Vials and Caps |
|--|--|--|
| Inconsistency with vial bottom thickness | <ul style="list-style-type: none"> • Sample draw inconsistency • Damaged needle | Consistent and valid relative standard deviation (RSD) values |
| Autosampler sequence interruption | <ul style="list-style-type: none"> • Mishandled or dropped vials • Loss of precious sample | Confidence in unattended operation |
| Undetected improper seal | <ul style="list-style-type: none"> • Sample loss/evaporation • Possible sample contamination | Proper sealing for accurate results |
| Dislodged or misaligned septa | <ul style="list-style-type: none"> • Sample loss • Sample contamination | Accurate results |
| Ghost peaks | <ul style="list-style-type: none"> • Contamination by cap septa | Chromatographic purity test that eliminates outliers and analysis errors |

TIPS & TOOLS

Agilent has made vial, cap and septum selection easy with its new Interactive Vial Selection Tool, available online in both desktop and mobile versions. The tool identifies the right vial and closures for your particular application, and provides the rationale for the choices offered.

Visit www.agilent.com/chem/SelectVials



Protect sample integrity by choosing the right septa for your application

Proper septa selection is critical to preventing contamination and avoiding damage to the needle and instrument. Here are some questions you should ask:

Are the septa chemically compatible with your samples and solvents?

The chart below summarizes chemical compatibility and incompatibility. Agilent provides this septa compatibility as a guide and a starting reference point. We realize that chemical compatibility can vary depending on the concentration of the solvent, the temperature, the molecular weight of the solvent, and other factors. Therefore it is always recommended you try a variety of septa to determine the best one for your analysis.

| Septa Chemical Compatibility | | | | | | |
|---|------|---------------|---------------------|-----------------|-------|------------|
| | PTFE | PTFE/Silicone | PTFE/Silicone/PTFE* | PTFE/Red Rubber | Viton | PTFE/Butyl |
| Acetonitrile | ✓ | ✓ | ✓ | ✓ | | ✓ |
| Hydrocarbons (hexane, heptane, methane) | ✓ | | ✓ | ✓ | ✓ | |
| Methanol | ✓ | ✓ | ✓ | ✓ | | ✓ |
| Benzene | ✓ | | ✓ | | ✓ | |
| THF | ✓ | | ✓ | | | |
| Toluene | ✓ | | ✓ | | | |
| DMF | ✓ | ✓ | ✓ | | | ✓ |
| DMSO | ✓ | ✓ | ✓ | | | ✓ |
| Ether | ✓ | ✓ | ✓ | | | |
| Chlorinated Solvents (methylene chloride) | ✓ | | ✓ | | ✓ | |
| Alcohols (ethanol) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Acetic Acid | ✓ | ✓ | ✓ | | | ✓ |
| Acetone | ✓ | ✓ | ✓ | | | |
| Phenol | ✓ | ✓ | ✓ | | ✓ | ✓ |
| Cyclohexane | ✓ | | ✓ | ✓ | ✓ | |

*PTFE/silicone/PTFE has the same chemical compatibility of PTFE ONLY UNTIL PUNCTURED

Will my application require repeat injections from the same vial or storage of the sample?

Resealability is an important factor to consider when selecting septa. PTFE/red rubber septa are not recommended for multiple injections or for samples that need to be stored for further analysis. When applications require a longer time between injections or any type of standard additions, PTFE/silicone/PTFE septa are always best.

What force is required to penetrate the septa?

Generally, silicone septa are more easily pierced than red rubber or butyl septa. For thicker, hard-to-pierce septa, a small gauge (23 gauge) needle may be required. Or an S-needle as they are stronger.

Pre-slit septa are the best option for the easiest penetration and will reduce the likelihood of coring.

All Agilent Certified septa are designed for optimal use with Agilent autosamplers and for proper fit in the caps.

Cap and Septa Compatibility

| | High Performance Septa | Thin PTFE | PTFE/Silicone* | PTFE/Silicone/PTFE* | PTFE/Red Rubber | Viton | Butyl |
|-----------------------------|---|---|---|--|---|---|--|
| Temperature range | 40 °C to 300 °C** | Up to 260 °C | -40 °C to 200 °C | -40 °C to 200 °C | -40 °C to 90 °C | -40 °C to 260 °C | -50 °C to 150 °C |
| Use for multiple injections | No | No | Yes | Yes | No | No | No |
| Price | More expensive | Very economical | Economical | Most expensive | Very economical | Economical | Economical |
| Resistance to coring | Excellent | None | Excellent | Excellent | None | None | None |
| Recommended for storage | No | No | Yes | Yes | No | No | No |
| Best for | High temperature headspace applications | Superior chemical inertness, short cycle times, and single injections | Most common HPLC and GC analyses, not as resistant to coring as P/S/P | Superior performance for ultra trace analysis, repeat injections, internal standards | Chlorosilanes, more economical option for single injections | Chlorinated solvents, higher temperatures | Organic solvents, acetic acids; impermeable to gases |

*Agilent silicone is platinum cured (versus peroxide cured), making it more inert and less likely to interact with samples

**For up to one hour

TIPS & TOOLS

Agilent has made vial, cap and septum selection easy with its new Interactive Vial Selection Tool, available online in both desktop and mobile versions. The tool identifies the right vial and closures for your particular application, and provides the rationale for the choices offered.

Visit www.agilent.com/chem/SelectVials



What temperature range does my application require?

Septa can degrade at higher temperatures, causing contamination of your samples. Red rubber septa are only stable up to 90 °C and therefore are not a good option for higher temperature applications. Generally, PTFE-lined silicone septa provide the best compatibility with a wide range of temperatures.

For newer headspace applications that require temperatures up to 300 °C, Agilent offers the new High Performance Septa, made of special proprietary materials that minimize degradation at extreme temperatures.

How do I avoid common issues caused by septa?

Coring

Coring occurs when the needle diameter is too large for the septa or when the septa material is not durable enough to withstand repeat injections. When this happens, septa material can flake off into the vial and contaminate the sample. Here is how to prevent coring:

- Choose a PTFE-lined septum to prevent septa material from entering the sample
- Make sure the needle is not damaged, and consider a side-entry needle instead of a conical needle
- Use pre-slit septa, which will virtually eliminate coring

Vacuum Generation

Sometimes withdrawing volume from a sealed vial can create a vacuum. A few simple steps can prevent this from happening:

- Use pre-slit septa to help equalize the pressure on both sides of the cap
- Do not overfill vials
- Do not take more than 50 µL (from a 2 mL vial) in one injection

TIPS & TOOLS



For highly sensitive samples, we recommend PTFE-lined ("sandwiched") septa, because the PTFE layers act as a chemically resistant barrier.

TIPS & TOOLS



Septa that are too thick can prevent the cap from fitting properly on the vial. Agilent Certified septa are designed for use in our Certified caps.

Agilent Vial Identification Chart and Actual Fill Volumes

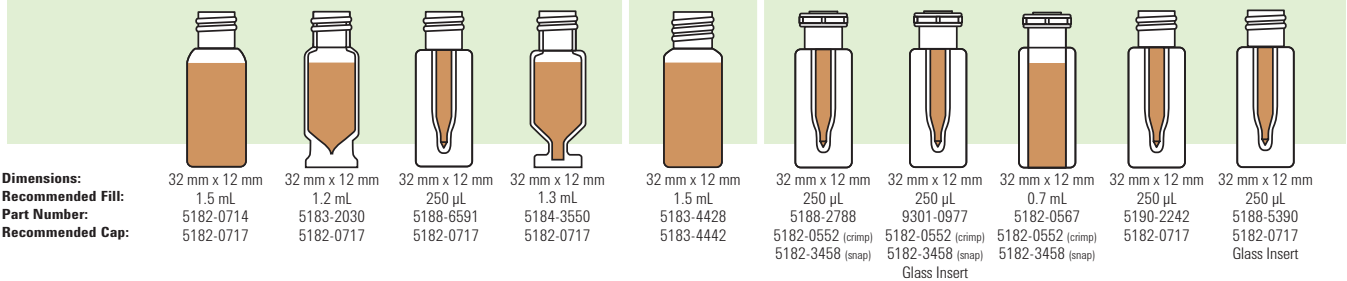
Wide Opening Screw Top Vials (9 mm)

Narrow Opening Screw Top Vials (8 mm)

Polypropylene Vials

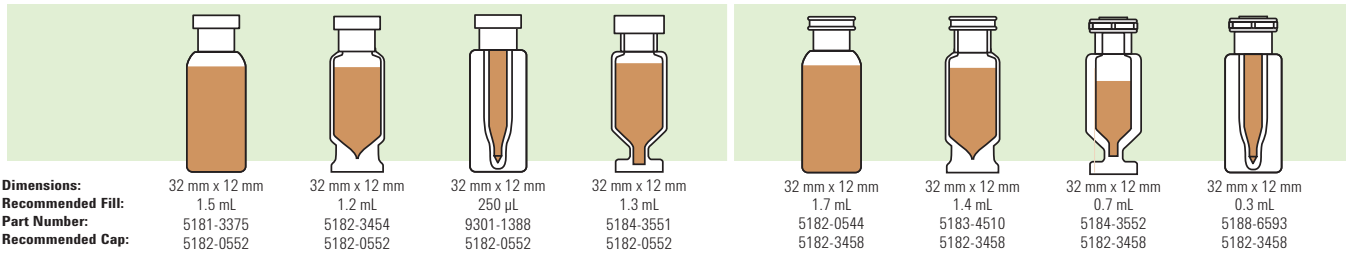
Crimp/Snap Top

Screw Top



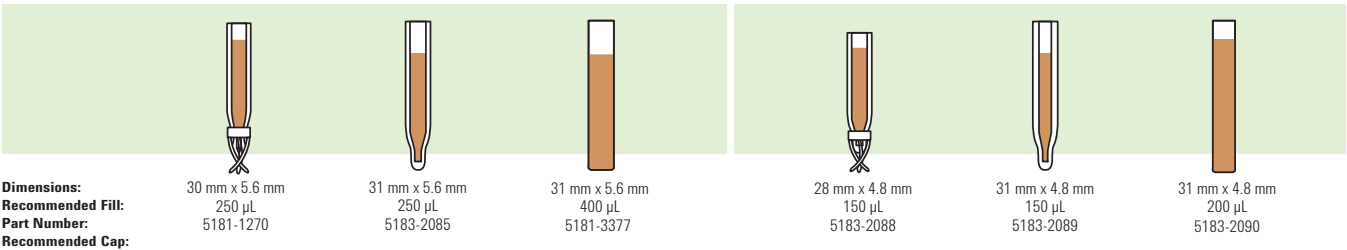
Wide Opening Crimp Top Vials (11 mm)

Wide Opening Snap Top Vials



Inserts for Wide Opening Vials (11 mm & 9 mm)

Inserts for Narrow Opening Vials (8 mm)

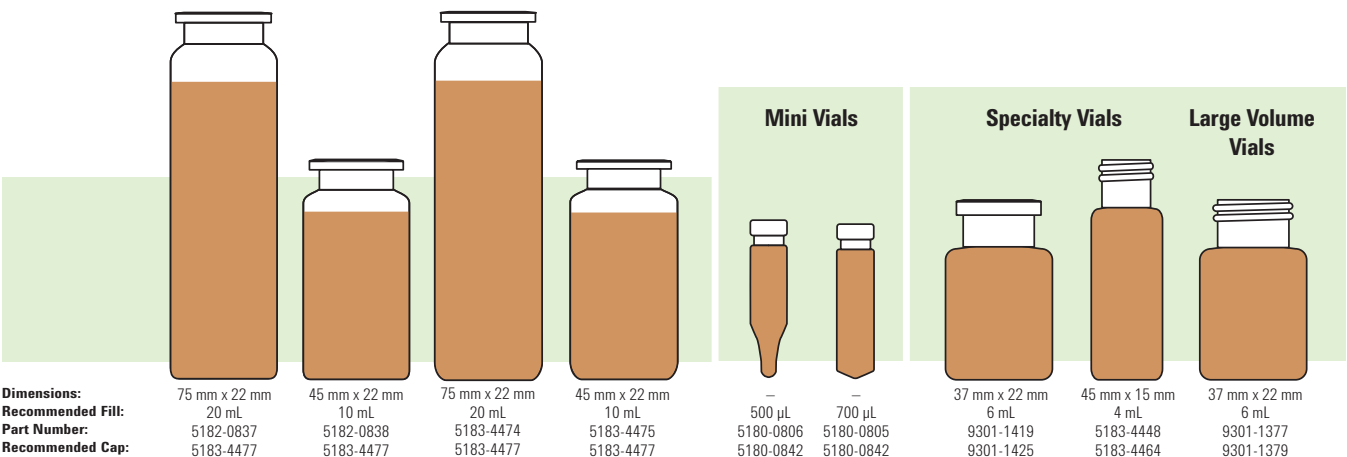


Headspace Vials

Mini Vials

Specialty Vials

Large Volume Vials



MS Analyzed Vial Kits

Agilent MS Analyzed Vial Kits end the need to pre-test or to re-run samples due to unexpected peaks. All MS Analyzed Vial Kits include a Certificate of Analysis that contains accurate, lot-specific, and fully traceable LC/MS and GC/MS signal traces, as well as critical physical dimensions. Agilent's new MS Analyzed Vial Kits provide lot-specific test results for greater confidence in your results.



- All vials are lot-tested by both GC/MS and LC/MS using Agilent systems
- Manufactured for full-warranted compatibility with Agilent GC and LC autosamplers
- Packaged in a unique box designed to reduce vial breakage
- Packed in a clean environment using clean packaging to reduce contamination
- Available in both crimp top and screw top closures
- Larger write-on spots for easier labeling and identification
- Conveniently packaged in a combination pack with 100 vials and 100 caps/septa



Screw top MS analyzed vial kit, 5190-2277



Screw top MS analyzed vial kit, 5190-2280



Crimp top MS analyzed vial kit, 5190-2282

MS Analyzed Vial Kits

| Vial Type | Septa Type | Cap Color | 100/pk |
|--|---------------------------|-----------------|-----------|
| Screw Top MS Analyzed Vial Kits | | | |
| Clear | PTFE/red silicone septa | Blue | 5190-2277 |
| Clear with write-on spot | PTFE/red silicone septa | Blue | 5190-2278 |
| Amber | PTFE/red silicone septa | Blue | 5190-2279 |
| Amber with write-on spot | PTFE/red silicone septa | Blue | 5190-2280 |
| Crimp Top MS Analyzed Vial Kits | | | |
| Clear | PTFE/white silicone septa | Silver aluminum | 5190-2281 |
| Clear with write-on spot | PTFE/white silicone septa | Silver aluminum | 5190-2282 |
| Amber | PTFE/white silicone septa | Silver aluminum | 5190-2283 |



Certificate of Analysis
signed by Agilent's Quality Manager

Certified Screw Top Vials and Closures

Combine the excellent autosampler handling of a crimp cap profile with the ease of a screw cap. The screw caps and precision fit septa give a secure seal with microvolume inserts.

- Certified for full warranted compatibility with Agilent autosamplers
- 2 mL, 12 x 32 mm, 9 mm diameter
- Packaged in a unique box designed to reduce vial breakage
- 40% larger opening than standard narrow opening vials
- Unique thread design for consistently secure seal
- Precision-formed neck for optimal robotic arm handling
- Rigorous quality assurance for dimensional consistency from lot-to-lot
- Optional ceramic write-on spot with fill marks



2 mL Wide Opening Screw Top Glass Vials

| Description | 100/pk | 1000/cs* |
|--------------------------|-----------|-----------|
| Clear | 5182-0714 | 5183-2067 |
| Clear, write-on spot | 5182-0715 | 5183-2068 |
| Amber | 5188-6535 | 5188-6536 |
| Amber, write-on spot | 5182-0716 | 5183-2069 |
| Deactivated Vials | | |
| Clear | 5183-2070 | |
| Clear, write-on spot | 5183-2071 | |
| Amber, write-on spot | 5183-2072 | |

*Case includes 10 packs of 100 vials

LC Vials and Closures

| Description | Unit | Part No. |
|--|--------|-----------|
| 6 mL Screw Top Vials and Closures | | |
| Clear, flat bottom | 100/pk | 9301-1377 |
| Screw caps, 16 mm | 100/pk | 9301-1379 |
| PTFE/silicone septa | 100/pk | 9301-1378 |
| PTFE/silicone septa, pre-slit | 100/pk | 5188-2758 |
| 5 mL Screw Top Vials | | |
| Clear, high recovery | 30/pk | 5188-5369 |



PTFE-lined solid top screw caps for 2 mL vials, 5183-2075



Polypropylene caps with bonded septa, 5185-5823



Screw caps with septa

Screw Caps for 2 mL Vials

| Color | Septa Type | Certified | 100/pk | 500/pk | 1000/pk |
|-----------------|-------------------------------------|-----------|-----------|-----------|-----------|
| Blue | PTFE/red silicone septa | ✓ | 5182-0717 | 5185-5820 | 5190-1599 |
| | PTFE/white silicone septa | ✓ | 5182-0720 | 5185-5863 | |
| | PTFE/silicone/PTFE septa | ✓ | 5182-0723 | 5185-5862 | |
| | Pre-slit PTFE/silicone septa | ✓ | 5183-2076 | 5185-5865 | |
| | PTFE-lined solid top | ✓ | 5183-2075 | | |
| | Open top, no septa | ✓ | 5182-0728 | | |
| | Bonded PTFE/silicone septa | | 5185-5823 | | |
| | Bonded pre-slit PTFE/silicone septa | | 5185-5824 | 5040-4649 | |
| Green | PTFE/red silicone septa | ✓ | 5182-0718 | 5185-5829 | |
| | PTFE/white silicone septa | ✓ | 5182-0721 | 5185-5864 | |
| | PTFE/silicone/PTFE septa | ✓ | 5182-0724 | 5185-5861 | |
| | Pre-slit PTFE/silicone septa | ✓ | 5183-2077 | | |
| | Open top, no septa | ✓ | 5182-0727 | | |
| Red | PTFE/red silicone septa | ✓ | 5182-0719 | | |
| | PTFE/white silicone septa | ✓ | 5182-0722 | | |
| | PTFE/silicone/PTFE septa | ✓ | 5182-0725 | | |
| | Pre-slit PTFE/silicone septa | ✓ | 5183-2078 | | |
| | Open top, no septa | ✓ | 5182-0726 | | |
| Black | PTFE/red silicone septa | ✓ | 5185-5838 | | |
| Purple | PTFE/silicone septa | ✓ | 5040-4681 | | |
| Light turquoise | PTFE/silicone septa | ✓ | 5040-4683 | | |

Certified Septa for Wide Opening (9 mm) Screw Caps

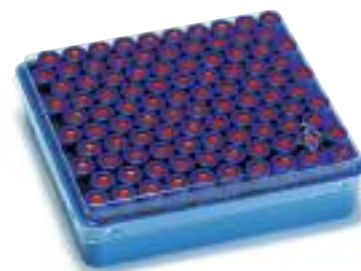
| Septa Type | Color | 100/pk |
|------------------------------|-------|-----------|
| PTFE/red silicone | Ivory | 5182-0731 |
| PTFE/white silicone/red PTFE | Red | 5182-0729 |
| Pre-slit PTFE/white silicone | Blue | 5183-2074 |
| PTFE/white silicone | Red | 5182-0730 |

Screw Cap Pack for 7696 Sample Prep Workbench

| Description | Septa Type | Part No. |
|--|---------------------|-----------|
| Multicolor screw cap pack Includes 50/pk of each color: blue, green, red, light turquoise, purple | PTFE/silicone septa | 5040-4682 |

Certified 2 mL Screw Top Vial Packs

Pre-assembled packs come ready-to-use with the cap and septum of your choice attached to the vial. A time- and labor-saving product for use with your Agilent autosampler or any rotating tray automatic sampler.



Pre-assembled vial pack

Certified 2 mL Screw Top Vial Packs

| Vial Type | Septa Type | Cap Color | 100/pk |
|--------------------------|------------------------------|-----------|-----------|
| Clear | PTFE/red silicone septa | Blue | 5182-0553 |
| Clear with write-on spot | PTFE/red silicone septa | Blue | 5182-0864 |
| Amber with write-on spot | PTFE/red silicone septa | Green | 5182-0554 |
| Clear | PTFE/silicone/PTFE septa | Blue | 5182-0555 |
| Clear with write-on spot | PTFE/silicone/PTFE septa | Blue | 5182-0866 |
| Amber with write-on spot | PTFE/silicone/PTFE septa | Green | 5182-0556 |
| Clear | PTFE/silicone septa | Blue | 5182-0557 |
| Clear with write-on spot | PTFE/silicone septa | Blue | 5182-0865 |
| Amber with write-on spot | PTFE/silicone septa | Green | 5182-0558 |
| Clear | Pre-slit PTFE/silicone septa | Blue | 5183-2082 |
| Clear with write-on spot | Pre-slit PTFE/silicone septa | Blue | 5183-2083 |



Screw top vial convenience kit

Certified Screw Top Vial Convenience Packs

Convenience packs are an easy way to get 500 of each component using one part number. Packed in our six-drawer, reusable blue plastic cabinet, 500 vials and caps with septa installed are kept handy and dust-free.

Certified Screw Top Vial Convenience Packs

| Vial Type | Septa Type | Cap Color | 500/pk |
|--------------------------|--------------------------------------|-----------|-----------|
| Clear | PTFE/red silicone septa | Blue | 5182-0732 |
| Clear with write-on spot | PTFE/red silicone septa | Blue | 5182-0867 |
| Amber with write-on spot | PTFE/red silicone septa | Green | 5182-0733 |
| Clear | PTFE/silicone/PTFE septa | Blue | 5182-0736 |
| Clear with write-on spot | PTFE/silicone/PTFE septa | Blue | 5182-0869 |
| Amber with write-on spot | PTFE/silicone/PTFE septa | Green | 5182-0737 |
| Clear | PTFE/silicone septa | Blue | 5182-0734 |
| Clear with write-on spot | PTFE/silicone septa | Blue | 5182-0868 |
| Amber with write-on spot | PTFE/silicone septa | Green | 5182-0735 |
| Clear | Pre-slit PTFE/silicone septa | Blue | 5183-2079 |
| Clear with write-on spot | Pre-slit PTFE/silicone septa | Blue | 5183-2080 |
| Amber with write-on spot | Pre-slit PTFE/silicone septa | Green | 5183-2081 |
| Clear | Bonded, pre-slit PTFE/silicone septa | Blue | 5067-0205 |

Crimp Top Vials and Closures

The wide opening crimp cap provides a larger target area for improved autosampler needle accuracy. Select from five cap colors and a variety of septa. Whatever your crimp top vial needs, Agilent has what you are looking for.

- Certified for full warranted compatibility with Agilent autosamplers
- 2 mL, 12 x 32 mm
- Available in unique packaging designed to reduce vial breakage
- Tightly controlled crown for improved crimping
- Precision-formed neck for improved autosampler handling
- Rigorous quality assurance provides dimensional consistency from lot-to-lot
- Optional ceramic write-on spot with fill marks



2 mL Wide Opening Crimp Top Vials

| Description | Certified | 100/pk | 1000/cs* |
|---|-----------|-----------|-----------|
| Clear | ✓ | 5181-3375 | 5183-4491 |
| Clear, write-on spot | ✓ | 5182-0543 | 5183-4492 |
| Amber, write-on spot | ✓ | 5181-3376 | 5183-4493 |
| Deactivated Vials | | | |
| Clear | ✓ | 5183-4494 | |
| Clear, write-on spot | ✓ | 5183-4495 | |
| Amber, write-on spot | ✓ | 5183-4496 | |
| Crimp Top Vials with Fixed Inserts | | | |
| Amber, 300 µL recommended useable volume | | 5188-6572 | |
| Clear, 300 µL recommended useable volume | | 9301-1388 | |

*Case includes 10 packs of 100 vials



Clear crimp top vials, 5181-3375

LC Vials and Closures

| Description | Unit | Part No. |
|--|--------|-----------|
| 6 mL Crimp Top Vials and Closures | | |
| Clear, flat bottom | 100/pk | 9301-1419 |
| Crimp caps, 20 mm, PTFE/silicone septa | 100/pk | 9301-1425 |



Magnetic crimp caps, 5188-5386

Crimp Caps with 11 mm Septa

Agilent recommends using Certified crimp caps with PTFE/silicone septa to ensure seamless operation with your Agilent autosampler. Agilent Certified crimp caps are guaranteed to work with your instrument to reduce autosampler malfunctioning and contamination.

Crimp Caps with 11 mm Septa

| Cap Color | Septa Type | Certified | 25/pk | 100/pk | 500/pk | 1000/pk |
|-----------------|-------------------------------|-----------|-----------|-----------|-----------|-----------|
| Silver aluminum | PTFE/silicone/ PTFE septa | ✓ | | 5181-1211 | | 5183-4499 |
| | PTFE/silicone septa | ✓ | | 5182-0552 | | 5183-4500 |
| | Black Viton septa | ✓ | | 5181-1212 | | |
| | Thin PTFE septa | ✓ | | 5182-0871 | | |
| | Thin-membrane rubber septa | | 5062-3582 | | | |
| | PTFE/red rubber septa | | | | 5181-1210 | 5061-3370 |
| Blue aluminum | PTFE/red rubber septa | | | 5181-1215 | | |
| Green aluminum | PTFE/red rubber septa | | | 5181-1216 | | |
| Red aluminum | PTFE/red rubber septa | | | 5181-1217 | | |
| Gold aluminum | Magnetic | | | 5188-5386 | | |

Crimp Top Vial Convenience Packs

| Vial Type | Septa Type | Cap Color | 500/pk |
|--------------------------|-----------------------|-----------------|-----------|
| Clear | PTFE/red rubber septa | Silver aluminum | 5181-3400 |
| Clear with write-on spot | PTFE/red rubber septa | Silver aluminum | 5190-2241 |
| Amber with write-on spot | PTFE/red rubber septa | Silver aluminum | 5181-8801 |

TIPS & TOOLS



Red rubber septa have a tendency to cause needle sticking during sampling. Agilent recommends a 23/26 gauge needle when using red rubber septa. Agilent Certified crimp caps are compatible with all needle types.

Certified Microvolume Inserts for Wide Opening Vials

To meet your microsampling needs, Agilent has a variety of microvolume inserts with capacities and designs that can transform our vials from full-capacity to limited volume with one simple step. Microvolume inserts are certified to work with all Certified vials for excellent fit with Agilent autosamplers.

Certified Microvolume Inserts for Wide Opening Vials

| Description | Maximum Fill Volume | Recommended Fill Volume | Unit | Part No. |
|--|---------------------|-------------------------|--------|------------|
| Conical Inserts with Polymer Feet | | | | |
| Glass inserts with polymer feet and mandrel interior | 320 µL | 250 µL | 100/pk | 5181-1270* |
| Deactivated glass inserts with polymer feet and mandrel interior | 350 µL | 250 µL | 100/pk | 5181-8872 |
| Conical Glass Inserts | | | | |
| Pulled-point glass inserts | 350 µL | 250 µL | 100/pk | 5183-2085 |
| Pulled-point glass inserts | 180 µL | 100 µL | 500/pk | 9301-1387 |
| Flat Bottom Inserts | | | | |
| Glass flat bottom inserts | 440 µL | 400 µL | 500/pk | 5181-3377 |
| Deactivated glass flat bottom inserts | 440 µL | 400 µL | 500/pk | 5183-2086 |

*For vortexing or mixing small volume samples, Agilent recommends using 5181-1270 because it provides a secure seal with the cap and septum



250 µL pulled-point glass inserts, 5183-2085



400 µL glass flat bottom inserts, 5181-3377

Polypropylene Vials

Wide opening 12 x 32 mm vials are manufactured from virgin polypropylene, meeting the requirements of 21 CFR 177.1520. Polypropylene is chemically resistant and the material of choice for sodium or heavy metals analysis. Polypropylene vials are translucent and can be used with crimp caps.

Agilent's polypropylene vials use the purest, cleanest grade of polypropylene available, to guarantee the lowest levels of extractables. In addition, the walls of these vials have been thickened to withstand the force of Agilent LC and CE autosamplers. Competitor vials are not comparable.



Crimp/Snap top polypropylene vial, 250 µL, 5188-2788



Polypropylene vial with glass insert, 9301-0977

When should I use a Polypropylene Vial?

The information provided below will help you to determine if polypropylene vials or silanized glass vials are the best option for your application. As always, this information serves only as a guideline, and we always recommend testing options before deciding on the proper vial and cap.

Polypropylene

- Traditionally the material of choice for LC or LC/MS and CE
- Polypropylene can oxidize some biologicals
- Not recommended for light sensitive compounds
- Not compatible with a number of organic solvents
- Max temperature of ~ 175 °C

Available Sizes/Formats

Polypropylene Vials

| | |
|--------|---------------|
| 250 µL | Crimp & Screw |
|--------|---------------|

Deactivated/Silanized Vials

| | |
|----------------|---------------------|
| 2 mL | Crimp, Snap & Screw |
| 250 µL, 400 µL | Microvolume Inserts |

TIPS & TOOLS



The Agilent headspace autosamplers G1888A, and 7694A, B and E are compatible with the flat bottom headspace vials only. Only Agilent vials are designed to properly fit in the Agilent autosampler incubator.

Deactivated/Silanized Vials

- Deactivation process renders surface inert
- Will not interact with metals, biologicals or proteins and will not cause shifts in pH of sample
- Compatible with a wide variety of solvents
- Available in amber for light sensitive samples
- More expensive than polypropylene
- Can withstand temperatures up to 500 °C

Agilent Polypropylene Vial Compatibility

| Contact Time | Extraction (<5 min) | < 1 hr | 1 - 4 hr | 4 - 8 hr | 24 hr |
|-------------------|---------------------|--------|-----------------|-----------------|-----------------|
| Hexane | Good | Fair | Not recommended | Not recommended | Not recommended |
| THF | Good | Fair | Not recommended | Not recommended | Not recommended |
| MeCl ₂ | Good | Fair | Not recommended | Not recommended | Not recommended |
| Toluene | Good | Fair | Not recommended | Not recommended | Not recommended |
| Isooctane | Good | Good | Fair | Fair | Not recommended |
| Acetone | Good | Good | Good | Fair | Not recommended |
| Ethyl acetate | Good | Good | Good | Fair | Fair |
| IPA | Good | Good | Good | Good | Good |
| Ethanol | Good | Good | Good | Good | Good |
| Methanol | Good | Good | Good | Good | Good |
| DMSO | Good | Good | Good | Good | Good |
| Acetonitrile | Good | Good | Good | Good | Good |

Polypropylene Vials

| Vial Type | Volume | Certified | 100/pk | 1000/pk |
|---|--------|-----------|-----------|-----------|
| Polypropylene, crimp/snap top | 250 µL | ✓ | 5188-2788 | 9301-0978 |
| Polypropylene, screw top | 250 µL | ✓ | 5190-2242 | 5190-2243 |
| Polypropylene, crimp/snap top | 250 µL | | | 5190-3155 |
| Polypropylene, crimp/snap top | 1 mL | | 5182-0567 | |
| Polypropylene with glass insert, crimp/snap top | 250 µL | | 9301-0977 | |
| Polypropylene with glass insert, screw top | 250 µL | | 5188-5390 | |



Headspace Vials and Closures

Beveled-neck headspace vials are available in both 10 mL and 20 mL capacities, flat or rounded bottom. The 20 mm crimp caps provide a consistently secure seal. Agilent also offers cost-saving convenience packs with vials, caps and septa packaged together.

- Certified for full warranted compatibility with Agilent autosamplers
- Choice of crimp or screw top vials
- Beveled top for maximum secure seal
- Two neck lengths available
- Choice of a pressure safety release cap at 45 psi
- Available in flat or rounded bottom designs



Certified Headspace Crimp Top Glass Vials

| Description | Unit | Flat Bottom | Rounded Bottom |
|---|--------|-------------|----------------|
| 10 mL, 23 x 46 mm | | | |
| Clear | 100/pk | 5182-0838 | 5183-4475 |
| Amber | 100/pk | 5067-0227 | 5190-2238 |
| Clear, graduation marks and write-on spot | 100/pk | 5190-2285 | |
| Amber, graduation marks and write-on spot | 100/pk | 5190-2287 | |
| 20 mL, 23 x 75 mm | | | |
| Clear | 100/pk | 5182-0837 | 5183-4474 |
| Amber | 100/pk | 5067-0226 | 5190-2239 |
| Clear, graduation marks and write-on spot | 100/pk | 5190-2288 | |
| Amber, graduation marks and write-on spot | 100/pk | 5190-2286 | |



Clear headspace crimp top vials with graduation marks and write-on spot, 5190-2285



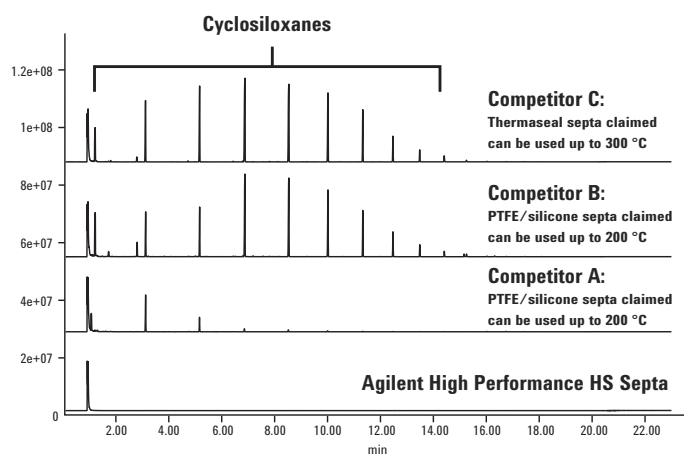
Amber headspace crimp top vials with graduation marks and write-on spot, 5190-2288

High Performance Septa

Agilent introduces the first septa that can withstand extreme temperatures and conditions for today's demanding headspace applications.

- Proven to withstand temperatures up to 300 °C with no degradation
- Leakproof
- Available in your choice of crimp or screw

Headspace screw top vial blank chromatogram comparison at 300 °C with different septa

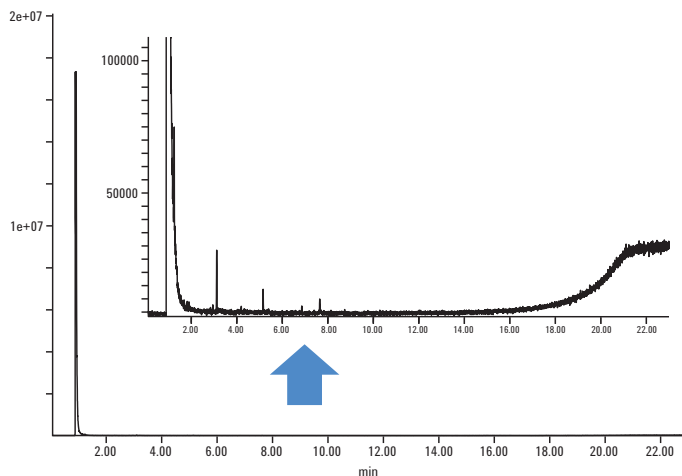


GC/MS conditions

| | |
|---------------------------------|--|
| Inlet: | Split mode w/ 10:1 ratio, 250 °C |
| Column: | DB-5ms Ultra Inert, 30 m x 0.25 mm, 0.25 µm, Constant flow: 2.5 mL/min |
| Oven: | 40 °C hold 1.5 min, then 15 °C/min to 325 °C and hold for 2.5 min, 23 min total run time |
| Thermal Aux/MS source/MS guard: | 250 °C/230 °C/150 °C |
| MSD: | Scan mode 25 - 550 m/z |

Vial blank sample chromatogram at 300 °C with Agilent High Performance HS Septa

Agilent High Performance Septa provide significant cleaner blank background at high temperature HS testing. Even with small abundance scale, the 300 °C vial blank chromatogram with High Performance Septa only shows few siloxane peaks with very small abundance.



Headspace conditions

| | |
|--------------|---|
| Septa Type: | Agilent High Performance Septa, 5190-3986 |
| Temperature: | Oven/loop & valve/transfer line: 300 °C/300 °C/300 °C |
| Times: | GC cycle time: 32 min, Vial equilib time: 30 min |
| Vial: | Fill pressure: 15 psi, Fill flow: 50 mL/min, Loop fill ramp rate: 20 psi/min, Loop final pressure: 10 psi, Vial Size: 20 mL, Shaking: 1 |
| Carrier: | GC controlled |

TIPS & TOOLS



For information on CrossLab High Performance Septa, turn to page 41-42.

High Performance Septa

| Description | Unit | Agilent Certified Part No. | Compatible With |
|---|--------|----------------------------|--|
| 18 mm steel screw cap with High Performance Septa | 100/pk | 5190-3986 | 5188-2753, 5188-6537, 5188-5392, 5188-6538 |
| 20 mm steel crimp cap with High Performance Septa | 100/pk | 5190-3987 | 5182-0837, 5183-4474, 5067-0226, 5190-2239, 5182-0838, 5183-4475, 5067-0227, 5190-2238 |

20 mm Headspace Crimp Caps and Septa

| Cap Color | Septa Type | Specifications | Certified | 100/pk | 10,000/pk |
|-------------------------------------|-------------------------------|------------------|-----------|-----------|-----------|
| Silver aluminum | PTFE/silicone septa | -60 °C to 180 °C | ✓ | 5183-4477 | 5190-2257 |
| Silver aluminum with safety feature | PTFE/silicone septa | -60 °C to 180 °C | ✓ | 5183-4478 | |
| Silver aluminum | Molded PTFE/ butyl septa | -40 °C to 125 °C | ✓ | 5183-4479 | 5190-2258 |
| Silver aluminum with safety feature | Molded PTFE/ butyl septa | -40 °C to 125 °C | | 5183-4480 | |
| Silver aluminum | No septa | | | 9301-0721 | |
| Silver aluminum with safety feature | No septa | | | 9301-0718 | |
| Septa only | Gray PTFE/ black butyl molded | -40 °C to 125 °C | | 9301-0976 | |
| Septa only | Tan PTFE/ white silicone | -60 °C to 180 °C | | 9301-0719 | 5067-0234 |



Aluminum crimp caps, 5183-4477



Headspace vial convenience kit

Certified Headspace Vial Convenience Packs

| Septa Type | Vial Type | Cap Color | Specifications | Unit | Part No. |
|--------------------------------|-------------|-------------------------------------|----------------|--------|-----------|
| Molded PTFE/ black butyl septa | Flat bottom | Silver aluminum with safety feature | < 125 °C | 100/pk | 5182-0839 |
| PTFE/silicone septa | Flat bottom | Silver aluminum with safety feature | < 180 °C | 100/pk | 5182-0840 |

TIPS & TOOLS



For information on CrossLab Headspace Vial Convenience Packs, turn to pages 40-42.

CombiPAL Headspace Vials and Closures

Screw top vials and caps are recommended for the tightest seal and the most reproducible headspace results. CombiPAL headspace vials and caps are precision-threaded, making them an excellent choice for dependability and ease-of-use. They are ideal for applications in the environmental, food and beverage, industrial hygiene, drug analysis, and clinical chemistry industries.

CombiPAL Headspace Screw Top Vials

| Description | 100/pk |
|--------------------------|-----------|
| 10 mL, 23 x 46 mm | |
| Clear | 5188-5392 |
| Amber | 5188-6538 |
| 20 mL, 23 x 75 mm | |
| Clear | 5188-2753 |
| Amber | 5188-6537 |

CombiPAL 18 mm Screw Top Caps with Septa

| Cap Color | Septa Type | 100/pk |
|---------------------------|--|-----------|
| Silver aluminum, magnetic | PTFE/silicone septa (top white, bottom blue) | 5188-2759 |





Snap top vials with fixed inserts

Snap Top Vials and Closures

Snap top vials and caps are the simple, efficient way to a secure seal without crimping. It's as easy as push-on, pull-off. Crimp caps can also be used with wide opening snap top vials. **Note:** Snap cap vials cannot be pressurized.

- 2 mL, 12 x 32 mm
- Use with any 11 mm snap or crimp cap
- Available in unique packaging designed to reduce vial breakage
- Provides a total seal around the entire circumference of the vial crown
- Precision-formed neck improves autosampler handling
- Optional ceramic write-on spot
- Uniformly flat bottom ensures compatibility with inserts

2 mL (11 mm) Snap Top Glass Vials

| Description | 100/pk | 1000/cs* |
|--|-----------|-----------|
| Clear | 5182-0544 | 5183-4504 |
| Clear, write-on spot | 5182-0546 | 5183-4505 |
| Amber, write-on spot | 5182-0545 | 5183-4506 |
| Deactivated Vials | | |
| Clear | 5183-4507 | |
| Clear, write-on spot | 5183-4508 | |
| Amber, write-on spot | 5183-4509 | |
| Snap Top Vials with Fixed Inserts | | |
| Clear, 300 µL useable volume | 5188-6593 | |
| Amber, 300 µL useable volume | 5188-6594 | |

*Case includes 10 packs of 100 vials

Polyethylene Snap Caps with 11 mm Septa

| Cap Color | Septa Type | 100/pk | 500/pk |
|-----------|-----------------------------------|-----------|-----------|
| Clear | Clear PTFE/red silicone septa | 5182-0550 | 5182-0564 |
| Blue | Clear PTFE/red silicone septa | 5182-3458 | |
| Green | Clear PTFE/red silicone septa | 5182-3457 | |
| Red | Clear PTFE/red silicone septa | 5182-3459 | |
| Clear | PTFE/silicone/PTFE septa | 5182-0566 | |
| Blue | PTFE/silicone septa | 5182-0541 | |
| Clear | Pre-slit PTFE/silicone septa | 5183-4511 | |
| Clear | Solid polyethylene membrane septa | 5182-0542 | |
| Clear | PTFE septa | 5182-0540 | |



Snap caps with septa

Snap Top Vial Convenience Packs

| Vial Type | Septa Type | Cap Color | 500/pk |
|--------------------------|-----------------------|---------------------|-----------|
| Clear | PTFE/red rubber septa | Clear polypropylene | 5182-0547 |
| Clear with write-on spot | PTFE/red rubber septa | Clear polypropylene | 5190-2240 |
| Amber | PTFE/red rubber septa | Clear polypropylene | 5182-0548 |



Crimp top vial, high recovery, 5182-3454

Specialty Vials and Closures

High Recovery Glass Vials

Wide opening, 1.5 mL vials with 30 μ L reservoir are for sample concentration and injection without transferring to microvolume inserts.

1.5 mL Wide Opening High Recovery Glass Vials

| Vial Type | Unit | Screw Top | Crimp Top | Snap Top |
|------------------|--------|-----------|-----------|-----------|
| Clear | 100/pk | 5183-2030 | 5182-3454 | 5183-4510 |
| Clear, silanized | 100/pk | | 5183-4497 | |
| Amber | 100/pk | 5183-2073 | | |



Micro-V Vial, snap top, 5184-3552

Micro-V Vials

- Wide opening, 1.5 mL vials with low residual volume
- Made from first hydrolytical glass Type 1
- Standard 12 x 32 mm dimension
- Compatible with 11 mm crimp closures
- Lower cost alternative to high recovery vials

Micro-V Vials

| Description | Unit | Screw Top | Crimp Top | Snap Top |
|-------------|--------|-----------|-----------|-----------|
| Clear | 100/pk | 5184-3550 | 5184-3551 | 5184-3552 |
| Amber | 100/pk | 5184-3554 | 5184-3555 | 5184-3556 |

Standard Opening Screw Top Vials, Closures and Inserts

The original, smaller opening vials with an 8-425 thread-size screw cap are available with black caps and a variety of septa to meet the needs of your application.

- 2 mL, 12 x 32 mm, 8 mm diameter
- 8-425 thread design
- Original, standard neck size



Screw top vials, closures and inserts

2 mL Standard Opening (8 mm) Screw Top Glass Vials

| Description | Unit | Part No. |
|-------------------------------|--------|-----------|
| Clear | 100/pk | 5183-4428 |
| Amber | 100/pk | 5183-4429 |
| Clear, PTFE-lined storage cap | 100/pk | 5183-4518 |
| Deactivated Vials | | |
| Clear | 100/pk | 5183-4432 |
| Amber | 100/pk | 5183-4433 |

Screw Caps and Septa for Standard Opening (8 mm) Vials

| Cap Color | Septa Type | Unit | Part No. |
|------------|--|--------|-----------|
| Black | Red PTFE/white silicone | 100/pk | 5183-4442 |
| Black | No septa | 100/pk | 5183-4438 |
| Septa only | Red PTFE/white silicone/red PTFE, 8 mm | 100/pk | 5183-4436 |
| Septa only | Red PTFE/white silicone, 8 mm | 100/pk | 5183-4437 |
| Septa only | PTFE-coated butyl rubber | 500/pk | 9301-1130 |



8-425 screw top vials

Microvolume Inserts for Standard Opening (8 mm) Vials

| Description | Unit | Part No. |
|---|--------|-----------|
| Conical Inserts with Polymer Feet | | |
| 150 μ L glass inserts with polymer feet | 100/pk | 5183-2088 |
| Conical Glass Inserts | | |
| 150 μ L pulled-point interior glass inserts | 100/pk | 5183-2089 |
| Flat Bottom Inserts | | |
| 200 μ L glass flat bottom inserts | 100/pk | 5183-2090 |



4 mL screw top vials

4 mL (13 mm) Screw Top Vials and Closures

- 4 mL, 15 x 45 mm
- Precision-formed screw threads (13 x 425) for consistently secure seal
- Can be used as wash, waste, or storage vials

4 mL (13 mm) Screw Top Glass Vials

| Description | Unit | Part No. |
|--------------------------|--------|-----------|
| Clear | 100/pk | 5183-4448 |
| Clear with write-on spot | 100/pk | 5067-0246 |
| Amber | 100/pk | 5183-4450 |
| Amber with write-on spot | 100/pk | 5067-0247 |



Caps and Septa for 4 mL (13 mm) Vials

Caps and Septa for 4 mL (13 mm) Vials

| Description | Unit | Part No. |
|---|---------|-------------|
| Black 13 x 425 caps, PTFE/silicone septa | 100/pk | 5183-4464 |
| Black 13 x 425 open top screw caps | 100/pk | 5183-4461 |
| Diffusion inserts used with black open top screw caps | 12/pk | 07673-40180 |
| PTFE/natural rubber septa | 144/pk | 9301-1031 |
| Red PTFE/white silicone septa | 100/pk | 5183-4460 |
| White virgin PTFE septa | 1000/pk | 5183-4459 |

4 mL (13 mm) Screw Top Convenience Packs

| Description | Unit | Part No. |
|---|--------|-----------|
| Clear vials with caps (no septa) | 144/pk | 9301-0723 |
| 4 mL wash vials with fill markings and caps | 25/pk | 5182-0551 |

General Purpose Sample Storage Vial and Caps

Agilent caps and vials are ideal for sampling and storage. Caps are lined with PTFE/silicone for excellent sealability and chemical resistance. All caps include bonded septa that will prevent liner fallout during shipping and sampling. Caps are manufactured of high quality materials to eliminate sample contamination.



Sample vial pack

General Purpose Sample Storage Vial Kits

| Vial Size | Cap Size | Vial Type | Unit | Closed Top | Open Top |
|----------------|----------|-----------|--------|------------|-----------|
| 4 mL, 15 x 45 | 13-425 | Clear | 100/pk | 5183-4311 | 5183-4331 |
| | | Amber | 100/pk | 5183-4321 | |
| 12 mL, 19 x 65 | 15-425 | Clear | 100/pk | 5183-4312 | 5183-4332 |
| | | Amber | 100/pk | 5183-4322 | |
| 22 mL, 23 x 85 | 20-400 | Clear | 100/pk | 5183-4313 | 5183-4333 |
| | | Amber | 100/pk | 5183-4323 | |
| 40 mL, 28 x 95 | 24-414 | Clear | 100/pk | 5183-4314 | 5183-4334 |
| | | Amber | 100/pk | 5183-4324 | |

Bonded Caps

| Cap Size | Cap Color | Cap Type | Septa Type | Unit | Closed Top | Open Top |
|----------|-----------|---------------|---------------------|--------|------------|-----------|
| 13-425 | White | Polypropylene | PTFE/silicone liner | 100/pk | 5183-4301 | 5183-4305 |
| 15-425 | White | Polypropylene | PTFE/silicone liner | 100/pk | 5183-4302 | 5183-4306 |
| 20-400 | White | Polypropylene | PTFE/silicone liner | 100/pk | 5183-4303 | 5183-4307 |
| 24-414 | White | Polypropylene | PTFE/silicone liner | 100/pk | 5183-4304 | 5183-4308 |



Sample storage vial kit, 5183-4324

Crimping and Decapping Tools

Electronic Crimpers and Decappers

Designed to replace awkward and bulky manual crimping pliers, the Agilent electronic handheld crimpers give tight, reproducible seals every time. Adjustable, slim steel jaws fit around closely spaced vials, enabling you to crimp vials directly in crowded autosampler trays. Using the same handheld design as the crimpers, Agilent's electronic decappers remove caps instantly and are designed for laboratories that recycle or reuse vials.

- More vials crimped per battery charge – new lithium ion battery lasts three times longer
- Increased crimping speed – new model is 50% more powerful (6.4 volt battery)
- Less hand strain – lighter weight means less effort
- Improved power signal – clearly shows when battery needs recharging
- Easily used in right or left hand – display on top for easier viewing
- More efficient charging – no overheating during recharging
- Extended productivity – significantly longer motor life



11 mm electronic crimper, 5190-3188



20 mm electronic crimper, 5190-3189



11 mm electronic decapper, 5190-3190



20 mm electronic decapper, 5190-3191

Electronic Crimpers and Decappers

| Description | Part No. |
|---|-----------|
| 11 mm electronic crimper with lithium battery | 5190-3188 |
| 20 mm electronic crimper with lithium battery | 5190-3189 |
| 11 mm electronic decapper with lithium battery | 5190-3190 |
| 20 mm electronic decapper with lithium battery | 5190-3191 |
| Replacement lithium battery for crimper and decapper | 5190-3192 |
| High Power Electronic Crimping Tool with Power Supply | 5190-4061 |
| 11 mm Crimper Jaw Set for HP Electronic Crimper | 5190-4062 |
| 11 mm Decapper Jaw Set for HP Electronic Crimp tool | 5190-4063 |
| 20 mm Crimper Jaw Set | 5190-4064 |
| 20 mm Decapper Jaw Set | 5190-4065 |
| Base for Electronic Crimping Tool | 5190-4066 |
| 20 mm HP Crimping Tool and Jaw Sets Bundle | 5190-4067 |

Manual Crimpers and Decappers

Agilent's ergonomic manual crimpers and decappers remove the pain and discomfort of wrist strain with a lightweight, tailored design. Weighing 25-30% less than predecessors and eliminating sore, pinched hands, the new design dramatically improves your experience. Extensively tested with Agilent vials for optimal fit, and color-coded for ease-of-use, this tool is a necessity for every lab. The new crimpers are built for lasting performance: the 11 mm crimper will cap at least 100,000 caps and the 20 mm at least 60,000 before wear starts to impact performance.

- Comfortable, lightweight, ergonomically designed handles fit smoothly in the hand and eliminate pinching
- Top-mounted adjustment knob shows directionality for tightening/loosening
- Adjustment knob doubles as an indicator that the crimp (or decap) is complete
- Crimpers are color-coded with blue knobs and labels, decappers with orange
- Narrow jaws provide better vertical clearance over vials
- Bottom handle motion allows for better control and enhanced stability of crimping jaw
- Sturdy construction of rugged, fiber-reinforced resin with steel reinforcement in the handles



Manual Crimpers and Decappers

| Description | Part No. |
|--|-----------|
| Ergonomic manual crimper for 11 mm caps | 5040-4667 |
| Ergonomic manual decapper for 11 mm caps | 5040-4668 |
| Ergonomic manual crimper for 20 mm caps | 5040-4669 |
| Ergonomic manual decapper for 20 mm caps | 5040-4671 |



Ergonomic manual crimper, 5040-4667

CrossLab Vials and Closures

Agilent CrossLab vials and closures are thoroughly tested to ensure the highest level of quality. Additionally, CrossLab vials are designed for use in a wide range of non-Agilent GCs and LCs, including those from Bruker (formerly Varian), Dionex (now Thermo Scientific), PerkinElmer, Shimadzu, and Thermo Scientific. They are:

- Manufactured in an ISO 9001 certified facility
- Made from First Hydrolytic Type 1 Class A or Class B borosilicate glass, which conforms to US FDA, USP, and EU Pharmacopeia standards
- Protected by proprietary packaging with a crush barrier to reduce vial breakage
- Packaged in material that has been tested and selected for cleanliness
- Subjected to rigorous end-of-line sampling and quality control procedures to ensure all vials remain within specifications
- Compatible with a wide variety of autosamplers regardless of make and model



CrossLab Vials and Closures

The table below illustrates that the Agilent CrossLab vial portfolio is compatible with a wide range of HPLC and GC autosamplers.

| CrossLab Vial Compatibility | | | | | | |
|-----------------------------|------------------------------|---------------------|----------------|------------------|-----------------|-----------|
| Manufacturer | Autosampler | 8 mm Screw Top | 9 mm Screw Top | 15 x 45 mm, 4 mL | 11 mm Crimp Top | Headspace |
| Waters | 717 Plus | | | | ✓ | |
| | Acquity | ✓ | ✓ | | ✓ | |
| | Alliance 2690 | ✓ | ✓ | | | |
| | CapLC | ✓ | ✓ | | ✓ | |
| | WISP | | | ✓ | | |
| Shimadzu | AOC14/1400 | ✓ | ✓ | | ✓ | |
| | AOC-20 | | ✓ | ✓ | ✓ | |
| | AOC 88/9 | ✓ | ✓ | | ✓ | |
| | AOC-5000 | ✓ | ✓ | | ✓ | Magnetic |
| | HSS-2B/4B | | | | | ✓ |
| | LC 2010 | ✓ | ✓ | | ✓ | |
| | SIL-6A/6B/9A | With flange | | | | |
| | SIL-10A, SIL-10Ai, SIL-10AxL | ✓ | ✓ | | | |
| | SIL-HT/10ADVP | ✓ | ✓ | | ✓ | |
| Thermo Scientific | A-200S/AS 150/800/8000 | ✓ | ✓ | | ✓ | |
| | AS 3000/TRACE GC | | ✓ | | ✓ | |
| | ASI-100 | ✓ | ✓ | | ✓ | |
| | SURVEYOR LC | ✓ | ✓ | | ✓ | |
| | TriPlus | | ✓ | | ✓ | |
| | WPS-3000RS | ✓ | ✓ | | ✓ | |
| | WPS-3000SL | ✓ | ✓ | | ✓ | |
| | Bruker, Varian* | 8034/8035/8100/8200 | ✓ | ✓ | | ✓ |
| 9095/9100 | | ✓ | ✓ | | ✓ | |
| CP-8410 | | | ✓ | ✓ | ✓ | |
| Genesis | | | | | | ✓ |
| PerkinElmer | Autosystem GC/XL/AS-2000 | ✓ | ✓ | ✓ | ✓ | |
| | Clarus 500/600 | | ✓ | | ✓ | |
| | HS16/40 | | | | | ✓ |
| | Integral 4000 | ✓ | ✓ | | ✓ | |
| | ISS-100/200 | ✓ | ✓ | | ✓ | |
| | LC 600 42 vial tray | | ✓ | | | |
| | LC Plus | ✓ | ✓ | ✓ | | |
| | TurboMatrix 40/110 | | | | | ✓ |
| CTC Analytics | CombiPal | | ✓ | ✓ | ✓ | Magnetic |

*Formerly Varian systems, now Bruker products

Agilent CrossLab Vial Identification Chart with Recommended Fill Volumes

The Agilent CrossLab vial identification chart below provides a quick reference on vial dimensions, fill volumes, and Agilent CrossLab part numbers for a variety of vials, along with the recommended closures, for both HPLC and GC autosamplers.

| | Wide Opening Screw Top Vials (9 mm) | | | Narrow Opening Screw Top Vials (8 mm) | | Wide Opening Crimp Top Vials (11 mm) | | |
|--------------------------|-------------------------------------|---------------|---------------|---------------------------------------|---------------|--------------------------------------|---------------|---------------|
| | | | | | | | | |
| Dimensions: | 32 mm x 12 mm | 32 mm x 12 mm | 32 mm x 12 mm | 32 mm x 12 mm | 32 mm x 12 mm | 32 mm x 12 mm | 32 mm x 12 mm | 32 mm x 12 mm |
| Recommended Fill: | 1.7 mL | 1.3 mL | 0.3 mL | 1.5 mL | 1.7 mL | 1.3 mL | 0.3 mL | |
| Part Number: | 8010-0014 | 8010-0018 | 8010-0008 | 8010-0010 | 8010-0001 | 8010-0004 | 8010-0006 | |
| Recommended Cap*: | 8010-0086 | 8010-0086 | 8010-0086 | 8010-0061 | 8010-0050 | 8010-0050 | 8010-0050 | |

| | Wide Opening Snap Top Vials | | Micro Vials | | | Polypropylene Vials Crimp/Snap Top | | Polypropylene Vials Screw Top | | |
|--------------------------|-----------------------------|---------------|--------------|----------------|----------------|------------------------------------|---------------|-------------------------------|---------------|---------------|
| | | | | | | | | | | |
| Dimensions: | 32 mm x 12 mm | 32 mm x 12 mm | 40 mm x 7 mm | 32 mm x 5.5 mm | 32 mm x 5.5 mm | 32 mm x 12 mm | 32 mm x 12 mm | 32 mm x 12 mm | 32 mm x 12 mm | 32 mm x 12 mm |
| Recommended Fill: | 1.5 mL | 1.3 mL | 0.8 mL | 0.1 mL | 250 µL | 250 µL | 250 µL | 0.7 mL | 250 µL | 250 µL |
| Part Number: | 8010-0023 | 8010-0028 | 8010-0153 | 8010-0154 | 8010-0155 | 8010-0158 | 8010-0160 | 8010-0159 | 8010-0161 | 8010-0162 |
| Recommended Cap*: | 8010-0108 | 8010-0108 | 8010-0516 | 8010-0516 | 8010-0516 | 8010-0050 | 8010-0050 | 8010-0050 | 8010-0086 | 8010-0086 |
| | | | | | | | Glass Insert | | | Glass Insert |

| | Headspace Vials | | | | | | |
|--------------------------|-----------------|---------------|---------------|---------------|---------------|---------------|---------------|
| | | | | | | | |
| Dimensions: | 45 mm x 22 mm | 45 mm x 22 mm | 75 mm x 22 mm | 75 mm x 22 mm | 75 mm x 22 mm | 45 mm x 22 mm | 75 mm x 22 mm |
| Recommended Fill: | 10 mL | 10 mL | 20 mL | 20 mL | 20 mL | 10 mL | 20 mL |
| Part Number: | 8010-0029 | 8010-0030 | 8010-0033 | 8010-0034 | 8010-0152 | 8010-0038 | 8010-0042 |
| Recommended Cap*: | 8010-0116 | 8010-0116 | 8010-0116 | 8010-0116 | 8010-0116 | 8010-0139 | 8010-0139 |

| | Specialty Vials | | | Inserts for Wide Opening Vials (11 mm & 9 mm) | | | Inserts for Narrow Opening Vials (8 mm) | | |
|--------------------------|-----------------|---------------|---------------|---|----------------|----------------|---|----------------|----------------|
| | | | | | | | | | |
| Dimensions: | 37 mm x 22 mm | 45 mm x 15 mm | 37 mm x 22 mm | 30 mm x 5.6 mm | 31 mm x 5.6 mm | 31 mm x 5.6 mm | 28 mm x 4.8 mm | 31 mm x 4.8 mm | 31 mm x 4.8 mm |
| Recommended Fill: | 6 mL | 4 mL | 6 mL | 250 µL | 250 µL | 400 µL | 150 µL | 150 µL | 200 µL |
| Part Number: | 8010-0151 | 8010-0020 | 8010-0022 | 8010-0131 | 8010-0132 | 8010-0136 | 8010-0124 | 8010-0125 | 8010-0126 |
| Recommended Cap*: | 8010-0116 | 8010-0095 | 8010-0101 | | | | | | |

*Caps are available in a variety of colors

Vial Septum Chemical Compatibility Chart

| | PTFE | PTFE/Silicone | PTFE/ Silicone/ PTFE* | PTFE/ Red Rubber | Viton | PTFE/Butyl |
|---|------|---------------|-----------------------------|---------------------|-------|------------|
| Acetonitrile | ✓ | ✓ | ✓ | ✓ | | ✓ |
| Hydrocarbons (hexane, heptane, methane) | ✓ | | ✓ | ✓ | ✓ | |
| Methanol | ✓ | ✓ | ✓ | ✓ | | ✓ |
| Benzene | ✓ | | ✓ | | ✓ | |
| THF | ✓ | | ✓ | | | |
| Toluene | ✓ | | ✓ | | | |
| DMF | ✓ | ✓ | ✓ | | | ✓ |
| DMSO | ✓ | ✓ | ✓ | | | ✓ |
| Ether | ✓ | ✓ | ✓ | | | |
| Chlorinated Solvents (methylene chloride) | ✓ | | ✓ | | ✓ | |
| Alcohols (ethanol) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Acetic Acid | ✓ | ✓ | ✓ | | | ✓ |
| Acetone | ✓ | ✓ | ✓ | | | |
| Phenol | ✓ | ✓ | ✓ | | ✓ | ✓ |
| Cyclohexane | ✓ | | ✓ | ✓ | ✓ | |

*PTFE/silicone/PTFE has the same chemical compatibility of PTFE ONLY UNTIL PUNCTURED

Agilent provides this septa compatibility information as a guide and starting reference point. We realize that chemical compatibility can vary depending on the concentration of the solvent, temperature, molecular weight of the solvent, and other factors. Therefore, it is always recommended that you try a variety of septa to determine the best one for your analysis.

Vial Cap and Septum Compatibility

| | Thin PTFE | PTFE/ Silicone* | PTFE/ Silicone/ PTFE* | PTFE/ Red Rubber | Viton | Butyl | High Performance Septa |
|--------------------------------|---|---|--|--|---|--|---|
| Temperature range | Up to 260 °C | -40 °C to 200 °C | -40 °C to 200 °C | -40 °C to 90 °C | -40 °C to 260 °C | -50 °C to 150 °C | Up to 300 °C for up to 1 hour |
| Use for multiple injections | No | Yes | Yes | No | No | No | Yes |
| Price | Very economical | Economical | Most expensive | Very economical | Economical | Economical | More expensive |
| Resistance to coring | None | Excellent | Excellent | None | None | None | Excellent |
| Recommended for storage | No | Yes | Yes | No | No | No | No |
| Best for | Superior chemical inertness, short cycle times, and single injections | Most common HPLC and GC analyses, not as resistant to coring as P/S/P | Superior performance for ultra trace analysis, repeat injections, internal standards | Chlorosilanes, more economical option for single injections | Chlorinated solvents, higher temperatures | Organic solvents, acetic acids; impermeable to gases | High temperature headspace applications |

*Agilent CrossLab silicone is platinum cured (versus peroxide cured), making it more inert and less likely to interact with samples

To obtain an optimal fit and seal of any vial and closure, we strongly recommend buying an entire CrossLab vial assembly (including a vial, cap, and septum, as well as a vial insert if needed). Please avoid mixing and matching any CrossLab vials with any other brand of closures, or any CrossLab closures with any other brand of vials.



Headspace crimp top vials, 8010-0029

CrossLab Headspace Vials and Closures

- Choice of crimp or screw top vials
- Bevelled top for maximum secure seal
- Choice of a pressure safety release cap at 45 psi
- Available in flat or rounded bottom designs
- New high performance septa designed for temperatures up to 300 °C

Headspace Crimp Top Glass Vials

| Description | Unit | Flat Bottom CrossLab Part No. | Rounded Bottom CrossLab Part No. |
|--|---------|-------------------------------------|--|
| 10 mL Headspace Crimp Top Glass Vials | | | |
| Clear | 100/pk | 8010-0029 | 8010-0030 |
| | 1000/cs | 8010-0179 | |
| Amber, flat bottom | 100/pk | 8010-0031 | 8010-0032 |
| 20 mL Headspace Crimp Top Glass Vials | | | |
| Clear, flat bottom | 100/pk | 8010-0033 | 8010-0034 |
| | 1000/cs | 8010-0180 | |
| Amber, flat bottom | 100/pk | 8010-0035 | 8010-0036 |



Headspace crimp top glass vials, 8010-0033

Headspace Screw Top Glass Vials

| Description | Unit | Rounded Bottom CrossLab Part No. |
|--|--------|--|
| 10 mL Headspace Screw Top Glass Vials | | |
| Clear, flat bottom | 100/pk | 8010-0038 |
| Amber, flat bottom | 100/pk | 8010-0040 |
| 20 mL Headspace Screw Top Glass Vials | | |
| Clear, flat bottom | 100/pk | 8010-0042 |
| Amber, flat bottom | 100/pk | 8010-0044 |

To obtain an optimal fit and seal of any vial and closure, we strongly recommend buying an entire CrossLab vial assembly (including a vial, cap, and septum, as well as a vial insert if needed). Please avoid mixing and matching any CrossLab vials with any other brand of closures, or any CrossLab closures with any other brand of vials.

22 mL Headspace Crimp Top Glass Vials

| Description | Unit | Agilent CrossLab Part No. |
|-------------|--------|---------------------------|
| Clear | 100/pk | 8010-0152 |

Use 20 mm crimp caps with 6 mL and 22 mL headspace vials

6 mL Headspace Crimp Top Glass Vials

| Description | Unit | Agilent CrossLab Part No. |
|-------------|--------|---------------------------|
| Clear | 100/pk | 8010-0151 |

Use 20 mm crimp caps with 6 mL headspace vials

TIPS & TOOLS

Many Agilent CrossLab vials are printed with graduation marks and write-on spots. Barcoding labels are also available for regular temperature and high temperature headspace applications.

**NEW! High Performance Septa**

The first septa that can withstand extreme temperatures and conditions for today's demanding headspace applications.

- Proven to withstand temperatures up to 300 °C for one hour with minimal degradation
- Leak proof
- Available in your choice of crimp or screw
- Compatible with all common headspace solvents including DMSO, DMF, Toluene, and Water
- Fits PerkinElmer and other headspace autosamplers



Headspace aluminum crimp caps with PTFE/silicone septa, 8010-0144

Headspace Caps and Septa

| Cap Color | Septa Type | Unit | Agilent CrossLab Part No. |
|---|---------------------|---------|---------------------------|
| 20 mm Headspace Crimp Caps and Septa | | | |
| Silver aluminum | Tan PTFE/silicone | 100/pk | 8010-0116 |
| | Tan PTFE/silicone | 1000/pk | 8010-0191 |
| | Gray PTFE/butyl | 100/pk | 8010-0117 |
| | No septa | 100/pk | 8010-0120 |
| Silver aluminum with safety feature | PTFE/butyl | 100/pk | 8010-0143 |
| | PTFE/silicone | 100/pk | 8010-0144 |
| Silver, magnetic | Tan PTFE/silicone | 100/pk | 8010-0165 |
| Bimetal, magnetic | PTFE/silicone | 100/pk | 8010-0420 |
| Steel | High performance | 100/pk | 8010-0429* |
| Steel, magnetic | PTFE/silicone | 100/pk | 8010-0424** |
| Septa only | Gray PTFE/butyl | 100/pk | 8010-0121 |
| | Tan PTFE/silicone | 100/pk | 8010-0122 |
| | PTFE/white silicone | 1000/pk | 8010-0192 |
| 18 mm Headspace Screw Caps and Septa | | | |
| Silver, magnetic | Tan PTFE/silicone | 100/pk | 8010-0119 |
| | PTFE/silicone | 100/pk | 8010-0139*** |
| | PTFE/butyl | 100/pk | 8010-0140 |
| Steel | High performance | 100/pk | 8010-0428* |
| Septa only | Blue PTFE/silicone | 1000/pk | 8010-0418 |

*Recommended for high temperature applications up to 300 °C for up to one hour

**5.0 mm opening, suitable for SPME applications

***This cap is suitable for use in SPME applications

Headspace Vial Convenience Packs

| Vial Type | Septa Type | Cap Color | Unit | Agilent CrossLab Part No. |
|---|---------------|------------------|--------|---------------------------|
| 10 mL, crimp top, clear, flat bottom | PTFE/silicone | Silver, aluminum | 100/pk | 8010-0412 |
| 20 mL, crimp top, clear, flat bottom | PTFE/silicone | Silver, aluminum | 100/pk | 8010-0413 |
| 20 mL, screw top, clear, rounded bottom | PTFE/silicone | Silver, magnetic | 100/pk | 8010-0417 |


TIPS & TOOLS

For further information on High Performance Septa, turn to pages 25-26.

CrossLab Screw Top Vials and Closures

Combine the excellent autosampler handling of a crimp cap profile with the ease of a screw cap. CrossLab screw caps and precision-fit septa give a secure seal with microvolume inserts.

2 mL Wide Opening (9 mm) Screw Top Vials and Closures

- 2 mL, 12 x 32 mm, 9 mm diameter
- Available in unique packaging designed to reduce vial breakage
- Wider opening prevents syringe problems
- Unique thread design for consistently secure seal
- Precision-formed neck for optimal robotic arm handling
- Optional ceramic write-on spot with fill marks

2 mL Wide Opening (9 mm) Screw Top Glass Vials

| Description | Unit | Agilent CrossLab Part No. |
|---|---------|---------------------------|
| Clear | 100/pk | 8010-0015 |
| Clear, write-on spot | 100/pk | 8010-0014 |
| | 1000/cs | 8010-0175 |
| Amber | 100/pk | 8010-0017 |
| Amber, write-on spot | 100/pk | 8010-0016 |
| | 1000/cs | 8010-0176 |
| Screw Top Vials with Fixed Inserts | | |
| Clear, 300 µL insert volume | 100/pk | 8010-0008 |
| Amber, 300 µL insert volume | 100/pk | 8010-0009 |



Clear, 2 mL wide opening (9 mm) screw top glass vials, 8010-0015



Wide opening screw top vials with write-on spot, 8010-0014

Screw Caps for Wide Opening (9 mm) Vials

| Color | Septa Type | Unit | Agilent CrossLab Part No. |
|--------|------------------------|---------|---------------------------|
| Blue | PTFE/silicone | 100/pk | 8010-0086 |
| | PTFE/silicone/PTFE | 100/pk | 8010-0087 |
| | Pre-slit PTFE/silicone | 100/pk | 8010-0078 |
| | Bonded PTFE/silicone | 100/pk | 8010-0077 |
| | PTFE lined | 100/pk | 8010-0080 |
| | Open top, no septa | 100/pk | 8010-0079 |
| Red | PTFE/silicone | 100/pk | 8010-0088 |
| | PTFE/silicone/PTFE | 100/pk | 8010-0089 |
| | Pre-slit PTFE/silicone | 100/pk | 8010-0082 |
| | Bonded PTFE/silicone | 100/pk | 8010-0081 |
| | Open top, no septa | 100/pk | 8010-0083 |
| Orange | PTFE/silicone | 100/pk | 8010-0084 |
| | | 1000/cs | 8010-0186 |
| | PTFE/silicone/PTFE | 100/pk | 8010-0085 |
| | | 1000/cs | 8010-0187 |
| | Pre-slit PTFE/silicone | 100/pk | 8010-0075 |
| | Bonded PTFE/silicone | 100/pk | 8010-0074 |
| | Open top, no septa | 100/pk | 8010-0076 |



Orange screw caps with PTFE/silicone septa for wide opening (9 mm) vials, 8010-0084



Septa for wide opening screw caps, 8010-0094

Septa for Wide Opening (9 mm) Screw Caps

| Septa Type | Color | Unit | Agilent CrossLab Part No. |
|------------------------------|-------|---------|---------------------------|
| PTFE/red silicone | Ivory | 100/pk | 8010-0093 |
| PTFE/white silicone/red PTFE | Red | 100/pk | 8010-0091 |
| | | 1000/cs | 8010-0188 |
| Pre-slit PTFE/white silicone | Blue | 100/pk | 8010-0094 |
| PTFE/white silicone | Red | 100/pk | 8010-0092 |

2 mL Wide Opening (9 mm) Screw Top Vial Convenience Packs, 100/pk

| Vial Type | Septa Type | Cap Color | Agilent CrossLab Part No. |
|--|------------------------|-----------|---------------------------|
| Clear | Pre-slit PTFE/silicone | Red | 8010-0425 |
| Clear, write-on spot | PTFE/silicone | Orange | 8010-0198 |
| Clear, write-on spot | Pre-slit PTFE/silicone | Orange | 8010-0542 |
| Clear, write-on spot, 300 µL insert volume | PTFE/silicone | Orange | 8010-0545 |
| Clear, write-on spot, 300 µL insert volume | Pre-slit PTFE/silicone | Orange | 8010-0547 |
| Amber, write-on spot | PTFE/silicone | Orange | 8010-0199 |
| Amber, write-on spot | Pre-slit PTFE/silicone | Orange | 8010-0543 |
| Amber, write-on spot, 300 µL insert volume | PTFE/silicone | Orange | 8010-0546 |
| Amber, write-on spot, 300 µL insert volume | Pre-slit PTFE/silicone | Orange | 8010-0548 |

2 mL Standard Opening (8 mm) Screw Top Vials and Closures

- 2 mL, 12 x 32 mm, 8 mm diameter
- 8-425 thread design
- Optional ceramic write-on spot with fill marks

2 mL Standard Opening (8 mm) Screw Top Glass Vials

| Description | Unit | Agilent CrossLab Part No. |
|----------------------|--------|---------------------------|
| Clear | 100/pk | 8010-0011 |
| Clear, write-on spot | 100/pk | 8010-0010 |
| Amber | 100/pk | 8010-0013 |
| Amber, write-on spot | 100/pk | 8010-0012 |



Clear 2 mL wide opening (8 mm) screw top glass vials, 8010-0011

2 mL Standard Opening (8 mm) Screw Top Glass Vial Convenience Packs

| Vial Type | Septa Type | Cap Color | Unit | Agilent CrossLab Part No. |
|-----------------------------|---------------|-----------|--------|---------------------------|
| Clear | PTFE/silicone | Black | 100/pk | 8010-0414 |
| Clear | PTFE/butyl | Black | 100/pk | 8010-0426 |
| Clear, 100 µL insert volume | PTFE/butyl | Black | 100/pk | 8010-0427 |
| Amber | PTFE/silicone | Black | 100/pk | 8010-0415 |

Screw Caps for Standard Opening (8 mm) Vials

| Color | Septa Type | Unit | Agilent CrossLab Part No. |
|--------|------------------------|--------|---------------------------|
| Blue | PTFE/silicone | 100/pk | 8010-0061 |
| | Pre-slit PTFE/silicone | 100/pk | 8010-0062 |
| | PTFE/silicone/PTFE | 100/pk | 8010-0063 |
| | PTFE/butyl | 100/pk | 8010-0064 |
| | Open top, no septa | 100/pk | 8010-0065 |
| Red | PTFE/silicone | 100/pk | 8010-0066 |
| | Pre-slit PTFE/silicone | 100/pk | 8010-0067 |
| | PTFE/silicone/PTFE | 100/pk | 8010-0068 |
| | PTFE/butyl | 100/pk | 8010-0069 |
| | Open top, no septa | 100/pk | 8010-0070 |
| Orange | PTFE/silicone | 100/pk | 8010-0056 |
| | Pre-slit PTFE/silicone | 100/pk | 8010-0057 |
| | PTFE/silicone/PTFE | 100/pk | 8010-0058 |
| | PTFE/butyl | 100/pk | 8010-0059 |
| | Open top, no septa | 100/pk | 8010-0060 |
| Black | PTFE/silicone | 100/pk | 8010-0054 |
| | Open top, no septa | 100/pk | 8010-0055 |



Screw caps for standard opening vials, 8010-0056

Flanged Caps (Compatible with Shimadzu Autosamplers)

| | | | |
|--------|---------------------------------|--------|-----------|
| Orange | Flanged, PTFE/silicone | 100/pk | 8010-0141 |
| | Flanged, pre-slit PTFE/silicone | 100/pk | 8010-0142 |
| | Flanged, no septa | 100/pk | 8010-0166 |

Septa for Standard Opening (8 mm) Vials

| Septa Type | Unit | Agilent CrossLab Part No. |
|----------------------------------|--------|---------------------------|
| Red PTFE/white silicone/red PTFE | 100/pk | 8010-0071 |
| Red PTFE/white silicone | 100/pk | 8010-0072 |
| PTFE/butyl | 500/pk | 8010-0073 |

4 mL (13 mm) Screw Top Vials and Closures

- 4 mL, 15 x 45 mm
- Compatible with WISP 48 style autosamplers
- Precision-formed screw threads (13 x 425) for consistently secure seal
- Can be used as wash, waste, or storage vials



Black screw caps with red PTFE/silicone septa for 4 mL (13 mm) vials, 8010-0095

4 mL (13 mm) Screw Top Glass Vials

| Description | Unit | Agilent CrossLab Part No. |
|-------------|--------|---------------------------|
| Clear | 100/pk | 8010-0020 |
| Amber | 100/pk | 8010-0021 |

Screw Caps for 4 mL (13 mm) Vials

| Color | Septa Type | Unit | Agilent CrossLab Part No. |
|-------|--------------------|--------|---------------------------|
| Black | Red PTFE/silicone | 100/pk | 8010-0095 |
| | Open top, no septa | 100/pk | 8010-0096 |

Septa for 4 mL (13 mm) Vials

| Septa Type | Unit | Agilent CrossLab Part No. |
|-------------------------|--------|---------------------------|
| Red PTFE/white silicone | 100/pk | 8010-0098 |
| White PTFE | 100/pk | 8010-0099 |
| Pre-slit PTFE/silicone | 100/pk | 8010-0557 |

4 mL (13 mm) Screw Top Vial Convenience Packs, 100/pk

| Vial Type | Septa Type | Cap Color | Agilent CrossLab Part No. |
|-----------------------------|------------------------|-----------|---------------------------|
| Clear | PTFE/silicone | Black | 8010-0553 |
| Clear | Pre-slit PTFE/silicone | Black | 8010-0555 |
| Clear, 250 µL insert volume | PTFE/silicone | Black | 8010-0559 |
| Clear, 250 µL insert volume | Pre-slit PTFE/silicone | Black | 8010-0561 |
| Amber | PTFE/silicone | Black | 8010-0554 |
| Amber | Pre-slit PTFE/silicone | Black | 8010-0556 |
| Amber, 250 µL insert volume | PTFE/silicone | Black | 8010-0560 |
| Amber, 250 µL insert volume | Pre-slit PTFE/silicone | Black | 8010-0562 |



Screw caps for 6 mL (16 mm) vials

6 mL (16 mm) Screw Top Vials and Closures

6 mL (16 mm) Screw Top Glass Vials

| Description | Unit | Agilent CrossLab Part No. |
|-------------|--------|---------------------------|
| Clear | 100/pk | 8010-0022 |

Screw Caps for 6 mL (16 mm) Vials

| Septa Type | Unit | Agilent CrossLab Part No. |
|------------------------|--------|---------------------------|
| PTFE/silicone | 100/pk | 8010-0101 |
| Pre-slit PTFE/silicone | 100/pk | 8010-0102 |
| Open top, no septa | 100/pk | 8010-0100 |

10 mL (22 mm) Screw Top Vials and Closures

10 mL (22 mm) Screw Top Glass Vials

| Description | Unit | Agilent CrossLab Part No. |
|-------------|--------|---------------------------|
| Clear | 100/pk | 8010-0563 |

Screw Caps for 10 mL (22 mm) Vials

| Septa Type | Color | Unit | Agilent CrossLab Part No. |
|------------|-------|--------|---------------------------|
| No septa | Black | 100/pk | 8010-0565 |

Septa for 10 mL (22 mm) Vials

| Septa Type | Unit | Agilent CrossLab Part No. |
|---------------|--------|---------------------------|
| PTFE/silicone | 100/pk | 8010-0564 |

CrossLab Crimp Top Vials and Closures

The wide opening crimp cap provides a larger target area for improved autosampler needle accuracy. Select from a variety of cap colors and septa. Whatever your crimp top vial needs, Agilent has what you are looking for.

2 mL (11 mm) Crimp Top Vials and Closures

- 2 mL, 12 x 32 mm
- Available in unique packaging designed to reduce vial breakage
- Tightly controlled crown for improved crimping
- Precision-formed neck for improved autosampler handling
- Rigorous quality assurance provides dimensional accuracy from lot to lot
- Optional ceramic write-on spot with fill marks



Crimp top glass vials with write-on spot, 8010-0001

2 mL (11 mm) Crimp Top Glass Vials

| Description | Unit | Agilent CrossLab Part No. |
|---|---------|---------------------------|
| Clear | 100/pk | 8010-0002 |
| Clear, write-on spot | 100/pk | 8010-0001 |
| | 1000/cs | 8010-0170 |
| Amber, write-on spot | 100/pk | 8010-0003 |
| | 1000/cs | 8010-0172 |
| Crimp Top Vials with Fixed Inserts | | |
| Clear, 300 µL insert volume | 100/pk | 8010-0006 |
| Amber, 300 µL insert volume | 100/pk | 8010-0007 |

TIPS & TOOLS

Agilent offers ergonomic manual crimpers and decappers, designed to significantly reduce hand strain. Electronic versions are also available, featuring a longer life battery designed for quick, powerful use. For more information, please visit www.agilent.com/chem/crimper





Magnetic crimp caps, 8010-0052

Crimp Caps with 11 mm Septa

| Cap Color | Septa Type | Unit | Agilent CrossLab Part No. |
|-----------------|------------------------|-----------------|---------------------------|
| Silver aluminum | PTFE/silicone/PTFE | 100/pk | 8010-0049 |
| | | 1000/cs | 8010-0182 |
| | PTFE/silicone | 100/pk | 8010-0050 |
| | | 1000/cs | 8010-0183 |
| | Pre-slit PTFE/Silicone | 100/pk | 8010-0582 |
| | PTFE/butyl | 100/pk | 8010-0051 |
| | Thin membrane rubber | PTFE/red rubber | 25/pk |
| 100/pk | | | 8010-0045 |
| | | 1000/cs | 8010-0181 |
| Blue aluminum | PTFE/red rubber | 100/pk | 8010-0046 |
| Green aluminum | PTFE/red rubber | 100/pk | 8010-0047 |
| Red aluminum | PTFE/red rubber | 100/pk | 8010-0048 |
| Gold aluminum | Magnetic | 100/pk | 8010-0052 |

2 mL (11 mm) Crimp Top Vial Convenience Packs, 100/pk

| Vial Type | Septa Type | Cap Color | Agilent CrossLab Part No. |
|---|------------------------|-----------------|---------------------------|
| Clear, write-on spot | PTFE/silicone | Silver aluminum | 8010-0195 |
| Clear, write-on spot, 300 µL insert volume, conical with feet | PTFE/silicone | Silver aluminum | 8010-0566 |
| Clear, write-on spot, 300 µL insert volume, conical with feet | Pre-slit PTFE/silicone | Silver aluminum | 8010-0568 |
| Amber, write-on spot | PTFE/silicone | Silver aluminum | 8010-0196 |
| Amber, write-on spot, 300 µL insert volume, conical with feet | PTFE/silicone | Silver aluminum | 8010-0567 |
| Amber, write-on spot, 300 µL insert volume, conical with feet | Pre-slit PTFE/silicone | Silver aluminum | 8010-0569 |

TIPS & TOOLS



Red rubber septa have a tendency to cause needle sticking during sampling and are more likely to core. Agilent recommends using silicone septa as a higher quality alternative to prevent contamination and issues related to septa coring.

Crimp Top Micro Vials

Agilent CrossLab offers a selection of crimp top micro vials designed for a variety of autosamplers, including HTS and HTC PAL systems, to cope with today's high-throughput LC/MS demands. Additionally, Agilent CrossLab crimp top micro vials work seamlessly with CombiPAL and GC PAL magnetic needle guides and barcode readers.

Crimp Top Micro Vials

| Description | Volume | Unit | Agilent CrossLab Part No. |
|-----------------------|--------|---------|---------------------------|
| Amber, flat bottom | 0.8 mL | 1000/pk | 8010-0153 |
| Clear, tapered bottom | 0.1 mL | 500/pk | 8010-0154 |
| Clear, round bottom | 0.3 mL | 500/pk | 8010-0155 |



Amber, flat bottom crimp top micro vials, 8010-0153

CrossLab Snap Top Vials and Closures

Snap top vials and caps are the simple, efficient way to a secure seal without crimping. It's as easy as push-on, pull-off. Crimp caps can also be used with wide opening snap top vials.

Note: Snap cap vials cannot be pressurized.

2 mL (11 mm) Snap Top Vials and Closures

- 2 mL, 12 x 32 mm
- Use with any 11 mm snap or crimp cap
- Available in unique packaging designed to reduce vial breakage
- Precision-formed neck improves autosampler handling
- Optional ceramic write-on spot

2 mL (11 mm) Snap Top Glass Vials

| Description | Unit | Agilent CrossLab Part No. |
|----------------------|---------|---------------------------|
| Clear | 100/pk | 8010-0024 |
| Clear, write-on spot | 100/pk | 8010-0023 |
| | 1000/cs | 8010-0177 |
| Amber | 100/pk | 8010-0026 |
| Amber, write-on spot | 100/pk | 8010-0025 |
| | 1000/cs | 8010-0178 |



Snap top vials with write-on spot, 8010-0025



Snap caps with 11 mm red silicone septa, 8010-0103

Snap Caps with 11 mm Septa

| Cap Color | Septa Type | Unit | Agilent CrossLab Part No. |
|--------------|------------------------------|---------|---------------------------|
| Clear | PTFE/red silicone | 100/pk | 8010-0104 |
| | PTFE/silicone/PTFE | 100/pk | 8010-0105 |
| | Pre-slit PTFE/white silicone | 100/pk | 8010-0106 |
| | Clear polyethylene membrane | 100/pk | 8010-0107 |
| Blue | PTFE/red silicone | 100/pk | 8010-0108 |
| | PTFE/white silicone | 100/pk | 8010-0112 |
| Green | PTFE/red silicone | 100/pk | 8010-0109 |
| Orange | PTFE/red silicone | 100/pk | 8010-0103 |
| | PTFE/red silicone | 1000/cs | 8010-0189 |
| | PTFE/white silicone | 100/pk | 8010-0111 |
| | Pre-slit PTFE/white silicone | 1000/cs | 8010-0190 |
| | Pre-slit PTFE/white silicone | 100/pk | 8010-0113 |
| Red | PTFE/red silicone | 100/pk | 8010-0110 |
| Polyurethane | | 100/pk | 8010-0115 |

2 mL (11 mm) Snap Top Vial Convenience Packs

| Vial Type | Septa Type | Cap Color | Unit | Agilent CrossLab Part No. |
|----------------------|---------------|-----------|--------|---------------------------|
| Clear, write-on spot | PTFE/silicone | Orange | 100/pk | 8010-0200 |
| Amber, write-on spot | PTFE/silicone | Orange | 100/pk | 8010-0411 |

Snap Top Solvent Vial Convenience Packs

Snap Top Solvent Vial Convenience Packs

| Vial Type | Septa Type | Cap Color | Unit | Agilent CrossLab Part No. |
|---|-------------------------|-----------|--------|---------------------------------|
| 5 mL Snap Top Solvent Vial Convenience Pack | | | | |
| Clear | PTFE/silicone | Clear | 100/pk | 8010-0416 |
| 10 mL Snap Top Solvent Vial Convenience Pack | | | | |
| Clear | Red PTFE/white silicone | Clear | 100/pk | 8010-0422 |

Snap Cap for 5 mL and 10 mL Solvent Vials

| Cap Color | Septa Type | Unit | Agilent CrossLab Part No. |
|-----------|---------------|-------|---------------------------------|
| Clear | PTFE/silicone | 50/pk | 8010-0423 |

19 mm Septa for 5 mL and 10 mL Snap Caps

| Septa Type | Unit | Agilent CrossLab Part No. |
|------------|--------|---------------------------------|
| Red rubber | 100/pk | 8010-0430 |



CrossLab polypropylene vial, crimp/snap top, 8010-0158



Polypropylene vial with glass insert, 8010-0160



Clear, crimp top Micro-V vial, 8010-0004

CrossLab Polypropylene Vials

Wide opening 12 x 32 mm vials are manufactured from virgin polypropylene, meeting the requirements of 21 CFR 177.1520. Polypropylene vials are translucent and can be used with crimp or snap caps.

Polypropylene Vials

| Description | Recommended Fill Volume | Max Fill Volume | Unit | Agilent CrossLab Part No. |
|---|-------------------------|-----------------|---------|---------------------------|
| Polypropylene, crimp/snap top | 250 µL | 440 µL | 100/pk | 8010-0158 |
| Polypropylene, crimp/snap top | 250 µL | 440 µL | 1000/cs | 8010-0193 |
| Polypropylene, crimp/snap top | 0.7 mL | 1 mL | 100/pk | 8010-0159 |
| Polypropylene, screw top | 250 µL | 440 µL | 100/pk | 8010-0161 |
| Polypropylene, screw top | 250 µL | 440 µL | 1000/cs | 8010-0194 |
| Polypropylene with glass insert, crimp/snap top | 250 µL | 350 µL | 100/pk | 8010-0160 |
| Polypropylene with glass insert, screw top | 250 µL | 350 µL | 100/pk | 8010-0162 |

CrossLab Micro-V Vials

- Wide opening, 1.5 mL vials with low residual volume
- Made from first hydrolytic glass Type 1
- Standard 12 x 32 mm dimension
- Compatible with 11 mm crimp closures

Micro-V Vials

| Description | Unit | Screw Top | Crimp Top | Snap Top |
|------------------|--------|-----------|-----------|-----------|
| Clear, screw top | 100/pk | 8010-0018 | 8010-0004 | 8010-0027 |
| Amber | 100/pk | 8010-0019 | 8010-0005 | 8010-0028 |

TIPS & TOOLS



For economical and effective microsampling, choose the polypropylene vial with molded glass flanged insert. Its polypropylene body has a glass flanged insert molded to the inside, so the sample comes in contact only with the high quality glass insert and the septum.

CrossLab Microvolume Inserts

To meet your microsampling needs, Agilent offers a variety of microvolume inserts with capacities and designs that can transform your vials from full-capacity to limited volume with one simple step.

Microvolume Inserts for 8 mm Screw Top Vials

| Description | Max Fill Volume | Recommended Fill Volume | Unit | Agilent CrossLab Part No. |
|--|-----------------|-------------------------|--------|---------------------------|
| Glass conical insert with polymer feet | 200 µL | 150 µL | 100/pk | 8010-0124 |
| Glass pulled-point insert | 200 µL | 150 µL | 100/pk | 8010-0125 |
| Flat bottom insert | 250 µL | 200 µL | 100/pk | 8010-0126 |

Microvolume Inserts for 11 mm Crimp Top or 9 mm Screw Top Vials

| Description | Max Fill Volume | Recommended Fill Volume | Unit | Agilent CrossLab Part No. |
|----------------------------------|-----------------|-------------------------|--------|---------------------------|
| Conical insert with polymer feet | 350 µL | 250 µL | 100/pk | 8010-0131 |
| Pulled-point insert | 350 µL | 250 µL | 100/pk | 8010-0132 |
| Flat bottom insert | 440 µL | 400 µL | 500/pk | 8010-0136 |

Microvolume Inserts for 4 mL (13 mm) Screw Top Vials

| Description | Max Fill Volume | Recommended Fill Volume | Unit | Agilent CrossLab Part No. |
|---------------------------------|-----------------|-------------------------|--------|---------------------------|
| Pulled-point insert with flange | 350 µL | 250 µL | 100/pk | 8010-0558 |



Microvolume inserts



250 µL conical insert with polymer feet, 8010-0131



250 µL pulled-point glass insert, 8010-0132



400 µL flat bottom glass insert, 8010-0136

CrossLab Well Plates and Sealing Mats

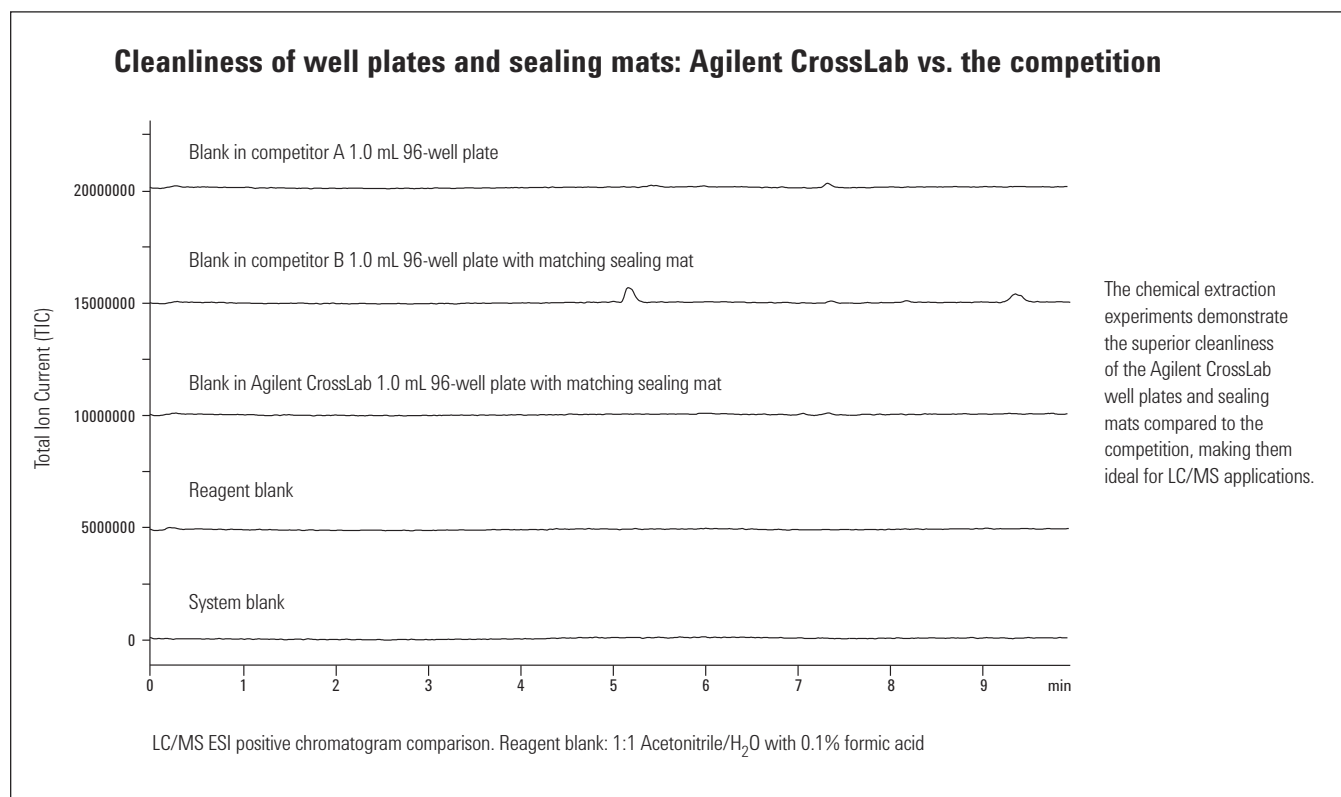
Choose the cleanest well plates and sealing mats for your autosamplers

Advantages of Agilent CrossLab well plates:

- Made from polypropylene
- Free from RNase, DNase, Endotoxins, and human DNA
- Chemically resistant to common solvents
- Autoclavable (121 °C/20 min)
- Alpha-numeric grid
- Compatible with pipetting workstations and multi-channel pipettes
- Raised rims are available with 0.5 mL and 1.0 mL deep well plates for efficient sealing and a reduced risk of cross-contamination during rigorous vortexing
- Available in 96- or 384-well plate format
- 96-well plates range from 0.2 mL to 2 mL
- 384-well plates available in 0.1 mL and 0.25 mL
- Stackable

Advantages of Agilent CrossLab sealing mats:

- Protect well contents during storage
- Free from RNase, DNase, Endotoxins, and human DNA
- Highly flexible for a tight seal and exact fit
- Insets in every well eliminate the need for glue during connection
- Pierceable with pipette tips (0.5 mL and 1.0 mL sealing mats)
- Prevent solvent evaporation
- Made from thermoplastic elastomer (TPE) or ethylene-vinyl acetate (EVA)
- Compatible with common solvents



CrossLab Well Plates and Sealing Mats

Agilent CrossLab offers a range of polypropylene 96-well or 384-well plates with a variety of sealing options for collection of samples, storage, and use in autosamplers.

Well Plates

| Description | Well Volume (mL) | Material | Plate Height (mm) | Well Depth (mm) | Well Shape | Bottom Shape | Unit | Agilent CrossLab Part No. |
|----------------|------------------|---------------|-------------------|-----------------|------------|--------------|--------|---------------------------|
| 96-well plate | 0.2 | Polypropylene | 20.9 | 20.9 | Round | Conical | 50/pk | 8010-0532 |
| 96-well plate | 0.5 | Polypropylene | 26.5 | 21.6 | Round | Round | 56/pk | 8010-0533 |
| 96-well plate | 1.0 | Polypropylene | 39.1 | 37.1 | Round | Round | 32/pk | 8010-0534 |
| 96-well plate | 2.0 | Polypropylene | 44 | 41.85 | Round | Round | 32/pk | 8010-0536 |
| 384-well plate | 0.1 | Polypropylene | 14.4 | 11.7 | Square | Round | 120/pk | 8010-0538 |
| 384-well plate | 0.25 | Polypropylene | 22 | 19.5 | Square | Round | 60/pk | 8010-0539 |

Sealing Mats and Accessories

| Description | Unit | Agilent CrossLab Part No. |
|--|--------|---------------------------|
| Sealing mat for 0.2 mL 96-well plates, Thermoplastic Elastomers (TPE) | 5/pk | 8010-0577 |
| Sealing mat for 0.5 mL and 1.0 mL 96-well plates, Thermoplastic Elastomers (TPE) | 50/pk | 8010-0535 |
| Sealing mat for 2 mL 96-well plate, Ethylene Vinyl Acetate (EVA) | 50/pk | 8010-0537 |
| Sealing tape for 384-well plate, polyethylene | 100/pk | 8010-0540 |
| Sealing foil, self adhesive, high transparency, for all plates, Polyethylene terephthalate (PET) | 100/pk | 8010-0541 |
| Sealing foil, self adhesive, for all plates, Polypropylene | 100/pk | 8010-0578 |



96-well plate, 8010-0534



96-well plate with removable sealing mat, 8010-0534



Sealing mat for 2 mL 96-well plate, (EVA), 8010-0537

CrossLab Vials Cross Reference List

The cross references to the original equipment manufacturer (OEM) part numbers listed here serve as a recommendation that the CrossLab products are viable alternatives to OEM products. CrossLab products are compatible with the corresponding OEM instruments, although in some cases, the CrossLab products may have slightly different designs as compared to the OEM counterparts.

CrossLab Vials for Bruker/Varian

| Similar to Bruker/Varian Part No. | Agilent CrossLab Part No. |
|-----------------------------------|---------------------------|
| 392611525 | 8010-0195 |
| 392611530 | 8010-0414 |
| 392611549 | 8010-0198 |
| 392611550 | 8010-0199 |
| 392611593 | 8010-0125 |
| 190010204 | 8010-0131 |
| 392611594 | |
| 392620538 | |
| 392611596 | 8010-0132 |
| 392611636 | |
| 392611607 | 8010-0143 |
| 392611607 | 8010-0413 |
| 392611613 | 8010-0142 |
| 392611613 | 8010-0412 |
| 392611631 | 8010-0050 |
| 392611632 | 8010-0051 |
| 390886500 | 8010-0002 |
| 392611634 | |
| 392611639 | 8010-0011 |
| 392620550 | |
| CP10271 | |
| 392611640 | 8010-0013 |
| 392611641 | 8010-0056 |
| 392611641 | 8010-0061 |
| 392611645 | 8010-0064 |
| 392611641 | 8010-0066 |
| 392611645 | 8010-0059 |
| 392611645 | 8010-0069 |
| 392611646 | 8010-0015 |
| 392611653 | |
| 392611654 | 8010-0017 |

(Continued)

CrossLab Vials for Bruker/Varian

| Similar to Bruker/Varian Part No. | Agilent CrossLab Part No. |
|-----------------------------------|---------------------------|
| 392611659 | 8010-0084 |
| 392611659 | 8010-0086 |
| 392611659 | 8010-0088 |
| 392611667 | 8010-0159 |
| 392611675 | 8010-0034 |
| 392612021 | |
| MLA202100 | |
| 392611857 | 8010-0151 |
| 392610003 | 8010-0116 |
| 392611858 | |
| ROK7382420 | |
| 392611859 | 8010-0121 |
| 392611871 | 8010-0108 |
| 392611970 | 8010-0416 |
| 392611974 | |
| 392611975 | |
| 392611980 | |
| 392611981 | |
| 392611982 | |
| 392620104 | 8010-0040 |
| 392620202 | 8010-0042 |
| 392620204 | 8010-0044 |
| 392620302 | 8010-0139 |
| 392620304 | |
| 392620306 | 8010-0140 |
| 392620401 | 8010-0417 |
| 392620403 | |
| 392620500 | 8010-0175 |
| CPLC40111B | |
| CPLC40111R | |
| 190010209 | 8010-0092 |
| 392620510 | |

(Continued)

CrossLab Vials for Bruker/Varian

| Similar to Bruker/Varian Part No. | Agilent CrossLab Part No. |
|-----------------------------------|---------------------------|
| 190010209 | 8010-0093 |
| 392620510 | |
| 392620514 | 8010-0008 |
| 392620517 | 8010-0170 |
| 392620526 | 8010-0032 |
| 392620528 | 8010-0036 |
| 1600069800 | 8010-0070 |
| 390614901 | 8010-0072 |
| 6900016900 | |
| R005486RT1 | |
| CP10204 | 8010-0029 |
| CP10205 | 8010-0033 |
| CP10277 | 8010-0020 |
| CP741315 | 8010-0038 |
| CP913323 | |
| CP912446 | 8010-0418 |
| CP913077 | |
| CP959464 | 8010-0420 |
| CP959485 | 8010-0155 |
| 39260500 | 8010-0014 |
| CPLC40111B | |
| CPLC40111R | |
| CPLCL07CPVA | 8010-0172 |
| CPLCL11ACBST144 | 8010-0183 |
| MLA110040M | 8010-0152 |
| 392611860 | 8010-0165 |
| 392612017 | |
| MLA2000051ML | |
| MLA21000 | 8010-0030 |
| R000548SCY | 8010-0160 |

CrossLab Vials for PerkinElmer

| Similar to PerkinElmer Part No. | Agilent CrossLab Part No. |
|---------------------------------|---------------------------|
| B0104239 | 8010-0143 |
| B0104241 | 8010-0144 |
| B4000022 | 8010-0122 |
| B4000025 | 8010-0121 |
| N6356478 | 8010-0030 |
| N6356479 | 8010-0038 |
| N9300500 | 8010-0195 |
| N9300700 | 8010-0198 |
| N9301385 | 8010-0002 |
| N9302680 | 8010-0003 |
| N9302684 | 8010-0047 |
| N9302685 | 8010-0048 |
| N9302686 | 8010-0046 |
| N9303416 | 8010-0106 |
| N9303416 | 8010-0113 |
| N9303417 | 8010-0105 |
| N9303417 | 8010-0112 |
| N9303418 | 8010-0024 |
| N9303419 | 8010-0104 |
| N9303419 | 8010-0111 |
| N9303441 | 8010-0055 |
| N9303442 | 8010-0073 |
| N9303992 | 8010-0413 |
| N9306015 | 8010-0051 |
| N9306052 | 8010-0054 |
| N9306075 | 8010-0042 |
| N9306077 | 8010-0119 |
| N9306079 | 8010-0034 |
| N9306201 | 8010-0015 |
| N9306202 | 8010-0086 |
| N9306207 | 8010-0023 |
| N9306208 | 8010-0025 |
| N9306220 | 8010-0017 |
| N9306228 | 8010-0050 |
| N9306229 | 8010-0049 |
| N9306240 | 8010-0152 |
| N9306247 | 8010-0020 |

CrossLab Vials for Shimadzu

| Similar to Shimadzu Part No. | Agilent CrossLab Part No. |
|------------------------------|---------------------------|
| 038-00165-06 | 8010-0011 |
| 220-90384-00 | 8010-0055 |
| 220-90393-00 | 8010-0020 |
| 220-90394-00 | 8010-0096 |
| 220-91521-14 | 8010-0095 |
| 220-94562-00 | 8010-0412 |
| 220-94563-00 | 8010-0413 |
| 220-94796-01 | 8010-0042 |
| 220-94796-02 | 8010-0119 |
| 220-94796-07 | 8010-0038 |
| 221-34271-92 | 8010-0054 |
| 221-34271-92 | 8010-0056 |
| 221-34271-92 | 8010-0072 |
| 228-21290-91 | 8010-0098 |
| 228-45450-91 | 8010-0198 |
| 228-45452-91 | 8010-0199 |

CrossLab Vials for Thermo Scientific

| Similar to Thermo Scientific Part No. | Agilent CrossLab Part No. |
|---------------------------------------|---------------------------|
| 60180-507 | 8010-0008 |
| 10-800-247 | 8010-0038 |
| 14-824-365 | 8010-0042 |
| 60180-502 | 8010-0001 |
| C4011-1W | |
| 2-CV | |
| 11 09 0476 | |
| 60180-504 | 8010-0030 |
| 10-800-246 | |
| 60180-505 | 8010-0032 |
| 14-824-360 | |
| 60180-506 | 8010-0034 |
| 60180-507 | 8010-0008 |
| 60180-508 | 8010-0010 |
| 60180-509 | 8010-0014 |
| C4000-1W | |
| 2SVW | |
| 11 09 0519 | |

(Continued)

CrossLab Vials for Thermo Scientific

| Similar to Thermo Scientific Part No. | Agilent CrossLab Part No. |
|---------------------------------------|---------------------------|
| 60180-510 | 8010-0020 |
| C4015-1 | |
| 4-SV | |
| 13 09 0222 | |
| 60180-511 | 8010-0116 |
| 60180-513 | 8010-0117 |
| 60180-514 | 8010-0055 |
| 60180-514 | 8010-0060 |
| 60180-514 | 8010-0065 |
| 60180-514 | 8010-0070 |
| 60180-515 | 8010-0061 |
| 60180-516 | 8010-0086 |
| 60180-521 | 8010-0122 |
| 60180-522 | |
| 60180-526 | 8010-0046 |
| 60180-560 | 8010-0012 |
| 60180-561 | 8010-0016 |
| C4000-2W | |
| 2SVW(A) | |
| 11 09 0520 | |
| 60180-562 | 8010-0066 |
| 60180-597 | 8010-0195 |
| 60180-599 | 8010-0198 |
| 60180-713 | 8010-0112 |
| C4013-98Y | 8010-0166 |

CrossLab Vials for Waters

| Similar to Waters Part No. | Agilent CrossLab Part No. |
|----------------------------|---------------------------|
| 186000842 | 8010-0557 |
| 186001420 | 8010-0563 |
| 186001421 | 8010-0565 |
| 186001422 | 8010-0564 |
| 186000307C | 8010-0542 |
| 186000838C | 8010-0553 |
| 186000839C | 8010-0555 |
| 186000847C | 8010-0543 |
| 186001133C | 8010-0554 |
| 186001134C | 8010-0556 |
| WAT025053C | 8010-0575 |
| WAT025054C | 8010-0574 |

Agilent Syringes

With a broad selection of syringes for manual and auto injectors, Agilent has what you need for accurate and effective sampling.

Whether you need an autosampler or manual syringe, there are two keys to choosing the right syringe – identifying your sample type and establishing the smallest volume to be dispensed or injected. Agilent offers two varieties of syringes.

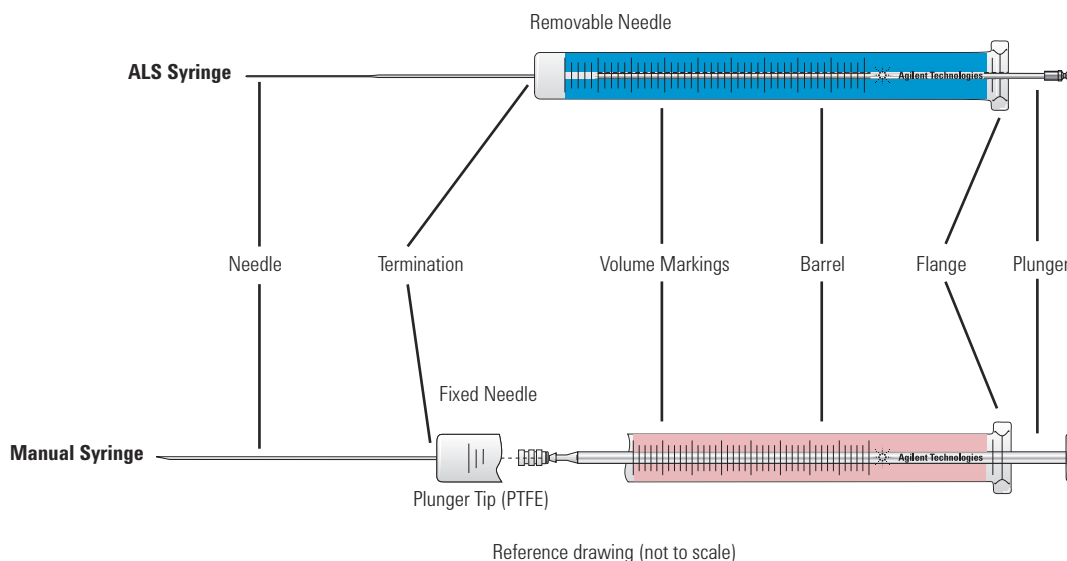
PTFE-Tipped Syringes for Gases and Liquids

PTFE-tipped syringes have a precision-machined plunger tip that forms a tight seal and enables the tip to wipe the barrel's interior free of sample during operation. This feature is particularly useful for viscous or heterogeneous samples, because it reduces deposits that can cause the plunger to freeze. Replacement plunger assemblies are available for most PTFE-tipped syringes.

Fitted Plunger Syringes for Liquids

Fitted plunger syringes feature a stainless steel plunger that is meticulously hand-fitted to its matching glass barrel, creating a liquid-tight seal. These syringes are ideal for homogenous samples that are not prone to precipitation or bonding with glass. **Note:** plungers cannot be interchanged or replaced if damaged.

Syringe Features



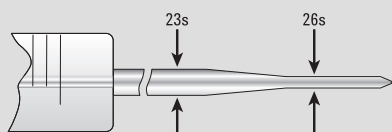
Needle Gauge

Needle gauge is the thickness of the needle. The gauge depends on the injector. When selecting a needle gauge, it is important to keep in mind the volume of the syringe and the dead volume of the needle. Refer to the chart below to choose a needle gauge with an appropriate dimension before selecting a needle.



Typical Needle Gauge Dimensions

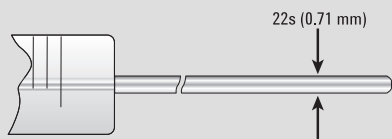
| Gauge | OD | | ID | |
|-------|-------|--------|------|--------|
| | mm | inches | mm | inches |
| 22 | 0.71 | 0.028 | 0.41 | 0.016 |
| 23s | 0.635 | 0.025 | 0.11 | 0.0045 |
| 25 | 0.50 | 0.020 | 0.20 | 0.008 |
| 26s | 0.47 | 0.0184 | 0.11 | 0.0045 |



Tapered Dual Gauge 23-26 or 23s-26s (0.64-0.47 mm)

Durability of a 23-gauge

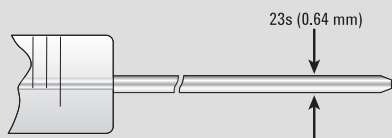
Versatility of a 26-gauge for split/splitless and on-column injection



Single Gauge 22 (0.71 mm)

HPLC valves

Pipetting liquids

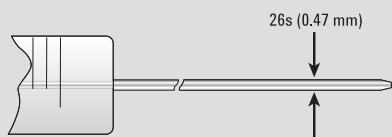


Single Gauge 23 or 23s (0.64 mm)

Merlin Microseal septa

Packed column injector ports

Split/splitless injector ports



Single Gauge 26 or 26s (0.47 mm)

Packed column injector ports

Split/splitless injector ports

Note: Needles with an 'S' following the gauge are more durable, with a thicker needle wall and smaller id bore.

Needle Termination

Needle terminations are available in fixed or removable, with various tip styles:

- **Fixed (cemented)** – Economical, reproducible injections for autosamplers
- **Removable needle** – One syringe fixed – many methods, simplicity of fixed needle, but needle can be replaced if damaged or clogged
- **Luer tip** – Easy, fast needle replacement, syringe filter or pump priming, Luer tip is ground glass suitable for mounting chromatographic or PTFE needles, syringes can be autoclaved (without plunger or needle)
- **Luer Lok** – Security of a locked needle, syringe filter or pump priming, PTFE, male Luer taper with nickel-plated brass locking hub for use with KEL-F or metal hub needles and universal connectors

Needle Tip Design



HP Tip
(also referred to as
Cone or Point Style AS)

Proprietary design required for Agilent autosamplers for optimal performance and reliability by reducing septum coring.



Bevel Tip
(Point Style 2, BV)

General purpose; excellent choice for transferring liquids from ampoules or vials. For manual GC injections, a beveled tip is preferred for optimum septum penetration and to prevent septum coring.



LC Tip
(Point Style 3)

For HPLC injections and sample pipetting, the blunt tip style 3 is preferred. The blunt tip has chamfered and polished edges that eliminate damage to the valve's rotor seal and stator face. This style can also be used for pipetting liquids.



Side Hole
(Point Style 5)

Recommended for thin gauged septa or large volume injections.

Autosampler Syringes

Premium autosampler syringes optimize system productivity and ensure precise sample handling

Agilent Blue Line Autosampler Syringes for 7693A ALS

Agilent blue line autosampler syringes are specifically designed to support the higher productivity features of the 7693A ALS, while increasing plunger life and reducing costly downtime. Backed by over 40 years of chromatography experience, these meticulously crafted syringes offer:

- Wider range of volumes including exclusive 250 and 500 μL syringes for sample enhancement with the new 7693A
- Precise match with your autosampler's stroking mechanism, resulting in more accurate volume delivered
- Smooth needle that reduces septum coring and keeps your system working at its full potential
- Choice of PTFE-tipped or metal fitted plunger to meet application needs
- Easy-open, environmentally friendly packaging
- Certified compliance with strict Agilent specifications



Blue line autosampler syringe shown in 7693A ALS, G4513-80204

TIPS & TOOLS

Order your free GC troubleshooting and GC column installation posters at www.agilent.com/chem/GCposteroffer



Blue Line Autosampler Syringes with Fitted Plungers

Fitted plunger syringes are recommended for homogeneous liquid samples. Each fitted syringe is individually matched with the plunger for precision injection. Plungers are not interchangeable or replaceable.



Blue line autosampler syringe, G4513-80205



Blue line autosampler syringe, G4513-80204

Blue Line Autosampler Syringes with Fitted Plungers

| Volume (µL) | Description | Unit | Needle Gauge/Length (mm)/Tip | Part No. |
|-------------|----------------------------|------|------------------------------|-------------|
| 1 | Plunger in needle, fixed | | 23/42/cone tipped | G4513-80229 |
| | Replacement needle/plunger | | | G4513-80240 |
| 2 | Plunger in needle, fixed | | 23/42/cone tipped | G4513-80215 |
| | Replacement needle/plunger | | | G4513-80239 |
| 5 | Straight, fixed | | 23/42/HP | G4513-80213 |
| | Straight, fixed | 6/pk | 23/42/HP | G4513-80205 |
| | Straight, fixed | | 26s/42/HP | G4513-80226 |
| | Straight, fixed | 6/pk | 26s/42/HP | G4513-80212 |
| | Tapered, fixed | | 23-26s/42/HP | G4513-80206 |
| | Tapered, fixed | 6/pk | 23-26s/42/HP | G4513-80201 |
| | Straight, removable | | 23/42/HP | G4513-80234 |
| | Replacement needle | 3/pk | 23/42/HP | G4513-80236 |
| | Tapered, removable | | 23-26s/42/HP | G4513-80224 |
| | Replacement needle | 3/pk | 23-26/42/HP | G4513-80225 |
| 10 | Straight, fixed | | 23/42/HP | G4513-80209 |
| | Straight, fixed | 6/pk | 23/42/HP | G4513-80202 |
| | Straight, fixed | | 26s/42/HP | G4513-80216 |
| | Straight, fixed | 6/pk | 26s/42/HP | G4513-80211 |
| | Tapered, fixed | | 23-26s/42/HP | G4513-80204 |
| | Tapered, fixed | 6/pk | 23-26s/42/HP | G4513-80200 |
| | Straight, removable | | 23/42/HP | G4513-80235 |
| | Replacement needle | 3/pk | 23/42/HP | G4513-80236 |
| | Removable | | 23-26s/42/HP | G4513-80218 |
| | Replacement needle | 3/pk | 23-26/42/HP | G4513-80225 |
| 25 | Tapered, fixed | | 23-26/42/HP | G4513-80242 |
| 50 | Tapered, fixed | | 23-26/42/HP | G4513-80244 |
| 100 | Tapered, fixed | | 23-26/42/HP | G4513-80243 |

Blue Line Autosampler Syringes with PTFE-Tipped Plungers

Suitable for gas and liquid samples, the PTFE tip of the plunger creates a tight seal between the plunger and glass, helping to reduce carry-over and increase syringe lifetime. Replacement plungers are available.

Blue Line Autosampler Syringes with PTFE-Tipped Plungers

| Volume (µL) | Description | Unit | Needle Gauge/ Length (mm)/Tip | Part No. |
|-------------|--------------------------------------|------|----------------------------------|--------------|
| 10 | Straight, fixed | | 23/42/HP | G4513-80220 |
| | Straight, fixed | 6/pk | 23/42/HP | G4513-80210 |
| | Tapered, fixed | | 23-26/42/HP | G4513-80203* |
| | Replacement plunger for fixed needle | | | G4513-80227 |
| | Tapered, fixed | 6/pk | 23-26s/42/HP | G4513-80208 |
| | Straight, removable | | 23/42/HP | G4513-80219 |
| | Replacement needle | 3/pk | 23/42/HP | G4513-80236 |
| | Tapered, removable | | 23-26/42/HP | G4513-80233 |
| | Replacement needle | 3/pk | 23-26/42/HP | G4513-80225 |
| 25 | Straight, fixed | | 23/42/HP | G4513-80228 |
| | Tapered, fixed | | 23-26/42/HP | G4513-80241 |
| 50 | Straight, fixed | | 23/42/HP | G4513-80221 |
| | Tapered, fixed | | 23-26/42/HP | G4513-80223 |
| 100 | Tapered, Fixed | | 23-26s/42/HP | G4513-80222 |

*Included in 7693A shipments



Needles, replacement, G4513-80236

Advanced Sample Enhancement Autosampler Syringes with PTFE-Tipped Plungers

Used with the 7693A optional Enhanced Sample Handling Syringe Carriage, these syringes can eliminate analyst-to-analyst variability and reduce re-work in sample preparation, such as dilution and internal standard addition.

Advanced Sample Enhancement Autosampler Syringes with PTFE-Tipped Plungers

| Volume (µL) | Description | Needle Gauge/ Length (mm)/Tip | Part No. |
|-------------|------------------------------------|----------------------------------|-------------|
| 250 | Fixed, advanced sample enhancement | 23/42/HP | G4513-60560 |
| 500 | Fixed, advanced sample enhancement | 23/42/HP | G4513-60561 |



Blue line autosampler syringe,
G4513-60560

Gold Standard Autosampler Syringes

Use one needle and get the benefits of two. The upper portion of the tapered needle offers the strength of a 23-gauge needle, while the lower portion at 26s-gauge allows use with split/splitless or on-column injections with 0.53 mm id columns. All standard plungers are stainless steel.

Tapered Needle, 23-26s Gauge Autosampler Syringes

| Volume (μL) | Description | Unit | Needle Gauge/Length (mm)/Tip | Part No. |
|-------------|--|------|------------------------------|-----------|
| 5 | Tapered, fixed | | 23-26s/42/HP | 5181-1273 |
| | Tapered, fixed | 6/pk | 23-26s/42/HP | 5181-8810 |
| | Tapered, removable | | 23-26s/42/HP | 5182-0835 |
| | Replacement needle for 5 μL syringe | 3/pk | | 5182-0832 |
| 10 | Tapered, fixed | | 23-26s/42/HP | 5181-1267 |
| | Tapered, fixed | 6/pk | 23-26s/42/HP | 5181-3360 |
| | Tapered, removable | | 23-26s/42/HP | 5181-3321 |
| | Replacement needle for 10 μL syringe | 3/pk | | 5181-3319 |
| | Tapered, fixed, PTFE-tipped plunger | | 23-26s/42/HP | 5181-3354 |
| | Tapered, fixed, PTFE-tipped plunger | 6/pk | 23-26s/42/HP | 5181-3361 |
| | Replacement plunger with PTFE tip for fixed needle 10 μL syringe | | | 5181-3365 |
| | Tapered, removable | | 23-26s/42/HP | 5181-3356 |
| | Replacement plunger with PTFE tip for removable needle 10 μL syringe | | | 5181-3358 |
| 50 | Tapered, fixed, PTFE-tipped plunger | | 23-26s/42/HP | 5183-0314 |
| 100 | Tapered, fixed, PTFE-tipped plunger | | 23-26s/42/HP | 5183-2042 |



Straight Needle, 23 and 26s Gauge Autosampler Syringes

| Volume (μL) | Description | Unit | Needle Gauge/ Length (mm)/Tip | Part No. |
|--|--|------|----------------------------------|-----------|
| 1 | Cone-tipped | | 23/42/HP | 5188-5246 |
| 1 | Replacement needle/plunger for 1.0 μL syringe | | 23/42/HP | 5188-5370 |
| 0.5 | Replacement needle/plunger for 0.5 μL syringe | | 23-26/42/HP | 5190-3193 |
| 2 | Cone-tipped | | 23/42/HP | 5188-5247 |
| | Replacement needle/plunger for 2.0 μL syringe | | 23/42/HP | 5188-5371 |
| 5 | Straight, fixed | | 26s/42/HP | 9301-0891 |
| | Straight, fixed | 6/pk | 26s/42/HP | 5183-4728 |
| | Straight, fixed | | 23/42/HP | 9301-0892 |
| | Straight, fixed | 6/pk | 23/42/HP | 5182-0875 |
| | Straight, removable | | 23/42/HP | 5182-0834 |
| | Replacement needle for 5 μL syringe | 3/pk | | 5182-0830 |
| 10 | Straight, fixed | | 26s/42/HP | 9301-0714 |
| | Straight, fixed | 6/pk | 26s/42/HP | 5183-4729 |
| | Straight, fixed | | 23/42/HP | 9301-0713 |
| | Straight, fixed | 6/pk | 23/42/HP | 9301-0725 |
| | Straight, fixed, PTFE-tipped plunger | | 23/42/HP | 5181-8809 |
| | Straight, fixed, PTFE-tipped plunger | 6/pk | 23/42/HP | 5183-4730 |
| | Replacement plunger for 10 μL fixed needle syringe | | | 5181-8808 |
| | Straight, removable | | 23/42/HP | 5181-8806 |
| | Straight, removable, PTFE-tipped plunger | | 23/42/HP | 5181-8813 |
| | Replacement needle for 10 μL syringe | 3/pk | | 5181-8811 |
| Replacement plunger with PTFE tip for removable needle 10 μL syringe | | | 5181-3358 | |
| 25 | Straight, fixed, PTFE-tipped plunger | | 23/42/HP | 5183-0316 |
| 50 | Straight, fixed, PTFE-tipped plunger | | 23/42/HP | 5183-0318 |
| 100 | Straight, fixed, PTFE-tipped plunger | | 23/42/HP | 5183-2058 |



Autosampler Syringes



7673/7683 On-Column Autosampler Syringes

Agilent 7673/7683 on-column syringes with needle diameter for columns ranging from 0.25 mm to 0.53 mm are specifically designed for the 7673/7683 Autosampler.

7673/7683 On-Column Autosampler Syringes

| Volume (µL) | Description | Unit | Part No. |
|-------------|---|-------|-----------|
| 5 | Removable needle, syringe only | | 5182-0836 |
| | Stainless steel needle for 0.53 mm column | 3/pk | 5182-0832 |
| | Stainless steel needle for 0.32 mm column | 3/pk | 5182-0831 |
| | Stainless steel needle for 0.25 mm column | 3/pk | 5182-0833 |
| | Plunger button | 10/pk | 5181-8866 |



HP 7670/71/72 Autosampler Syringes

This syringe has a long needle and regular plunger button for compatibility with HP 7670/71/72 autosamplers. Available with a fixed or removable needle.

HP 7670/71/72 Autosampler Syringes

| Volume (µL) | Description | Needle | Part No. |
|-------------|--------------------------------------|----------|-----------|
| 1 | Straight, removable | 23/56/2 | 5182-9622 |
| 10 | Straight, fixed | 23/50/HP | 5182-9734 |
| | Straight, removable | 23/50/HP | 5182-9626 |
| | Straight, fixed, PTFE-tipped plunger | 23/50/HP | 5182-9799 |

Autosampler syringe, 10 µL, straight, RN, 5182-9626











Manual Syringes

Agilent color-coded manual syringes allow you to determine syringe volume with one quick glance, so you can more efficiently perform manual dilution, extraction, and sample prep. They also give you the advantages of:

- Improved scale readability with a new vertical syringe scale orientation for more intuitive use
- A wide selection of volumes, making Agilent your "one-stop" resource for all of your sample manipulation needs
- Accuracy within $\pm 1\%$ of nominal volume, and precision within 1%, measured at 80% of total scale volume
- Earth-friendly cardboard and plastic packaging that could be recycled to help reduce landfill waste
- A Certificate of Conformance to ensure the highest quality construction and performance, available for viewing and printing anytime
- Lot-traceable for accurate identification

Of course, all Agilent syringes are backed by over 40 years of chromatography expertise, industry-leading technical support, and a 90-day warranty from the date of shipment.

Manual Syringes Color Code Chart

| | | | | | | | | | |
|---|---|---|---|---|---|--|---|---|---|
|  |  |  |  |  |  |  |  |  |  |
| 0.5 μL | 1.0 μL | 2.0 μL | 5.0 μL | 10 μL 1.0 mL | 25 μL 2.5 mL | 50 μL 5.0 mL | 100 μL 10.0 mL | 250 μL 25.0 mL | 500 μL 50.0 mL |



Manual syringe, 1.0 μ L, RN cone tip, 5190-1463

Manual Syringes with Fitted Plunger, Fixed and Removable Needle, 0.5 to 5 μ L

| Volume (μ L) | Description | Unit | Needle | Part No. |
|-------------------|--|------|--------------------|-----------|
| 0.5 | Plunger in needle, removable | | 23/70 mm/cone tip | 5190-0464 |
| | Replacement needle and plunger kit for 0.5 μ L syringe | | | 5190-1461 |
| | Plunger in needle, removable | | 23/70 mm/bevel tip | 5190-1460 |
| | Replacement needle and plunger kit for 0.5 μ L syringe | | | 5190-1462 |
| 1.0 | Plunger in needle, removable | | 26/70 mm/cone tip | 5190-1463 |
| | Replacement needle and plunger kit for 1.0 μ L syringe | | | 5190-1467 |
| | Plunger in needle, removable | | 26/70 mm/bevel tip | 5190-1466 |
| | Replacement needle and plunger kit for 1.0 μ L syringe | | | 5190-1470 |
| | Plunger in needle, removable | | 23/70 mm/cone tip | 5190-1464 |
| | Replacement needle and plunger kit for 1.0 μ L syringe | | | 5190-1468 |
| | Plunger in needle, removable | | 23/70 mm/bevel tip | 5190-1465 |
| | Replacement needle and plunger kit for 1.0 μ L syringe | | | 5190-1469 |
| 2.0 | Plunger in needle, removable | | 23/70 mm/cone tip | 5190-1471 |
| | Replacement needle and plunger kit for 2.0 μ L syringe | | | 5190-1473 |
| | Plunger in needle, removable | | 26/70 mm/bevel tip | 5190-1472 |
| | Replacement needle and plunger kit for 2.0 μ L syringe | | | 5190-1474 |
| 5.0 | Plunger in needle, removable | | 23/70 mm/cone tip | 5190-1475 |
| | Replacement needle and plunger kit for 5.0 μ L syringe | | | 5190-1477 |
| | Plunger in needle, removable | | 23/70 mm/bevel tip | 5190-1476 |
| | Replacement needle and plunger kit for 5.0 μ L syringe | | | 5190-1478 |
| | Straight, fixed | | 26/50 mm/bevel tip | 5190-1479 |
| | Removable, with flexible plunger | | 26/50 mm/bevel tip | 5190-1481 |
| | Replacement needle for 5.0 μ L syringe | 3/pk | | 5190-1482 |

Manual Syringes with Fitted Plunger, Fixed and Removable Needle, 10 to 500 µL

| Volume (µL) | Description | Unit | Needle | Part No. |
|-------------|------------------------------|-------|--------------------|-----------|
| 10 | Fixed | | 26/50 mm/bevel tip | 5190-1483 |
| | Fixed | 10/pk | 26/50 mm/bevel tip | 5190-1487 |
| | Fixed, with flexible plunger | | 26/50 mm/bevel tip | 5190-1488 |
| | Fixed, with flexible plunger | 6/pk | 26/50 mm/bevel tip | 5190-1489 |
| 25 | Fixed | | 25/50 mm/bevel tip | 5190-1493 |
| | Removable | | 25/50 mm/bevel tip | 5190-1495 |
| | Replacement needle | 3/pk | | 5190-1496 |
| 50 | Fixed | | 25/50 mm/bevel tip | 5190-1500 |
| | Removable | | 25/50 mm/bevel tip | 5190-1502 |
| | Replacement needle | 3/pk | | 5190-1496 |
| 100 | Fixed | | 25/50 mm/bevel tip | 5190-1507 |
| | Removable | | 25/50 mm/bevel tip | 5190-1509 |
| | Replacement needle | 3/pk | | 5190-1496 |
| 250 | Fixed | | 25/50 mm/bevel tip | 5190-1514 |
| | Removable | | 25/50 mm/bevel tip | 5190-1516 |
| | Replacement needle | 3/pk | | 5190-1496 |
| 500 | Fixed | | 25/50 mm/bevel tip | 5190-1521 |
| | Removable | | 25/50 mm/bevel tip | 5190-1524 |
| | Replacement needle | 3/pk | | 5190-1496 |



Manual syringe, 50 µL, FN bevel tip, 5190-1500



Manual Syringes with PTFE-Tipped Plunger, Removable Needle, 10 to 500 µL

| Volume (µL) | Description | Unit | Needle | Part No. |
|-------------|--|------|--------------------|-----------|
| 10 | Removable | | 25/50 mm/bevel tip | 5190-1491 |
| | Replacement needle | 3/pk | | 5190-1496 |
| | Replacement plunger with PTFE tip for 10 µL syringe | | | 5190-1559 |
| 25 | Removable | | 25/50 mm/bevel tip | 5190-1498 |
| | Replacement needle | 3/pk | | 5190-1496 |
| | Replacement plunger with PTFE tip for 25 µL syringe | | | 5190-1560 |
| 50 | Removable | | 25/50 mm/bevel tip | 5190-1504 |
| | Replacement needle | 3/pk | | 5190-1496 |
| | Replacement plunger with PTFE tip for 50 µL syringe | | | 5190-1561 |
| 100 | Removable | | 25/50 mm/bevel tip | 5190-1511 |
| | Replacement needle | 3/pk | | 5190-1496 |
| | Replacement plunger with PTFE tip for 100 µL syringe | | | 5190-1562 |
| 250 | Removable | | 25/50 mm/bevel tip | 5190-1518 |
| | Replacement needle | 3/pk | | 5190-1496 |
| | Replacement plunger with PTFE tip for 250 µL syringe | | | 5190-1563 |
| 500 | Removable | | 25/50 mm/bevel tip | 5190-1525 |
| | Replacement needle | 3/pk | | 5190-1496 |
| | Replacement plunger with PTFE tip for 500 µL syringe | | | 5190-1564 |



Manual Syringes with PTFE-Tipped Plunger, Fixed Needle, 10 to 500 μ L

| Volume (μ L) | Description | Needle | Part No. |
|-------------------|---|--------------------|-----------|
| 10 | Fixed | 26/50 mm/bevel tip | 5190-1490 |
| | Replacement plunger with PTFE tip for 10 μ L syringe | | 5190-1558 |
| 25 | Fixed | 25/50 mm/bevel tip | 5190-1497 |
| | Replacement plunger with PTFE tip for 25 μ L syringe | | 5190-1560 |
| 50 | Fixed | 25/50 mm/bevel tip | 5190-1503 |
| | Replacement plunger with PTFE tip for 50 μ L syringe | | 5190-1561 |
| 100 | Fixed | 25/50 mm/bevel tip | 5190-1510 |
| | Replacement plunger with PTFE tip for 100 μ L syringe | | 5190-1562 |
| 250 | Fixed | 25/50 mm/bevel tip | 5190-1517 |
| | Replacement plunger with PTFE tip for 250 μ L syringe | | 5190-1563 |
| 500 | Fixed | 25/50 mm/bevel tip | 5190-1523 |
| | Replacement plunger with PTFE tip for 500 μ L syringe | | 5190-1564 |

Manual Syringes with PTFE-Tipped Plunger, Removable Needle, 1 mL to 10 mL

| Volume (mL) | Description | Unit | Needle | Part No. |
|-------------|---|------|--------------------|-----------|
| 1.0 | Removable | | 23/50 mm/bevel tip | 5190-1529 |
| | Replacement needle | 3/pk | | 5190-1581 |
| | Replacement plunger with PTFE tip for 1 mL syringes | | | 5190-1565 |
| 2.5 | Removable | | 23/50 mm/bevel tip | 5190-1533 |
| | Replacement needle | 3/pk | | 5190-1581 |
| | Replacement plunger with PTFE tip for 2.5 mL syringes | | | 5190-1572 |
| 5.0 | Removable | | 23/50 mm/bevel tip | 5190-1537 |
| | Replacement needle | 3/pk | | 5190-1538 |
| | Replacement plunger with PTFE tip for 5 mL syringes | | | 5190-1573 |
| 10 | Removable | | 23/50 mm/bevel tip | 5190-1542 |
| | Replacement needle | 3/pk | | 5190-1538 |
| | Replacement plunger with PTFE tip for 10 mL syringes | | | 5190-1574 |



Manual syringe, 500 μ L, FN bevel tip, 5190-1523



Manual syringe, 1 mL, FN bevel tip, 5180-1528

Manual Syringes with PTFE-Tipped Plunger, Fixed Needle, 1 mL to 10 mL

| Volume (mL) | Description | Needle | Part No. |
|-------------|---|--------------------|-----------|
| 1.0 | Fixed | 22/50 mm/bevel tip | 5190-1528 |
| | Replacement plunger with PTFE tip for 1 mL syringes | | 5190-1565 |
| 2.5 | Fixed | 22/50 mm/bevel tip | 5190-1532 |
| | Replacement plunger with PTFE tip for 2.5 mL syringes | | 5190-1572 |
| 5.0 | Fixed | 22/50 mm/bevel tip | 5190-1536 |
| | Replacement plunger with PTFE tip for 5 mL syringes | | 5190-1573 |
| 10 | Fixed | 22/50 mm/bevel tip | 5190-1541 |
| | Replacement plunger with PTFE tip for 10 mL syringes | | 5190-1574 |

Manual Syringe with PTFE-Tipped Plunger and Luer Lok, 50 to 500 µL

| Volume (µL) | Description | Needle | Part No. |
|-------------|--|------------------------|-----------|
| 50 | Luer Lok | Luer Lok/50 mm or 2 in | 5190-1506 |
| | Replacement plunger with PTFE tip for 50 µL syringe | | 5190-1561 |
| 100 | Luer Lok | Luer Lok/50 mm or 2 in | 5190-1513 |
| | Replacement plunger with PTFE tip for 100 µL syringe | | 5190-1562 |
| 250 | Luer Lok | Luer Lok/50 mm or 2 in | 5190-1519 |
| | Replacement plunger with PTFE tip for 250 µL syringe | | 5190-1563 |
| 500 | Luer Lok | Luer Lok/50 mm or 2 in | 5190-1527 |
| | Replacement plunger with PTFE tip for 500 µL syringe | | 5190-1564 |



Manual Syringe with PTFE-Tipped Plunger and Luer Lok, 1 to 50 mL

| Volume (mL) | Description | Needle | Part No. |
|-------------|---|------------------------------|-----------|
| 1.0 | Luer Lok | Luer Lok/50 mm or 2 in | 5190-1530 |
| | Luer Lok valve | Luer Lok valve/50 mm or 2 in | 5190-1531 |
| | Replacement plunger with PTFE tip for 1 mL syringes | | 5190-1565 |
| 2.5 | Luer Lok | Luer Lok/50 mm or 2 in | 5190-1534 |
| | Luer Lok valve | Luer Lok valve/50 mm or 2 in | 5190-1535 |
| | Replacement plunger with PTFE tip for 2.5 mL syringes | | 5190-1572 |
| 5.0 | Luer Lok | Luer Lok/50 mm or 2 in | 5190-1539 |
| | Luer Lok valve | Luer Lok valve/50 mm or 2 in | 5190-1540 |
| | Replacement plunger with PTFE tip for 5 mL syringes | | 5190-1573 |
| 10 | Luer Lok | Luer Lok/50 mm or 2 in | 5190-1457 |
| | Luer Lok valve | Luer Lok valve/50 mm or 2 in | 5190-1543 |
| | Replacement plunger with PTFE tip for 10 mL syringes | | 5190-1574 |
| 25 | Luer Lok | Luer Lok/50 mm or 2 in | 5190-1544 |
| | Replacement plunger with PTFE tip for 25 mL syringe | | 5190-1575 |
| | Luer Lok valve | Luer Lok valve/50 mm or 2 in | 5190-1545 |
| | Replacement plunger with PTFE tip for 25 mL syringe | | 5190-1576 |
| 50 | Luer Lok | Luer Lok/50 mm or 2 in | 5190-1546 |
| | Luer Lok valve | Luer Lok valve/50 mm or 2 in | 5190-1547 |
| | Replacement plunger with PTFE tip for 50 mL syringes | | 5190-1577 |



Luer Lok valve, 5190-1531



Luer Lok, 5190-1534



Luer Lok valve, 5190-1543

Luer Lok and Luer Lok Valve Needles

| Description | Unit | Needle | Part No. |
|-----------------|------|--------------------|-----------|
| Luer Lok needle | 3/pk | 23/50/bevel tip | 5190-1548 |
| Luer Lok needle | 3/pk | 23/50/sidehole tip | 5190-1549 |
| Luer Lok needle | 3/pk | 22/51/LC tip | 5190-1550 |



Syringe, 100 µL FN LC tip, 5190-1508

LC Manual Syringes with Fitted Plungers

| Volume (µL) | Description | Unit | Needle | Part No. |
|-------------|--------------------------------------|------|----------------------|-----------|
| 5 | Fixed | | 22 gauge/2 in/LC tip | 5190-1480 |
| 10 | Fixed | | 22 gauge/2 in/LC tip | 5190-1484 |
| | Removable | | 22 gauge/2 in/LC tip | 5190-1485 |
| | Replacement needle for 10 µL syringe | 3/pk | | 5190-1486 |
| 25 | Fixed | | 22 gauge/2 in/LC tip | 5190-1494 |
| 50 | Fixed | | 22 gauge/2 in/LC tip | 5190-1501 |
| 100 | Fixed | | 22 gauge/2 in/LC tip | 5190-1508 |
| 250 | Fixed | | 22 gauge/2 in/LC tip | 5190-1515 |
| 500 | Fixed | | 22 gauge/2 in/LC tip | 5190-1522 |

LC Manual Syringes with PTFE-Tipped Plungers

| Volume (µL) | Description | Unit | Needle | Part No. |
|-------------|--|------|----------------------|-----------|
| 10 | Removable | | 22 gauge/2 in/LC tip | 5190-1492 |
| | Replacement needle for 10 µL syringe | 3/pk | | 5190-1486 |
| | Replacement plunger with PTFE tip for 10 µL syringe | | | 5190-1558 |
| 25 | Removable | | 22 gauge/2 in/LC tip | 5190-1499 |
| | Replacement needle | 3/pk | | 5190-1571 |
| | Replacement plunger with PTFE tip for 25 µL syringe | | | 5190-1560 |
| 50 | Removable | | 22 gauge/2 in/LC tip | 5190-1505 |
| | Replacement needle | 3/pk | | 5190-1571 |
| | Replacement plunger with PTFE tip for 50 µL syringe | | | 5190-1561 |
| 100 | Removable | | 22 gauge/2 in/LC tip | 5190-1512 |
| | Replacement needle | 3/pk | | 5190-1571 |
| | Replacement plunger with PTFE tip for 100 µL syringe | | | 5190-1562 |
| 250 | Removable | | 22 gauge/2 in/LC tip | 5190-1520 |
| | Replacement needle | 3/pk | | 5190-1571 |
| 500 | Removable | | 22 gauge/2 in/LC tip | 5190-1526 |
| | Replacement needle | 3/pk | | 5190-1571 |
| | Replacement plunger with PTFE tip for 500 µL syringe | | | 5190-1564 |

Agilent CrossLab Syringes

CrossLab GC Autosampler Syringes

With a broad selection of syringes for auto injection, CrossLab autosampler syringes provide what you need for accurate and effective sampling. CrossLab syringes meet all fit, form, and function criteria for specific autosampler models. Agilent delivers more value in every autosampler syringe:

- Lot number printed directly on the barrel with a corresponding Certificate of Conformance
- Illuminating backing strip, for effortless viewing of the volume scale
- Environmentally friendly packaging and improved design that reduces waste
- Individually packaged for contaminant-free use right out of the box

Typical Needle Gauge Dimensions

| Gauge | OD | | ID | |
|-------|------|--------|------|--------|
| | mm | inches | mm | inches |
| 23 | 0.64 | 0.0248 | 0.11 | 0.0043 |
| 25 | 0.50 | 0.0197 | 0.20 | 0.0079 |
| 26 | 0.47 | 0.0184 | 0.11 | 0.0043 |



Autosampler syringe, 10 µL fixed needle, 8010-0351



Autosampler syringe, 5 µL, fixed needle, 8003-0001



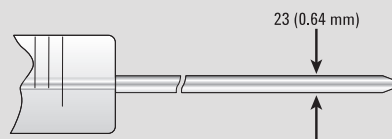
Autosampler syringe, 5 µL, gas tight, fixed needle, 8003-0002

TIPS & TOOLS

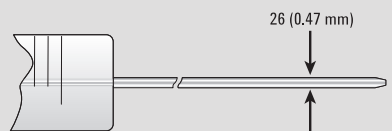
Replace syringe if dirt is noticeable, syringe cannot be cleaned or plunger doesn't slide easily.
Replace needle if septa wear is abnormal or needle is clogged.



Needle Gauge



Single Gauge 23 (0.64 mm)
Packed column injector ports
Split/splitless injector ports



Single Gauge 26 (0.47 mm)
Packed column injector ports
Split/splitless injector ports

Needle Termination

Needle terminations are available in fixed or removable, with various tip styles.

Fixed (cemented)

- Economical, reproducible injections for autosamplers
- Preferred for applications requiring trace level samples
- Recommended for use where probability of needle bending is minimal
- Can be heated up to 70 °C

Removable needle

- Versatile option for injections
- Needle can be replaced if damaged or clogged
- Allows needle to be changed for different applications
- Can be heated up to 120 °C

TIPS & TOOLS



Follow manufacturer's recommendation for syringe cleaning and regularly inspect syringe barrel for sample build-up and needle tip for wear.



Autosampler Syringes for Bruker/Varian GC Systems, 1/pk

| Model | Volume (µL) | Description | Needle Gauge/Length (mm)/Tip | Agilent CrossLab Syringe Part No. | Similar to Bruker/Varian Syringe Part No. | Agilent CrossLab Replacement Needle Part No. | Agilent CrossLab Replacement Plunger Part No. |
|---|-------------|-----------------------------|------------------------------|-----------------------------------|---|--|---|
| CP8400 CP8410 CP9010 CP9050 AS200 AS2000 AS3000 AS800 TriPlus | 10 | Fixed needle | 23/50/cone tip | 8010-0351 | SG002981 | | |
| CP8400 CP8410 CP9010 CP9050 | 10 | Fixed needle | 26/50/bevel tip | 8004-0001 | | | |
| CP8400 CP8410 CP9010 CP9050 | 10 | Removable needle | 26/50/cone tip | 8004-0003 | SG002982 | 8004-0004, 2/pk | |
| 8035 8100 8200 | 10 | Fixed needle, gas tight | 26/53/side hole tip | 8004-0002 | | | 8004-0007 |
| | 10 | Removable needle, gas tight | 25/53/side hole tip | 8004-0005 | | 8004-0006, 2/pk | 8004-0007 |
| CP8400 CP8410 CP9010 CP9050 | 10 | Replacement needle | | 8004-0004 | | | |
| 8035 8100 8200 | 10 | Replacement needle | | 8004-0006 | | | |
| 8035 8100 8200 | 10 | Replacement plunger | | 8004-0007 | | | |

The cross references to the original equipment manufacturer (OEM) part numbers listed here serve as a recommendation that the Agilent CrossLab products are viable alternatives to OEM products. CrossLab products are compatible with the corresponding OEM instruments, although in some cases, the CrossLab products may have slightly different designs as compared to the OEM counterparts.



Autosampler Syringes for PerkinElmer GC Systems, 1/pk

| Model | Volume (µL) | Description | Needle Gauge/Length (mm)/Tip | Agilent CrossLab Syringe Part No. | Similar to PerkinElmer Syringe Part No. | Agilent CrossLab Replacement Needle and Plunger Repair Kit Part No. | Similar to PerkinElmer Replacement Needle and Plunger Repair Kit Part No. |
|---------------------------------------|--------------------|---|-------------------------------------|--|--|--|--|
| Autosystem Autosystem XL Clarus | 0.5 | Removable needle | 23/70/cone tip | 8003-0005 | N6101252 | 8003-0006 | N6101469 |
| | | Removable needle | 26/70/bevelled cone tip | 8003-0007 | | 8003-0008 | |
| | 5 | Fixed needle | 23/70/cone tip | 8003-0001 | N6101251 | | |
| | | Fixed needle, gas tight | 23/70/cone tip | 8003-0002 | N6101390 | | |
| | | Fixed needle | 26/70/cone tip | 8003-0003 | N6101380 | | |
| | 50 | Fixed needle | 23/70/cone tip | 8003-0004 | N6101760 | | |
| | | Replacement needle and plunger repair kit | | 8003-0006 | N6101469 | | |
| | | Replacement needle and plunger repair kit | | 8003-0008 | | | |

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Autosampler Syringes for Shimadzu GC Systems, 1/pk

| Model | Volume (µL) | Description | Needle Gauge/Length (mm)/Tip | Agilent CrossLab Syringe Part No. | Similar to Shimadzu Syringe Part No. | Agilent CrossLab Replacement Needle Part No. | Similar to Shimadzu Replacement Needle Part No. |
|--------|-------------|-------------------------|------------------------------|-----------------------------------|--------------------------------------|--|---|
| AOC-14 | 5 | Fixed needle | 23/42/cone tip | 8001-0001 | | | |
| AOC-17 | 10 | Removable needle | 23/42/cone tip | 8001-0004 | 220-90282-20 | 8001-0005, 2/pk | 220-90281-20 |
| AOC-20 | | Removable needle | 26/42/cone tip | 8001-0006 | 220-90282-21 | 8001-0007, 2/pk | 220-90281-21 |
| | 50 | Fixed needle | 23/42/cone tip | 8001-0002 | 221-45243-00 | | |
| | 250 | Fixed needle, gas tight | 23/42/cone tip | 8001-0003 | 221-45244-00 | | |

Autosampler Syringes for Shimadzu HPLC Systems, 1/pk

| Model | Volume (µL) | Description | Needle Gauge/Length (mm)/Tip | Agilent CrossLab Syringe Part No. | Similar to Shimadzu Syringe Part No. | Agilent CrossLab Replacement Needle Part No. | Similar to Shimadzu Replacement Needle Part No. |
|---------------------|-------------|--|------------------------------|-----------------------------------|--------------------------------------|--|---|
| SIL-10A SIL-10Ai | 500 | Chem (1/4-28 UNF screw threads), gas tight | | 8001-0401 | 228-25237-04 | | |
| | 2.5 | Chem (1/4-28 UNF screw threads), gas tight | | 8001-0402 | 228-25237-06 | | |
| | 2.5 | 1/4-28 screw threads, gas tight with bracket | | 8001-0404 | 228-28128-91 | | |

The cross references to the original equipment manufacturer (OEM) part numbers listed here serve as a recommendation that the Agilent CrossLab products are viable alternatives to OEM products. CrossLab products are compatible with the corresponding OEM instruments, although in some cases, the CrossLab products may have slightly different designs as compared to the OEM counterparts.



Autosampler Syringes for Thermo GC Systems, 1/pk

| Model | Volume (µL) | Description | Needle Gauge/Length (mm)/Tip | Agilent CrossLab Syringe Part No. | Similar to Thermo Scientific Syringe Part No. | Agilent CrossLab Replacement Needle or Plunger Part No. | Similar to Thermo Scientific Replacement Needle or Plunger Part No. |
|---|-------------|--------------------------------|------------------------------|-----------------------------------|---|---|---|
| AS3000 TriPlus | 0.5 | Plunger-in-needle | 23/50/cone tip | 8010-0355 | 36504045 | 8010-0367* | |
| TriPlus | 5 | Fixed needle | 26/50/cone tip | 8010-0353 | 36504047 | | |
| CP8400 CP8410 CP9010 CP9050 AS200 AS2000 AS3000 AS800 TriPlus | 10 | Fixed needle | 23/50/cone tip | 8010-0351 | 36520060 | | |
| AOC-14 AOC-17 AOC-20 | 10 | Fixed needle | 26/50/cone tip | 8010-0352 | 365D3711 | | |
| AS200 AS2000 AS3000 AS800 TriPlus | 10 | Fixed needle | 25/50/cone tip | 8002-0003 | 36500525 | | |
| AS2000 TriPlus | 10 | Fixed needle | 23/80/cone tip | 8002-0002 | 36520061 | | |
| AS2000 TriPlus | 10 | Fixed needle | 26/80/cone tip | 8002-0001 | 36502019 | | |
| AS200 AS2000 AS800 TriPlus | 100 | Fixed needle, gas tight | 23/50/cone tip | 8010-0354 | | 8010-0368** | |
| AS2000 TriPlus | 100 | Removable needle, gas tight | 23/50/side hole tip | 8002-0004 | 36520050 | 8002-0005*** | 36540040 |

*Needle and plunger repair kit

**Replacement plunger

***Replacement needle

The cross references to the original equipment manufacturer (OEM) part numbers listed here serve as a recommendation that the Agilent CrossLab products are viable alternatives to OEM products. CrossLab products are compatible with the corresponding OEM instruments, although in some cases, the CrossLab products may have slightly different designs as compared to the OEM counterparts.



Needle and plunger repair kit, 8010-0367



Replacement plunger, 8010-0368

CrossLab Supplies for CTC Analytics GC Autosamplers

Agilent's CrossLab portfolio includes a variety of syringes compatible with CTC Analytics GC PAL and CombiPAL systems.

- Syringe capacities from 0.5 μ L to 2.5 mL
- Fixed and removable needles
- Several needle tip styles to suit your application requirements
- High temperature syringes for headspace application with temperatures up to 150 °C
- PTFE plunger seal option for smooth, leak-free operation
- Syringe specifications are matched to CTC holders to ensure proper fit and reliable functioning



Autosampler Syringes for CTC CombiPAL and GC PAL, 1/pk

| Volume (μ L) | Description | Needle Gauge/Length (mm)/Tip | Agilent CrossLab Syringe Part No. | Agilent CrossLab Replacement Needle or Plunger Part No. |
|-------------------|-----------------------------|------------------------------|-----------------------------------|---|
| 0.5 | Plunger-in-needle | 23/50/cone tip | 8010-0355 | 8010-0367* |
| 5 | Fixed needle | 23/50/cone tip | 8010-0356 | |
| | Fixed needle | 26/50/cone tip | 8010-0353 | |
| 10 | Fixed needle | 23/50/cone tip | 8010-0351 | |
| | Fixed needle | 25/50/cone tip | 8002-0003 | |
| | Fixed needle | 26/50/cone tip | 8010-0352 | |
| | Fixed needle, gas tight | 26/50/cone tip | 8010-0357 | 8010-0359** |
| | Fixed needle | 26/50/bevel tip | 8010-0358 | |
| 25 | Fixed needle | 26/50/cone tip | 8010-0360 | |
| 100 | Fixed needle, gas tight | 23/50/cone tip | 8010-0354 | |
| | Removable needle, gas tight | 23/50/side hole tip | 8002-0004 | 8002-0005*** |
| | Fixed needle | 26/50/cone tip | 8010-0361 | |
| 250 | Fixed needle, gas tight | 26/50/cone tip | 8010-0362 | |

| Volume (mL) | Description | Needle Gauge/Length (mm)/Tip | Agilent CrossLab Syringe Part No. | Agilent CrossLab Replacement Plunger Part No. |
|-------------|------------------------------------|------------------------------|-----------------------------------|---|
| 1 | Fixed needle, gas tight, headspace | 23/56/side hole tip | 8010-0363 | 8010-0365 |
| 2.5 | Fixed needle, gas tight, headspace | 23/56/side hole tip | 8010-0364 | 8010-0366 |

*Needle and plunger repair kit

**Replacement plunger

***Replacement needle

The cross references to the original equipment manufacturer (OEM) part numbers listed here serve as a recommendation that the Agilent CrossLab products are viable alternatives to OEM products. CrossLab products are compatible with the corresponding OEM instruments, although in some cases, the CrossLab products may have slightly different designs as compared to the OEM counterparts.



Autosampler syringe, 10 μ L fixed needle, 8010-0351

Autosampler Syringes for Dionex LC Systems, 1/pk

| Model | Volume (µL) | Description | Needle Gauge/ Length (mm)/ Tip | Similar to Dionex Syringe Part No. | Agilent CrossLab Syringe | Agilent CrossLab Replacement Needle | Agilent CrossLab Replacement Plunger |
|------------|-------------|--|--------------------------------------|---|--------------------------------|---|---|
| WPS-3000SL | 25 | Chem (1/4-28 UNF screw threads), gas tight | | 6822.0001 | 8002-0405 | | |
| | 250 | Chem (1/4-28 UNF screw threads), gas tight | | 6822.0003 | 8002-0407 | | |
| ASI-100 | 100 | Removable needle, gas tight | 22/51/3 22s/51/3 | 5805.2920 | 8002-0401* | 8002-0413, 6/pk 8002-0412, 6/pk | 8002-0402 |
| | 1,000 | Removable needle, gas tight | 22/51/3 22s/51/3 | 5805.2940 | 8002-0403* | 8002-0414, 6/pk 8002-0415, 6/pk | 8002-0406 |
| | 2,500 | Removable needle, gas tight | 22/51/3 22s/51/3 | 5805.2950 | 8002-0404* | 8002-0414, 6/pk 8002-0415, 6/pk | 8002-0408 |

*Needles are sold separately

The cross references to the original equipment manufacturer (OEM) part numbers listed here serve as a recommendation that the Agilent CrossLab products are viable alternatives to OEM products. CrossLab products are compatible with the corresponding OEM instruments, although in some cases, the CrossLab products may have slightly different designs as compared to the OEM counterparts.



Chem (1/4-28 UNF screw threads), gas tight, 8002-0405



Removable needle, gas tight, 8002-0401

Autosampler Syringes for Waters LC Systems, 1/pk

| Model | Volume (µL) | Description | Needle Gauge/Length (mm)/Tip | Agilent CrossLab Syringe Part No. | Similar to Waters Syringe Part No. | Agilent CrossLab Replacement Needle or Plunger Part No. |
|--------------------------------------|-------------|--|------------------------------|-----------------------------------|------------------------------------|---|
| 2777 Compact Sample Manager | 1 | Fixed needle, gas tight | 22/51/3 | 8010-0443 | 430000867 | 8010-0455 |
| 2777 Sample Manager | 2.5 | Fixed needle, gas tight | 22/51/3 | 8010-0444 | 430000868 | 8010-0448 |
| | 10 | Fixed needle | 22s/51/3 | 8010-0445 | 430000859 | |
| | 25 | Fixed needle, gas tight | 22s/51/3 | 8010-0441 | 430000861 | |
| | 100 | Fixed needle, gas tight | 22s/51/3 | 8010-0442* | 430000864 | |
| | | Fixed needle, gas tight | 22/51/3 | 8010-0446* | 430000863 | |
| | 250 | Fixed needle, gas tight | 22/51/3 | 8010-0467 | 430000865 | |
| | 500 | Fixed needle, gas tight | 22/51/3 | 8010-0468 | 430000866 | 8010-0460, 10/pk** |
| 510 HPLC Pump | 10000 | Luer Lock | No needle | 8005-0414 | WAT025559 | |
| 515 HPLC Pump | | | | | | |
| 600 MultiSolvent Delivery System | | | | | | |
| CapLC System | | | | | | |
| CapLC XE System | | | | | | |
| 600 MultiSolvent Delivery System | 25 | Removable needle, gas tight | 22s/51/3 | 8005-0416 | WAT033381 | |
| Rheodyne Injector | 100 | Removable needle, gas tight | 22s/51/3 | 8005-0417 | WAT033383 | 8005-0418, 6/pk |
| 2690 Separations Module | 25 | Chem (1/4-28 UNF screw threads), gas tight | No needle | 8005-0420 | WAT077343 | |
| 2690D Dissolution Separations Module | | | | | | |
| 2695 Separations Module | 250 | Chem (1/4-28 screw threads UNF), gas tight | No needle | 8005-0419 | WAT073109 | |
| 2695D Dissolution Separations Module | | | | | | |
| 2790 Separations Module | | | | | | |
| 2795 Separations Module | | | | | | |
| LC Module 1 | | | | | | |
| 717/717plus Autosampler | | | | | | |

*Barrel od is 6.7 mm. All other 10, 25, and, 100 µL syringes have 7.9 mm od.

**Replacement plunger

The cross references to the original equipment manufacturer (OEM) part numbers listed here serve as a recommendation that the Agilent CrossLab products are viable alternatives to OEM products. CrossLab products are compatible with the corresponding OEM instruments, although in some cases, the CrossLab products may have slightly different designs as compared to the OEM counterparts.



Autosampler syringe, Luer Lock, 8005-0414



Autosampler syringe, gas tight, 8005-0417

CTC Autosampler Supplies

To better serve Agilent instrument users who choose CTC Analytics autosamplers for high-throughput and flexible sample introduction, Agilent has partnered with CTC to provide a fully integrated system, including CTC approved consumables.

Agilent's portfolio includes a variety of vials, caps, syringes, and well plates compatible with the CTC Analytics HTC PAL, GC PAL, and CombiPAL systems.



CombiPAL and GC PAL Liquid Injection Syringes

A key feature of CTC's GC PAL and CombiPAL is the ability to inject a wide range of sample volumes, up to 500 µL for LVI applications. The following fixed needle syringes are recommended by CTC to sustain high reproducibility and accuracy.



CTC syringes



Fixed needle, G6500-80120

CombiPAL and GC PAL Liquid Injection Syringes

| Volume (µL) | Description | Unit | Needle | Part No. |
|-------------|---|-------|-----------|-------------|
| 1.2 | Fixed needle | | 26/51/AS | G6500-80113 |
| 5 | Fixed needle | | 26/51/AS | G6500-80114 |
| | Removable needle for Cool On-Column (COC) | | 26/51/AS | 5190-3984 |
| | Replacement removable needle for Cool On-Column (COC) | 3/pk | | 5190-3985 |
| 10 | Fixed needle | | 26/51/2 | G6500-80115 |
| | | | 26s/51/AS | G6500-80116 |
| | Fixed needle, Merlin & PTV | | 23s/51/AS | 5188-6596 |
| 25 | Fixed needle | | 26/51/AS | G6500-80117 |
| | Replacement plunger | 10/pk | | G4200-80104 |
| 100 | Fixed needle | | 26/51/AS | G6500-80118 |
| | Replacement plunger | 10/pk | | G4200-80105 |
| 250 | Fixed needle | | 26/51/AS | G6500-80119 |
| | Replacement plunger | 10/pk | | G4200-80102 |
| 500 | Fixed needle | | 26/51/AS | G6500-80120 |
| | Replacement plunger | | | G4200-80106 |

TIPS & TOOLS



For vials and caps that work seamlessly with your CTC Analytics PAL Autosamplers, see our complete Vials and Closures section, turn to page 27.

CombiPAL Headspace Supplies

Our fixed needle headspace syringes feature a sideport needle for gas flushing, in conformance with strict CTC standards. Use with Agilent's Merlin Microseal to minimize instrument downtime and to prevent lost or compromised data caused by septum leaks and liner contamination.

CombiPAL Headspace Syringes

| Volume (mL) | Description | Gauge | Part No. |
|-------------|---------------------|-------|-------------|
| 1 | Fixed needle | 23 | G6500-80107 |
| | Replacement plunger | | G4200-80101 |
| 2.5 | Fixed needle | 23 | G6500-80109 |
| | Replacement plunger | | G4200-80107 |
| 5 | Fixed needle | 23 | G6500-80111 |
| | Replacement plunger | | G4200-80108 |

CombiPAL Headspace Supplies

| Description | Part No. |
|---------------------------------------|-----------|
| Liner, inlet for SPME, deactivated | 5188-6471 |
| Liner, Ultra Inert for SPME, straight | 5190-4048 |



Headspace Vials



Fixed needle, G6500-80109

HTS and HTC PAL Liquid Injection Crimp Top Micro Vials and Caps

HTS and HTC PAL high-throughput LC injection systems are configured to cope with today's high-throughput LC/MS demands. Agilent offers a selection of crimp top micro vials designed specifically for HTS and HTC PAL systems.

HTS and HTC PAL Liquid Injection Crimp Top Micro Vials and Caps

| Description | Unit | Part No. |
|-------------------------------------|---------|-----------|
| 0.8 mL, amber glass, flat bottom | 1000/pk | 5183-4487 |
| 0.1 mL, clear glass, tapered bottom | 500/pk | 5180-0844 |
| 0.3 mL, clear glass, round bottom | 500/pk | 5180-0841 |
| 0.7 mL, amber glass, round bottom | 500/pk | 5180-0805 |
| 0.5 mL, amber glass, conical bottom | 500/pk | 5180-0806 |
| Micro Caps | | |
| Crimp caps with PTFE/silicone septa | 500/pk | 5180-0842 |

HTS and HTC PAL Liquid Injection Syringes

Designed specifically for CTC autosamplers, these X-type syringes feature zero carryover and a long-lasting plunger for applications that demand precision and productivity. They are strongly recommended for high-throughput applications.

Agilent offers a wide selection of fixed needle, 22-gauge, pointstyle 3 syringes to accommodate a variety of applications.



X-type fixed needle, G4200-80118



Replacement plunger, G4200-80111

HTS and HTC PAL Liquid Injection Syringes

| Volume (µL) | Description | Unit | Needle | Part No. |
|-------------|--|-------|----------|-------------|
| 25 | X-type fixed needle | | 22s/51/3 | G4200-80118 |
| | Replacement plunger for X-type syringe | 3/pk | | G4200-80112 |
| 50 | X-type fixed needle | | 22/51/3 | 5188-6485 |
| | Replacement plunger for X-type syringe | 3/pk | | 5188-5395 |
| 100 | X-type fixed needle, fast aspiration and eject | | 22/51/3 | G4200-80118 |
| | X-type fixed needle, low dead volume | | 22s/51/3 | G4200-80119 |
| | Replacement plunger for X-type syringe | 3/pk | | G4200-80111 |
| 10 | Fixed needle | | 22s/51/3 | G4200-80113 |
| | Replacement plunger | 10/pk | | G4200-80103 |
| 25 | Fixed needle | | 22s/51/3 | G4200-80114 |
| | Replacement plunger | 10/pk | | G4200-80104 |
| 100 | Fixed needle | | 22/51/3 | G4200-80115 |
| | Fixed needle | | 22s/51/3 | G4200-80116 |
| | Replacement plunger | 10/pk | | G4200-80105 |
| 250 | Fixed needle | | 22/51/3 | G6500-80102 |
| | Replacement plunger | 10/pk | | G4200-80102 |
| 500 | Fixed needle | | 22/51/3 | G6500-80103 |
| | Replacement plunger | | | G4200-80106 |
| 1000 | Fixed needle | | 22/51/3 | G6500-80104 |
| | Replacement plunger | | | G4200-80101 |
| 2500 | Fixed needle | | 22/51/3 | G6500-80105 |
| | Replacement plunger | | | G4200-80107 |
| 5000 | Fixed needle | | 22/51/3 | G6500-80106 |
| | Replacement plunger | | | G4200-80108 |

HTS and HTC PAL Liquid Injection Valve Supplies

Whether your HTS or HTC PAL autosampler uses the Agilent proprietary Rheodyne high-pressure 600 bar injection valve or Valco Cheminert injection valves, Agilent can help you find a sample loop to meet your most challenging applications – including:

- Rheodyne 600 bar injection valve loops, which include high-pressure Swagelok fittings
- Cheminert metal loops, which feature two 1/16 in stainless steel nuts and two stainless steel ferrules
- Cheminert PEEK loops, which include two PEEK nuts and two PEEK ferrules

HTS and HTC PAL Liquid Injection Valve Loops and Needle Seals

| Description | Part No. |
|--|-----------|
| Rheodyne 600 bar Valve Supplies | |
| Stainless Steel Loops: Supplied with Swagelok fittings required for high pressure | |
| 5 µL | 5188-6486 |
| 10 µL | 5188-6487 |
| 20 µL | 5188-6488 |
| 50 µL | 5188-6489 |
| 100 µL | 5188-6490 |
| Stator, Rheodyne 600 bar | 5188-6491 |
| RheBuild Kit, 600 bar, includes Rotor Seal and 3/32 in hex wrench | 5188-6492 |
| Needle Seals, Rheodyne valve, 600 bar, 10/pk | 5188-6478 |
| Cheminert Valve Supplies | |
| PEEK Loops: Include two PEEK nuts and two PEEK ferrules | |
| 2 µL | 5188-6469 |
| 5 µL | 5188-6470 |
| 10 µL | 5188-6467 |
| 20 µL | 5188-6468 |
| Metal Loops: Include two 1/16 in stainless steel nuts and two stainless steel ferrules | |
| 2 µL | 5188-6457 |
| 10 µL | 5188-6458 |
| 50 µL | 5188-6460 |
| 100 µL | 5188-6461 |
| 250 µL | 5188-6462 |
| 500 µL | 5188-6463 |
| 1000 µL | 5188-6464 |
| 2000 µL | 5188-6465 |
| 5000 µL | 5188-6466 |
| PEEK Needle Seal, Valco, 22-gauge, 10/pk | 5188-6476 |
| PTFE Needle Seal, Valco, 22-gauge, 10/pk | 5188-6477 |



Stainless steel loop, 5188-6486



2 µL PEEK loop, 5188-6469



10 µL PEEK loop, 5188-6467

CTC Autosampler General Supplies

For your convenience, Agilent offers a selection of replacement sampling trays, well plates and sampling accessories for CTC autosamplers.



Sample tray, G6500-80101



Collection plate, showing
96-position closing mat, 5042-1389



Well plate foil cutter, 5188-6479

| Description | Part No. |
|--|-------------|
| Sample tray, 200 vials, 0.7 or 1 mL | G6500-80100 |
| Sample tray, 98 2 mL or 78 1 mL vials | G6500-80101 |
| Sample tray, 32 10 or 20 mL vials | G6500-80121 |
| Sample tray, 54 2 mL vials, for PAL deep-well stack | G6500-80122 |
| 96-well plates, 0.5 mL, polypropylene, 10/pk | 5042-1386 |
| 96-deep well plates, 1 mL, polypropylene, 50/pk | 5042-6454 |
| 384-well plates, 90 μ L, polypropylene, 30/pk | 5042-1388 |
| Closing mats for 96-well plates, silicone, pre-slit, fits 96-well plates P/N 5042-1385 and 5042-1386 only, 50/pk | 5042-1389 |
| Well plate foil cutter, max 22-gauge needle | 5188-6479 |

Gas Management

Gas Purification

Impure gases can cause installation delays, premature instrument failure, and flawed results. Purification is one of the most important steps you can take to optimize your system performance.

Agilent brings the highest performance of gas purifiers to gas chromatographers. We manufacture purifiers in a variety of sizes and configurations to remove oxygen, moisture, and hydrocarbons. We recommend that each gas chromatograph use a gas purification system with removable cartridges such as Gas Clean or Renewable. These systems ensure the highest quality gas and contain indicators to allow for timely replacement before other consumables, like columns and liners, are damaged and sensitivity decreases. Agilent Gas Purifiers are a cost effective safety and preventive measure to assure the supply of the highest purity gas to your GC and GC/MS instrumentation with considerable savings in laboratory gas costs. We also carry a line of in-line purifiers to provide high capacity or economy solutions for customers. Please refer to the Gas Purifier Selection Guide to determine which gas purifiers you should use, see page 95.

Carrier Gas Purification

The Carrier Gas Purification illustration on the next page shows the most common gas purification configurations used in gas chromatography.

Regardless of which purification system is employed, proper installation and maintenance are required to achieve optimal performance. A purifier that is not maintained will eventually expire and become ineffective, or worse, a source of contamination.

Helpful Hints for Purification Success

- Keep number of fittings in gas line to a minimum
- Install purifiers in a convenient location close to the GC
- Use purifier log books to determine maintenance and cartridge replacement schedules
- Use indicating traps closest to the GC so you can determine when to change the traps that are upstream



Gas Clean Filters

TIPS & TOOLS

View the latest Agilent J&W GC column focused applications, products and educational resources at www.agilent.com/chem/mygccolumns

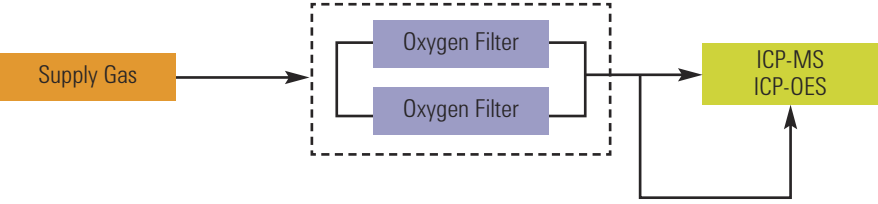
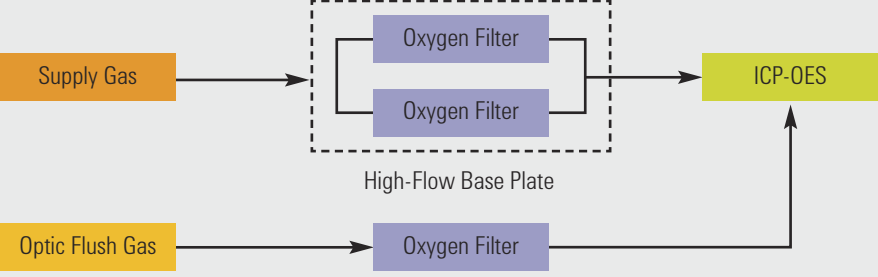




Connection Diagrams for Common Detectors

| Detector | Connection Diagrams |
|--|---|
| <p>ECD Electron Capture Detector</p> | <pre> graph LR CG[Carrier Gas] --> OF1[Oxygen Filter] N2[Nitrogen] --> OF2[Oxygen Filter] OF1 --> MF1[Moisture Filter] OF2 --> MF2[Moisture Filter] MF1 --> C[Column] MF2 --> APG[Anode Purge Gas] MF2 --> MUG[Make-Up Gas] C --> ECD[ECD] APG --> ECD MUG --> ECD </pre> |
| <p>FID Flame Ionization Detector (Carrier Gas = Make-Up Gas)</p> | <pre> graph LR CG[Carrier Gas] --> OF[Oxygen Filter] OF --> MF[Moisture Filter] MF --> C[Column] H2[Hydrogen] --> CF1[Charcoal Filter] Air[Air] --> CF2[Charcoal Filter] CF1 --> FID[FID] CF2 --> FID C --> FID </pre> |
| <p>FID Flame Ionization Detector (Carrier Gas differs from Make-Up Gas)</p> | <pre> graph LR CG[Carrier Gas] --> GCMF[GC/MS Filter] GCMF --> C[Column] MUG[Make-Up Gas] --> CF1[Charcoal Filter] H2[Hydrogen] --> CF2[Charcoal Filter] Air[Air] --> CF3[Charcoal Filter] C --> FID[FID] CF2 --> FID CF3 --> FID </pre> |

| Detector | Connection Diagrams |
|---|---------------------|
| <p>FPD Flame Photometric Detector</p> <p>PFPD Pulsed Flame Photometric Detector</p> | |
| <p>MS (ITD, MSD) Ion Trap Detector, Mass Selective Detector</p> <p>Two Possibilities (see diagrams to the right)</p> | |
| <p>NPD, PND Nitrogen-Phosphorus Detector</p> <p>TID, TSD Thermionic Detector (Carrier Gas = Make-Up Gas)</p> | |
| <p>TCD Thermal Conductivity Detector</p> | |

Connection Diagrams Analyzers and Generators

| Detector | Connection Diagrams |
|--|--|
| <p>ICP-OES/ICP-MS</p> <p>Inductively Coupled Plasma-Optical Emission Spectrometry/Mass Spectrometry</p> <p>(Plasma Gas = Nebulizer Gas)</p> |  |
| <p>ICP-OES</p> <p>Inductively Coupled Plasma-Optical Emission</p> <p>(Different Optic Flush Gas)</p> |  |
| <p>Total Organic Carbon (TOC) Analyzer</p> |  |
| <p>Zero-Air Generator</p> |  |

Key:

GC/MS Filter: A triple filter that removes oxygen, moisture, and hydrocarbons

Oxygen Filter: A filter that removes oxygen

Moisture Filter: A filter that removes water

Charcoal Filter: A filter that removes hydrocarbons

CO₂ Filter: A filter that removes carbon dioxide

Gas Purifier Selection Guide

| Contaminant | Description | Series | Unique Features | Page No. |
|--|-----------------------------------|--------|--|----------|
| Purification Systems | | | | |
| Hydrocarbon Moisture Oxygen | Gas Clean Filters* | | Ships standard with GC/MS Systems, highly sensitive indicators with fast, leak-free filter replacement | 96 |
| Triple Filter (GC/MS) Carbon Dioxide Renewable Types: Triple Filter | Renewable Gas Purification System | G3440 | Recyclable high-capacity system filters moisture, oxygen and hydrocarbons in a small, single-cartridge unit, featuring quick changes and easy-to-read dual indicators | 100 |
| In-Line Purifiers | | | | |
| Moisture (H ₂ O) | Indicating Moisture Traps | | Glass construction with plastic safety shield | 104 |
| | Big Moisture Traps | BMT | Ultra-high capacity for moisture | 103 |
| Oxygen (O ₂) | Indicating Oxygen Traps | | Glass construction with plastic safety shield | 105 |
| | Oxygen Traps | OT1 | Economical non-indicating oxygen trap | 106 |
| | Big Oxygen Traps | BOT | Ultra-high capacity for oxygen | 103 |
| Hydrocarbons (HCs) | Hydrocarbon Traps | HT | Economical trap for hydrocarbons | 106 |
| | Big Hydrocarbon Traps | BHT | Ultra-high capacity for hydrocarbons | 103 |
| Combination Traps | Oxygen/Moisture Trap | OT3 | Economical bi-functional trap | 108 |
| | Hydrocarbon/Moisture Trap | HMT | Economical bi-functional trap | 109 |
| | Big Universal Trap | RMS | Gas-specific (for purifying He, N ₂ , or H ₂), ultra-high capacity, removes H ₂ O, O ₂ , HCs, CO, and CO ₂ , recommended for GC and GC/MS gas supplies | 101 |
| Other Purifiers | | | | |
| Organics | Split Vent Trap | RDT | Cartridge design with durable cartridge holder and replacement cartridges | 109 |

*Agilent Recommended

Gas Purification Systems

Agilent Gas Clean Filters

- Deliver clean gases for accurate analyses
- Fast, leak-free filter replacement reduces downtime
- Economical, with immediate payback
- Highly sensitive filter indicators provide maximum instrument protection

The Agilent Gas Clean Filter System delivers clean gases, reducing the risks of column damage, sensitivity loss, and instrument downtime. Inserting a Gas Clean Filter System in the gas line immediately before the instrument inlet greatly reduces the level of impurities, thus improving trace analysis. Contaminants entering your GC column will also be reduced, which is critical for high temperature analysis and essential for longer column lifetime.

Replacing the filters when they have reached absorption capacity ensures maximum protection of your GC columns and analytical hardware. The sensitive indicators change color, alerting you that the filter needs to be replaced.

A Gas Clean Filter System allows you to use 99.996% (4.6) pure helium instead of the more expensive 99.999% (5.0) or 99.9999% (6.0) grade, while still yielding high quality analytical results. The expected cost savings are 30%.



The unique connection design allows fast, leak-free replacement of the Gas Clean Filter

TIPS & TOOLS



Learn best practices for GC troubleshooting with the Agilent GC Troubleshooting video series – view at www.agilent.com/chem/GCtroubleshooting



Benefits of Using Gas Clean Filters

| Technique | Filters | Benefit |
|----------------------|---|---|
| GC/MS | GC/MS filter | Higher data accuracy and less maintenance |
| GC column | Moisture filter and oxygen filter or a GC/MS filter | Longer lifetime |
| ECD detector | GC/MS Filter | Greater sensitivity |
| TCD detector | Moisture filter and oxygen filter or a GC/MS filter | Greater sensitivity and less maintenance |
| Process GC | Process moisture filter | Long term stability |
| FID detector | Two charcoal filters (for air and hydrogen) | Greater sensitivity |
| PID detector | Oxygen filter and charcoal filter | Greater sensitivity |
| PFPD or FDP detector | Charcoal filter, CO ₂ filter and moisture filter | Greater sensitivity |
| TSD or NPD detector | Charcoal filter, CO ₂ filter and moisture filter | Greater sensitivity |
| Total organic carbon | CO ₂ filter and moisture filter | Greater sensitivity |
| Zero-air generator | CO ₂ filter and moisture filter | Cleaner gas |
| ICP-OES, ICP-MS | High flow connection unit with two oxygen filters | Greater sensitivity |

Gas Clean Filters Technical Specifications

| Description | Function | Indicator Color Change | Capacity | Outlet Concentration (at operating flow of 1-10 L/min) |
|--|--|---|--|--|
| Oxygen Filter | Removes oxygen as well as traces of sulfur and chlorine compounds from carrier gas | From green to gray | 150 mL oxygen | < 50 µg/L |
| Moisture Filter/Process Moisture Filter | Removes water, oil, and other foreign material from the carrier gas | From green to pale brown | 7.2 g water | < 0.1 mg/L |
| Charcoal Filter | Removes organic compounds from gas streams | No indicator | Approximately 7 g, depending on impurities | < 0.1 mg/L |
| GC/MS Filter | Single combination filter, removes water, oxygen, and organic compounds | Oxygen, from green to gray; Moisture, from green to pale brown | 100 mL oxygen, 1 g water, organics depending on impurities | Oxygen < 50 µg/L Moisture < 0.1 mg/L Organics < 0.1 mg/L |
| CO₂ Filter | Removes CO ₂ from the gas stream; use with moisture filter | From white to violet | 9 g CO ₂ | < 1 mg/L |



Gas Clean Filters



1-position connecting unit, 1/8 in, CP7988



4-position connecting unit, 1/8 in, CP736520



High flow connecting unit 1/8 in, CP17985

Agilent Gas Clean Filter Starter Kits

| Description | Part No. |
|---|----------|
| Agilent Gas Clean FID Filter kit Includes a 4-position 1/8 in connecting unit and two Charcoal filters, one Oxygen filter, and one Moisture filter | CP7995* |
| Agilent Gas Clean Filter Kit, 1/8 in Includes a 4-position 1/8 in connecting unit and two Charcoal filters, one Oxygen filter, and one Moisture filter | CP736530 |
| Agilent Gas Clean GC/MS Filter kit Includes a 1-position connecting unit 1/8 in and two GC/MS filters | CP17976 |
| Agilent Gas Clean GC/MS Filter kit Includes a 1-position connecting unit 1/4 in and two GC/MS filters | CP17977 |
| Agilent Gas Clean GC/MS Filter Installation kit Includes 1 m copper tubing (P/N CP17976), two nuts and two ferrules, 1/8 in | CP17978 |
| Agilent Gas Clean CO ₂ kit Includes 2-position 1/4 in connecting unit and CO ₂ and moisture filters | CP17982 |
| Agilent Gas Clean CO ₂ kit Includes 2-position 1/8 in connecting unit and CO ₂ and moisture filters | CP17983 |
| Agilent TCD Filter Kit Includes a 2-position 1/8 in connecting unit, one Oxygen filter, and one Moisture filter | CP738408 |
| Agilent GC Installation Kit Includes CP736530 and many useful fittings and accessories. | 19199N |

*For 1/8 in tube, use reducer 1/8 in x 1/4 in, P/N CP4392

Connecting Units

| Description | Part No. |
|---|----------|
| 1-position connecting unit, 1/4 in | CP7980 |
| 1-position connecting unit, 1/8 in | CP7988 |
| 2-position connecting unit, 1/4 in | CP738406 |
| 2-position connecting unit, 1/8 in | CP738407 |
| 4-position connecting unit, 1/4 in | CP7989 |
| 4-position connecting unit, 1/8 in | CP736520 |
| High flow connecting unit, 2-position, 1/4 in | CP17984 |
| High flow connecting unit, 2-position, 1/8 in | CP17985 |
| 1-position, stainless steel, 1/4 in tube | CP7980P4 |
| 1-position, stainless steel, 1/8 in tube | CP7988P8 |
| 1-position, stainless steel, 3 mm tube | CP7988P3 |
| 1-position, stainless steel, 6 mm tube | CP7980P6 |



Replacement Gas Clean Filters

| Description | Part No. |
|---|----------|
| Agilent Gas Clean CO ₂ filter | CP17969 |
| Agilent Gas Clean Oxygen filter | CP17970 |
| Agilent Gas Clean Moisture filter | CP17971 |
| Agilent Gas Clean Process Moisture filter | CP17971P |
| Agilent Gas Clean Charcoal filter | CP17972 |
| Agilent Gas Clean GC/MS filter* | CP17973 |

*GC/MS filter removes Hydrocarbons, Moisture, and Oxygen, and can be used to purify any GC carrier gas. It is the best filter for protecting your inert consumables.

Accessories and Fittings

| Description | Part No. |
|--|------------|
| Wall mounting bracket for connecting unit For CP7980 and CP7988 | CP7981 |
| Upper part filter connecting unit | CP7978 |
| Flush head for connecting unit | CP7987 |
| Male connector, 1/4 in with dust filter | CP7986 |
| Male connector, 1/8 in with dust filter | CP82117 |
| Viton O-rings, two sets | CP7983 |
| Male connector, stainless steel, 1/4 in with dust filter | CP7986SS |
| Male connector, stainless steel, 1/8 in with dust filter | CP82117SS |
| Male connector, stainless steel, 3 mm with dust filter | CP82117SS3 |
| Male connector, stainless steel, 6 mm with dust filter | CP7986SS6 |



Agilent Gas Clean GC/MS filter, CP17973



Wall mounting bracket for connecting unit, for CP7980 and CP7988, CP7981



Flush head for connecting unit, CP7987

TIPS & TOOLS

GC/MS filter removes Hydrocarbons, Moisture, and Oxygen and can be used to purify any GC carrier gas. It is the best filter for protecting your inert consumables.





Renewable gas purification system (left) and recycled cartridge (right)



Renewable gas purifier cartridge, new, G3440-60003

Renewable Gas Purification System

The Renewable Gas Purification System from Agilent not only traps large quantities of contaminants and lasts a long time, but it is also recyclable. With average use, you'll only need to purchase a replacement cartridge once per year or after approximately 20 cylinders' worth of purification. When you need a replacement, you have the option to purchase a new or recycled cartridge. Recycled cartridges are refilled and certified to the full specifications of the new cartridges.

- Agilent's highest capacity and most economical purification system
- All cartridges are environmentally friendly and reduce waste
- High capacity – 850 cc or more oxygen filtration, 12 g H₂O, and approximately 8 g hydrocarbon filtration per cartridge – in a compact footprint
- Improves 99.995% gas purity to 99.9995% purity
- Dual indicators make it easy to see the purification results
- Labeling displays indicator color and shape for accurate reading
- Simple twist on/off knob and guide rod make cartridge changes quick and easy
- One renewable gas purifier system can support up to four GC systems
- Designed with efficiency, safety, and environmental responsibility in mind
- All replacement cartridges include return packaging and instructions

Renewable Gas Purification System

| Description | Part No. |
|--|-------------|
| Renewable gas purifier system startup kit Includes one G3440-80007 base, one G3440-60003 renewable gas purifier cartridge, wall or bench mount hardware, and instruction manual | G3440-60004 |
| Renewable gas purifier cartridge, new | G3440-60003 |
| Renewable gas purifier cartridge, recycled | G3440-69003 |
| Renewable gas purifier system, base only | G3440-80007 |
| Return packaging set For return of G3440-60003 or G3440-69003 renewable gas purification cartridge when original packaging is lost or damaged | 5190-1414 |

TIPS & TOOLS



For more information about the Renewable Gas Purification System, visit www.agilent.com/chem/renewable

In-Line Gas Traps

The purpose of gas traps is to remove detrimental impurities from carrier and detector gases. Combination traps are available which remove moisture, oxygen, and/or organics with a single trap. The effectiveness of the traps depends on the initial quality of the gas.

Constant exposure of capillary columns to oxygen and moisture, especially at high temperatures, results in rapid and severe column damage. The use of oxygen and moisture traps for the carrier gas may extend column life and protect the instrument. Any moisture or oxygen introduced into the gas stream due to a leak will be removed by the trap until it expires.

Big Universal Traps

Big Universal Traps utilize a layered, multi-adsorbent bed packing of the most effective, highest capacity adsorbent materials available today for the removal of oxygen, moisture, hydrocarbons, carbon dioxide, and carbon monoxide from helium gas streams. The volume of the various adsorbent materials in the Big Universal Trap was developed through rigorous testing and evaluation in order to ensure that breakthrough of the five major contaminant groups occurs as simultaneously as possible as each material achieves complete saturation.

One Big Universal Trap unit will easily purify the contents of thirteen "K" size cylinders of 99.997% purity helium to a cumulative level of 100 µg/L of O₂, H₂O, CO₂, CO, and hydrocarbons at a flow rate of up to 8 L/min. All tube fittings are Swagelok stainless steel, fitted with 40 µm stainless steel frits for particulate control. Maximum pressure is 250 psi.

Big Universal Traps are more economical than other purifiers, offering nearly three times the capacity.

Big Universal Traps are ideal for any GC or GC/MS application where helium is employed and assurance of purity is essential. Combining the contents of three individual in-line traps into a single unit reduces the number of potential leaks and the possibility of aspirating contaminants into the gas stream. A single purifier also simplifies installation and replacement.



Big universal trap

TIPS & TOOLS

Big universal traps have nearly three times the capacity of other purifiers.



Capacity Data

| High Purity Helium-99.997% | | Removal Capacity |
|----------------------------|----------|------------------|
| O ₂ | < 5 mg/L | 1.07 L |
| THC* | < 1 mg/L | 20 g |
| H ₂ O | < 5 mg/L | 46 g |

*Total Hydrocarbons, analysis limited to three contaminant groups

Effluent Concentration

Research Grade Helium-99.9999%

| | | | |
|--------------------|------------|------------------|------------|
| Impurities | < 1 mg/L | H ₂ O | < 0.2 mg/L |
| N ₂ | < 0.5 mg/L | H ₂ | < 0.2 mg/L |
| O ₂ | < 0.5 mg/L | Ar | < 0.1 mg/L |
| THC* | < 0.1 mg/L | Ne | < 0.5 mg/L |
| CO+CO ₂ | < 0.1 mg/L | | |

*Total Hydrocarbons, analysis limited to three contaminant groups

Big Universal Traps (RMS Series)

| Description | 1/8 in | 1/4 in |
|----------------------------|----------|----------|
| | Part No. | Part No. |
| Hydrogen | RMSHY-2 | RMSHY-4 |
| Helium (Ar/Me) | RMSH-2 | RMSH-4 |
| Nitrogen | RMSN-2 | RMSN-4 |
| Trap Mounting Clips | | |
| Big Mounting Clip, 2/pk | UMC-5-2 | UMC-5-2 |

Big Traps

- Pressure: Up to 250 psig
- 750 cm³ gas purifiers
- Ideal for bulk purification applications or where several instruments are plumbed from a single gas source
- One piece of heavy-walled aluminum tube eliminates potential leaks
- Equipped with sintered stainless steel frits to prevent particulate contamination



Big moisture trap

Big Moisture Traps (BMT Series)

| Description | Capacity | Efficiency | 1/8 in | 1/4 in |
|-------------------------|------------------------|---|----------|----------|
| | | | Part No. | Part No. |
| Big Moisture Trap | 130 g H ₂ O | Reduction of H ₂ O to less than 5 µg/L | BMT-2 | BMT-4 |
| Mounting Clips | | | | |
| Big Mounting Clip, 2/pk | | | UMC-5-2 | UMC-5-2 |

Big Oxygen Traps (BOT Series)

| Description | Capacity | Efficiency | 1/8 in | 1/4 in |
|----------------------------|--------------------------------|---|----------|----------|
| | | | Part No. | Part No. |
| Big Oxygen Trap | 3 L O ₂ or 3.2 g | Reduction of O ₂ to less than 1 µg/L | BOT-2 | BOT-4 |
| Trap Mounting Clips | | | | |
| Big Mounting Clip, 2/pk | | | UMC-5-2 | UMC-5-2 |

Big Hydrocarbon Traps (BHT Series)

| Description | Capacity | Efficiency | 1/8 in | 1/4 in |
|-------------------------|--|--|----------|----------|
| | | | Part No. | Part No. |
| Big Hydrocarbon Trap | 80 g of medium to heavy molecular weight hydrocarbons | Reduction of C4 hydrocarbons to less than 15 µg/L | BHT-2 | BHT-4 |
| Mounting Clips | | | | |
| Big Mounting Clip, 2/pk | | | UMC-5-2 | UMC-5-2 |

Indicating Moisture Traps

This is an advanced-design gas filter for applications requiring high-efficiency moisture removal with the benefit of a depletion indicator. The adsorbing materials are Molecular Sieve 5Å and cobalt-free indicator, held in a sturdy glass tube. The gas to be purified contacts only glass, metal and the absorbent.

The indicator changes color from greenish-yellow to blue at about 5% relative humidity to signal leaks in the system; the molecular sieve removes moisture to trace levels. The glass tube is sealed with a special dual sealing system for extra protection from leaks. An internal frit at each end prevents particulate contamination. The inner glass tube in the Moisture Trap is enclosed in a plastic outer tube for safety. Dimensions: 3.5 cm x 26 cm, maximum pressure 6.8 bar (100 psig).

Dual Seal Design: In this design the glass inner tube is protected by a sealed outer plastic tube. Even if the glass tube fails, the gas system is fully protected against leaks.

| Description | 1/8 in Part No. | 1/4 in Part No. |
|--------------------------------|--------------------|--------------------|
| Glass Indicating Moisture Trap | 5182-9211 | 5182-9411 |



Glass Indicating Moisture Trap

Indicating Oxygen Traps

This is an improved, compact indicating filter for high-efficiency oxygen removal, suitable for use with chromatography carrier gas streams. It removes oxygen to low-ppb levels, with an indicator that changes color from green to gray when adsorption capacity is depleted. The adsorbent forms copper oxide in the presence of oxygen; no gas is generated.

The Glass Indicating Oxygen Trap is recommended as a downstream indicator for high-capacity traps. It can be used with non-oxidizing gases such as He, Ar, N₂, H₂ or CH₄, with maximum recommended flow rate of 150 cc/min. The absorbents are held in a heavy-walled inner glass tube, shielded by an outer clear plastic tube for increased safety. Maximum pressure is 6.8 bar (100 psig). Approximate dimensions are 3.5 cm x 26 cm including fittings.

Dual Seal Design: In this design the glass inner tube is protected by a sealed outer plastic tube. Even if the glass tube fails, the gas system is fully protected against leaks.

| Description | 1/8 in Part No. | 1/4 in Part No. |
|---|--------------------|--------------------|
| Glass Indicating Oxygen Trap | 5182-9201 | 5182-9401 |
| Glass Indicating Oxygen Trap, Stainless Steel Fitting | 5182-9202 | 5182-9402 |



Glass Indicating Oxygen Trap

Oxygen Traps

- Reduces oxygen to less than 1 µg/L
- Environmentally safe

This trap removes the oxygen rather than converting it to another form of contamination.



Economy non-indicating oxygen trap

| Description | Size (cc) | 1/8 in Part No. | 1/4 in Part No. |
|---|-----------|-----------------|-----------------|
| Economy Non-Indicating Oxygen Traps (OT1 Series) | | | |
| Oxygen Trap | 70 | OT1-2 | OT1-4 |
| Trap Mounting Clips | | | |
| Mounting clip for OT1 traps | | MC-1 | MC-1 |

Hydrocarbon Traps

Hydrocarbon Traps



Hydrocarbon trap, HT200-2

| Description | Size (cc) | 1/8 in Part No. | 1/4 in Part No. |
|----------------------------------|-----------|-----------------|-----------------|
| Hydrocarbon Trap | 200 | HT200-2 | HT200-4 |
| Capillary Grade Hydrocarbon Trap | 100 | HT3-2 | HT3-4 |
| Mounting Clips | | | |
| Mounting clip for HT200 Series | | MC-1 | MC-1 |

**Ability of Activated Carbon to Remove Substances from Gases
Using Hydrocarbon Traps**

| Compound | Efficiency | Compound | Efficiency |
|----------------------|-------------------|------------------------|-------------------|
| acetone | excellent | dissolved oils | excellent |
| hypochlorous acid | excellent | nitrobenzenes | excellent |
| alcohol | excellent | nitrotoluene | excellent |
| amines | very good | ethyl acetate | excellent |
| inorganic acids | none | ethyl alcohol | excellent |
| ammonia | poor | organic acids | excellent |
| iodine | excellent | ethyl chloride | excellent |
| amyl acetate | excellent | oxalic acid | excellent |
| isopropyl acetate | excellent | ethyl ether | excellent |
| amyl alcohol | excellent | ozone | excellent |
| isopropyl alcohol | excellent | fluoride | poor |
| benzene | excellent | phenol | excellent |
| ketones | excellent | formaldehyde | poor |
| butyl acetate | excellent | potassium permanganate | excellent |
| butyl alcohol | excellent | propyl acetate | excellent |
| lactic acids | excellent | glycol | excellent |
| by-products-organic | very good | propyl alcohol | excellent |
| lysol | excellent | propyl chloride | excellent |
| calcium hypochlorite | excellent | hydrogen bromide | satisfactory |
| mercaptans | excellent | hydrogen chloride | poor |
| carbon dioxide | none | sodium hypochlorite | excellent |
| methyl acetate | excellent | hydrogen fluoride | none |
| chlorobenzene | excellent | solvents | excellent |
| methyl alcohol | excellent | hydrogen iodide | satisfactory |
| chlorine | excellent | sulfuric acid | satisfactory |
| methyl bromide | excellent | hydrogen selenide | satisfactory |
| chlorophenol | excellent | hydrogen sulfide | satisfactory |
| methyl chloride | excellent | toluene | excellent |
| chlorophyl | excellent | trichloroethylene | excellent |
| methyl ethyl ketone | excellent | xylene | excellent |
| cresol | excellent | | |

Combination Traps

Oxygen/Moisture Traps

Oxygen/moisture adsorbents team up to give you two functionalities in the same trap. Unlike some oxygen/moisture traps, these traps are disposable.

Consider the safety, performance, and cost advantages of Agilent capillary-grade oxygen/moisture traps (OT3) compared to heated, catalytic traps.

- Optimized for maximum surface area and capacity
- Leak-free, one-piece design (tested to 2000 psi)
- Bed material treated with ultra-high purity helium
- Filter design: prevents channeling, promotes efficient scrubbing

In addition to inert gases (nitrogen, helium, argon, and krypton), the Agilent OT3 Trap treats streams of hydrogen, alkanes, alkenes, aliphatic hydrocarbon gases, low boiling aromatics, carbon dioxide, carbon monoxide, and argon-methane.



Agilent OT3 trap

Oxygen/Moisture Traps (OT3 Series)

| Description | Capacity | Efficiency | Size (cc) | 1/8 in Part No. | 1/4 in Part No. |
|---------------------|---|------------|-----------|-----------------|-----------------|
| OT3 Trap | 500 mL O ₂ 2 g H ₂ O | < 15 µg/L | 100 | OT3-2 | OT3-4 |
| Trap Mounting Clips | | | | | |
| Mounting clip | | | | MC-1 | MC-1 |



HOW DOES IT WORK?

The Agilent OT3 Trap contains a highly active, metal-containing, scrubbing material in an inert, aluminum body.

Hydrocarbon/Moisture Traps

- Replace most mixed bed traps supplied by GC manufacturers
- Mounting panel

Hydrocarbon/Moisture Traps (HMT Series)

| Description | Size (cc) | 1/8 in Part No. | 1/4 in Part No. |
|---------------------------|-----------|-----------------|-----------------|
| Hydrocarbon/Moisture Trap | 200 | HMT200-2 | HMT200-4 |
| Mounting Clips | | | |
| Mounting clip | | MC-1 | MC-1 |

Combination Traps for Chemical Ionization MS

| Description | Fitting (in) | Part No. |
|-----------------------------|--------------|-------------|
| Chemical Ionization for MS* | 1/8 | G1999-80410 |

*Isobutane or methane applications only

Universal/External Split Vent Trap

- Protects lab from contaminants released by split injection systems
- Stops environmental pollution by trapping and eliminating a broad range of contaminants
- Easy to change
- Comes with three packs of replacement cartridges

Universal/External Split Vent Trap

| Description | Part No. |
|---|----------|
| Universal/external split vent trap with 3 cartridges, 1/8 in Swagelok fitting | RDT-1020 |
| Replacement cartridges, 3/pk | RDT-1023 |



Hydrocarbon/Moisture trap



Split vent trap and cartridges, RDT-1020

TIPS & TOOLS

Remember to replace split vent cartridge every six months.



ADM Flow Meters

ADM flow meters allow most gas measurements with the touch of only one button – turn it on, and the instrument provides continuous, hands-free flow readings. Measure column, detector, and carrier gas flows without making any adjustments. ADM flow meters are ideal for measuring gas streams with a changing gas composition. For example, if gas flow is measured from a digestion system, concentration changes in methane, carbon dioxide, and oxygen will not affect accuracy.

All ADM flow meters are battery powered and field-portable. Agilent calibrates each instrument to 5-point, NIST-traceable standards to ensure the highest available accuracy. The ADM family measures flow volumetrically, so you don't have to make adjustments when changing from one gas to another.



ADM 1000

ADM 1000

- Accuracy $\pm 3\%$
- Operating temperature range – 0 to 45 °C for the instrument, -70 to 135 °C for the tubing
- Calibration – traceable to NIST primary standards
- Real-time, split ratio measurement
- CE mark certified
- Measures flow rates from 0.5 to 1000 mL/min
- Split ratios – compare the ratio from one gas measurement to another (i.e., injection port split ratios)



ADM 2000

ADM 2000

In addition to the features of the ADM 1000, the ADM 2000 includes:

- Mass flow measurements – measure flow rate, independent of atmospheric pressure and temperature (calculated)
- Data output through RS-232 port
- 9 V battery and AC power adapter (120 or 220 VAC)

ADM Flow Meters

| Description | Flow Rate (mL/min) | | Gases Measured* | Accuracy (%) | Power Supply | RS-232 Data Output | Part No. |
|-----------------------|--------------------|------|-----------------|--------------|--------------------|--------------------|------------|
| | Low | High | | | | | |
| ADM 1000** | 0.5 | 1000 | All | ± 3 | 9 V Battery | None | 220-1170 |
| ADM 2000** | 0.5 | 1000 | All | ± 3 | Battery or 120 VAC | Yes | 220-1171-U |
| ADM 2000E** | 0.5 | 1000 | All | ± 3 | AC Adapter, 220 V | Yes | 220-1171-E |
| Carrying Case for ADM | | | | | | | 907-0056 |

* $\pm 3\%$ or ± 0.2 mL/min, whichever is greater with a flow rate of 0.5-1,000 mL/min

**Non-corrosive gases only

Flow Meters

Precision Gas Flow Meter

Agilent's Precision Gas Flow Meter is the ultimate gas flow meter for chromatography applications. This handheld flow meter is highly accurate, reliable and incorporates industry leading performance. The inherent stability of the rugged, solid state components allows Agilent to provide the longest calibration interval on the market, all traceable to NIST standards.

- Highly accurate and reliable measurement of common carrier and fuel gases used in GC, including nitrogen, air, carbon dioxide, hydrogen, helium, and argon/methane
- Two year guaranteed calibration period traceable to NIST standards
- Measures flow based on gas viscosity properties with an accuracy of $\pm 0.8\%$ of reading + 0.2% of full scale
- Flow rate range from 5 to 500 mL/min
- Displays mass flow, volumetric flow, temperature, and pressure readings simultaneously
- Can be plumbed inline



Precision gas flow meter, 5067-0223

Precision Gas Flow Meter

| Description | Part No. |
|--------------------------|-----------|
| Precision gas flow meter | 5067-0223 |

TIPS & TOOLS

Ensure you are maximizing the inertness of your GC flow path with the Agilent Ultra Inert Poster – www.agilent.com/chem/Ulorder





Gas leak detector, G3388B

Gas Leak Detector

Gas leaks can cause detector noise and baseline instability, shorten column life and waste expensive carrier gas. Liquid leak detectors, although inexpensive, can contaminate your system. Agilent's G3388B Electronic Gas Leak Detector is an easy way to quickly identify leaks in your system and prevent system downtime.

- Detects thermal conductivity differences
- Audible and visual alerts
- Minimum detection limit – 0.0005 mL/min hydrogen and helium
- Lightweight – only 105 g
- Small – roughly 50 (w) x 19.5 (d) x 111 (h) mm
- Rechargeable Lithium Ion Battery with over 5 hours of life
- Includes a USB cable for battery charging
- One year warranty from Agilent

Gas Leak Detector

| Description | Part No. |
|---------------------------------------|----------|
| Handheld electronic gas leak detector | G3388B |

G3388A Replacement Parts

| Description | Part No. |
|--------------------------|-----------|
| Replacement filter tip | 5067-0218 |
| Replacement battery | 5067-0219 |
| Replacement power supply | 5067-0220 |



TIPS & TOOLS

For more information about the Gas Leak Detector, visit www.agilent.com/chem/leakdetector

Gas Cylinder Regulators, U.S. Only

To plumb your system properly, select one of Agilent's economical brass regulators and the proper gas purification devices from our newly expanded product offering. These regulators and our broad spectrum of in-line filters, combination traps, and gas purification systems are an excellent combination to plumb your systems. Our new gas purification selection guide and diagrams will help you determine which products can be used with the regulators below.



Brass body regulator

Brass Body, Dual Stainless Steel Diaphragms

Specifications

| | |
|-----------------------------|---|
| Max inlet pressure | 3000 psig |
| Operating temperature range | -40 °F to 165 °F |
| Inlet-outlet port | 1/4 in, MNPT |
| Outlet valve | 1/4 in, MNPT 2 1/2 in dual-scale gauges CGA-346, 350, 340, 580, 590 Internal self-reseating relief valve |
| Delivery pressures | 1 to 125 psig |
| Weight | 5.6 lb |

Materials of Construction





Connector (Swagelok-style to female NPT),
0100-0118



Connector (Swagelok-style to female NPT),
0100-0119



Cylinder wall bracket, 5183-1941

Brass Body, Two-Stage Stainless Steel Diaphragms, 1/8 in, U.S. Only*

| Description | Part No. |
|---|-----------|
| CGA 346, 125 psig max (8.6 bar), Breathing Air | 5183-4641 |
| CGA 350, 125 psig max (8.6 bar), H ₂ , Ar/Me | 5183-4642 |
| CGA 540, 125 psig max (8.6 bar), O ₂ | 5183-4643 |
| CGA 580 Regulator, 125 psig max (8.6 bar), He, Ar, N ₂ | 5183-4644 |
| CGA 590, 125 psig max (8.6 bar), Industrial Air | 5183-4645 |

*For 1/4 in tubing, purchase a 1/4 in adapter, U.S. only

Connectors (Swagelok to Female NPT)

| Description | Unit | Part No. |
|---|------|-----------|
| 1/8 in (A) x 1/4 in (B) connector, brass (included with brass regulators) | 1/ea | 0100-0118 |
| 1/4 in (A) x 1/4 in (B) connector, brass* | 1/ea | 0100-0119 |
| PTFE tape, industrial roll | | 0460-1266 |

*Required for plumbing 1/4 in tubing to regulators

Cylinder Wall Bracket

| Description | Part No. |
|--|-----------|
| Cylinder wall bracket with strap & chain (cylinder size up to 14 in, 35 cm) | 5183-1941 |

Kits, Fittings, Tools and Accessories

GC Installation Kits

Agilent Installation Kits for GC are designed to provide you with the essential items necessary for a successful installation while providing a substantial cost saving over individual purchases.

GC Installation Kit with Gas Purifiers

| Description | Unit | Part No. |
|--|-------|-----------|
| GC Installation Kit with Gas Purifiers | | 19199N |
| Gas Clean Filter Kit, 1/8 in | | CP736530 |
| Snoop, 8 oz (236 mL) bottle | | 9300-0311 |
| 1/8 in brass nut and ferrule set | 20/pk | 5080-8750 |
| Copper tubing, 1/8 in, 50 ft | | 5180-4196 |
| 1/8 in tee, brass | 2/pk | 5180-4160 |
| 1/8 in cap, brass | 6/pk | 5180-4121 |
| Universal/external split vent trap with 3 cartridges | | RDT-1020 |
| Tubing Cutter | | 8710-1709 |



Gas Clean Filters



Low dead volume tee, 5180-4160



1/8 in brass cap, 5180-4121



GC Installation Kit with Tools (no gas purifiers),
19199M

GC Installation Kit with Tools (no gas purifiers)

| Description | Unit | Part No. |
|---|-------|-----------|
| GC Installation Kit with Tools (no gas purifiers) | | 19199M |
| Snoop, 8 oz (236 mL) bottle | | 9300-0311 |
| 1/8 in brass nut and ferrule set | 20/pk | 5080-8750 |
| Copper tubing, 1/8 in, 50 ft, precleaned | | 5180-4196 |
| 1/8 in tee, brass | 2/pk | 5180-4160 |
| Tubing cutter, 1/8 to 5/8 in od tubing | | 8710-1709 |
| 1/8 in cap, brass | 6/pk | 5180-4121 |
| Nut driver, 7 mm | | 8710-1217 |
| Screwdriver, Torx T10 | | 5182-3466 |
| Screwdriver, Torx T20 | | 5182-3465 |
| Open end wrench, 1/4 and 5/16 in | | 8710-0510 |
| Open end wrench, 7/16 and 9/16 in | | 8710-0803 |
| Open end wrench, 7/16 and 3/8 in | | 8710-0972 |
| Wrench, 1/2 and 7/16 in | | 8710-0806 |

GC Basic Installation Kit

| Description | Part No. |
|--|-----------|
| GC Basic Installation Kit | 5182-3453 |
| Includes copper tubing, column nuts, a gas trap for the carrier gas, and five wrenches | |

Tubing

| Description | OD (in) | ID (mm) | Length | Part No. |
|---------------------------------------|---------|---------|--------|------------|
| Precleaned Copper tubing | 1/8 | 2.1 | 50 ft | 5180-4196 |
| Precleaned Copper tubing | 1/4 | 4.83 | | 3700014600 |
| Precleaned Copper tubing | 1/8 | 2.1 | 12 ft | 5021-7107 |
| Copper tubing | 1/16 | 3.25 | 50 ft | AL30509 |
| Pretreated 316 stainless steel tubing | 1/8 | 2.1 | 25 m | CP4026 |
| Pretreated 316 stainless steel tubing | | | 20 ft | 7157-0210 |
| Pretreated 316 stainless steel tubing | | | 10 m | CP4025 |
| Pretreated 316 stainless steel tubing | | | 5 m | CP4024 |
| Pretreated 316 stainless steel tubing | 1/4 | 4.3 | 25 m | CP4032 |
| Pretreated 316 stainless steel tubing | | | 5 m | CP4030 |
| Pretreated 316 stainless steel tubing | | | 1 m | CP4013 |
| PFA tubing | 1/16 | 0.76 | 25 ft | AL45734 |

Fittings

Nuts, Front and Back Ferrule Sets

| Description | Unit | Brass | Stainless Steel |
|-------------|-------|-----------|-----------------|
| 1/16 in | 10/pk | | 5180-4149 |
| 1/8 in | 20/pk | 5080-8750 | 5080-8751 |
| 1/4 in | 20/pk | 5080-8752 | 5080-8753 |

Nuts

| Description | Unit | Brass | Stainless Steel |
|-------------------|-------|-----------|-----------------|
| 1/16 in, male nut | 10/pk | SWB1021 | 5180-4102 |
| 1/16 in | 1/ea | | 0100-0053 |
| 1/8 in | 10/pk | 5180-4103 | 5180-4104 |
| 1/8 in | 1/ea | 0100-0058 | 0100-0057 |
| 1/4 in | 10/pk | 5180-4105 | 5180-4106 |

Front Ferrules

| Description | Unit | Brass | Stainless Steel |
|--------------------------|-------|------------|-----------------|
| 1/16 in | 10/pk | | 5180-4108 |
| 1/4 in | 1/ea | 2869463500 | |
| 1/16 in, Valco one piece | 10/pk | | 5181-1292 |
| 1/8 in | 10/pk | 5180-4109 | 5180-4110 |
| 1/4 in | 10/pk | 5180-4111 | SWSS4031 |



Brass nut and ferrule set, 5080-8750



Stainless steel front ferrules, 5180-4108



Front ferrules, stainless steel, 5181-1292



Front ferrules, 5180-4109



Front ferrules, 5180-4111



Back ferrules, 5180-4115



Back ferrules, 5180-4117



1/8 in brass cap, 5180-4121



1/4 in brass cap, 5180-4120



1/8 in plug, 5180-4124



1/4 in plug, 5180-4125

Back Ferrules

| Description | Unit | Brass | Stainless Steel |
|-------------|-------|-----------|-----------------|
| 1/16 in | 10/pk | 5180-4113 | 5180-4114 |
| 1/8 in | 10/pk | 5180-4115 | 5180-4116 |
| 1/4 in | 10/pk | 5180-4117 | SWSS4041 |

Caps

| Description | Unit | Brass |
|-------------|------|-----------|
| 1/8 in | 6/pk | 5180-4121 |
| 1/4 in | 6/pk | 5180-4120 |

Plugs

| Description | Unit | Brass |
|-------------|------|-----------|
| 1/8 in | 6/pk | 5180-4124 |
| 1/8 in | 1/ea | 0100-0071 |
| 1/6 in | 1/ea | 0100-1315 |
| 1/4 in | 6/pk | 5180-4125 |

Blanking Nut

| Description | Unit | Stainless Steel |
|-------------|------|-----------------|
| 1/16 in | 1/ea | 01080-83202 |



Stainless steel blanking nut, 01080-83202

Adapter

| Description | Unit | Brass |
|-----------------|------|-----------|
| 1/8 in x 1/8 in | 1/ea | 0100-0420 |



Brass adapter, 0100-0420

Hose Connector

| Description | Unit | Brass |
|-------------|-------|-----------|
| 1/16 in | 10/pk | 5180-4148 |



Low dead volume tee, 0100-0782

Tees

| Description | Unit | Brass | Stainless Steel |
|------------------------------------|------|-----------|-----------------|
| 1/16 in | 1/ea | 0100-0680 | 0100-0782 |
| 1/8 in | 1/ea | 0100-0090 | 0100-0542 |
| | 2/pk | 5180-4160 | |
| 1/8 in, for O ₂ gas mix | 1/ea | | 0100-0542 |
| 1/4 in | 1/ea | 0100-0088 | 0100-0089 |
| | 2/pk | 5180-4129 | |
| 1/6 in, low dead volume | 1/ea | | 0100-0969 |



Stainless steel tee, 0100-0542



Low dead volume tee, 5180-4160



Brass cross, 0100-0161



Brass cross, 0100-0985



Brass union, 0100-1316



Stainless steel union, 0100-0124



1/8 in brass union, 5180-4127



1/4 in brass union, 5180-4128



ZDV union with fittings, 0100-0900

Crosses

| Description | Unit | Brass |
|-------------|------|-----------|
| 1/8 in | 1/ea | 0100-0161 |
| 1/8 in | 1/ea | 0100-0996 |
| 1/4 in | 1/ea | 0100-0985 |

Elbows

| Description | Unit | Brass |
|-------------|------|-----------|
| 1/8 in | 1/ea | 0100-0091 |
| 1/8 in | 1/ea | 0100-0092 |

Unions

| Description | Unit | Brass | Stainless Steel |
|-------------|------|-----------|-----------------|
| 1/16 in | 1/ea | 0100-1316 | 0100-0124 |
| 1/8 in | 2/pk | 5180-4127 | |
| | 1/ea | | 0100-0126 |
| 1/4 in | 2/pk | 5180-4128 | |
| | 1/ea | | 0100-0128 |

Zero Dead Volume Unions

| Description | Unit | Stainless Steel |
|-------------|------|-----------------|
| 1/16 in | 1/ea | 0100-0900 |

Bulkhead Unions

| Description | Unit | Brass | Stainless Steel |
|-------------|------|-----------|-----------------|
| 1/8 in | 1/ea | 0100-0132 | 0100-0133 |

Connectors (Swagelok to Male NPT)

| Description | Unit | Brass | Stainless Steel |
|--------------------------|------|-----------|-----------------|
| 1/16 in (A) x 1/4 in (B) | 1/ea | | CP741648 |
| 1/8 in (A) x 1/4 in (B) | 2/pk | 5180-4143 | |
| 1/8 in (A) x 1/8 in (B) | 1/ea | 0100-0110 | 0100-0111 |
| 1/4 in (A) x 1/4 in (B) | 1/ea | 0100-0208 | 0100-1189 |
| | 2/pk | 5180-4145 | |



Connector (Swagelok-style to male NPT), 5180-4143



Connector (Swagelok-style to male NPT), 5180-4145



Connector (Swagelok-style to female NPT), 0100-0118



Connector (Swagelok-style to female NPT), 0100-0119

Connectors (Swagelok to Female NPT)

| Description | Unit | Brass | Stainless Steel |
|--------------------------|------|-----------|-----------------|
| 1/8 in (A) x 1/4 in (B) | 1/ea | 0100-0118 | SWSS20074 |
| 1/4 in (A) x 1/4 in (B)* | 1/ea | 0100-0119 | |

*Required for plumbing 1/4 in tubing to regulators

Reducing Unions

| Description | Unit | Brass | Stainless Steel |
|------------------|------|-----------|-----------------|
| 1/16 in x 1/8 in | 2/pk | 5180-4130 | |
| | 1/ea | | 0100-0241 |
| 1/8 in x 1/4 in | 2/pk | 5180-4131 | |
| | 1/ea | | 0100-0121 |



Reducing union, 5180-4130



Reducing union, 5180-4131



Reducing union, 0100-0241



Reducing union, 0100-0121



Reducer, 5180-4135



Reducer, 5180-4134



Front ferrules, 5180-4109



Front ferrules, 5180-4111



Back ferrules, 5180-4115



1/4 in brass cap, 5180-4120



1/8 in brass cap, 5180-4121



1/8 in plug, 5180-4124



1/8 in brass union, 5180-4127



1/4 in brass union, 5180-4128



Low dead volume tee, 5180-4160

Reducers

| Description | Unit | Brass | Stainless Steel |
|-------------------------|------|-----------|-----------------|
| 1/8 in (A) x 1/4 in (B) | 2/pk | 5180-4135 | |
| 1/6 in (A) x 1/8 in (B) | 1/ea | | 0100-0073 |
| 1/4 in (A) x 1/8 in (B) | 2/pk | 5180-4134 | |

Fittings Kit

| Description | Unit | Part No. |
|--|-------|-----------|
| Fittings Kit: Includes items below | | 5180-4161 |
| 1/8 in nut, brass | 10/pk | 5180-4103 |
| 1/4 in nut, brass | 10/pk | 5180-4105 |
| 1/8 in front ferrule, brass | 10/pk | 5180-4109 |
| 1/4 in front ferrule, brass | 10/pk | 5180-4111 |
| 1/8 in back ferrule, brass | 10/pk | 5180-4115 |
| 1/4 in back ferrule, brass | 10/pk | 5180-4117 |
| 1/4 in cap, brass | 6/pk | 5180-4120 |
| 1/8 in cap, brass | 6/pk | 5180-4121 |
| 1/8 in plug, brass | 6/pk | 5180-4124 |
| 1/4 in plug, brass | 6/pk | 5180-4125 |
| 1/8 in union, brass | 2/pk | 5180-4127 |
| 1/4 in union, brass | 2/pk | 5180-4128 |
| 1/8 in tee, brass | 2/pk | 5180-4160 |
| 1/4 in tee, brass | 2/pk | 5180-4129 |
| 1/8 x 1/4 in reducing union, brass | 2/pk | 5180-4131 |
| 1/4 in (A) x 1/8 in (B) reducer, brass | 2/pk | 5180-4134 |
| 1/8 in (A) x 1/4 in (B) reducer, brass | 2/pk | 5180-4135 |

Tools

General Laboratory Tool Kit

The general laboratory tool kit includes the following items:

- Toolbox
- Flashlight
- 8 in bastard file
- 6 in adjustable wrench
- 12 in adjustable wrench for use with regulator
- No. 1 pt, 3 in Pozidriv shaft, fits no. 2-4 screws
- No. 2 pt, 4 in Pozidriv shaft, fits no. 5-10 screws
- Flathead screwdriver, 2 in steel shaft, 1/8 in blade
- Flathead screwdriver, 4 in steel shaft, 1/4 in blade
- Hex key set, 1.5, 2, 2.5, 3, 4, 5, and 6 mm keys
- 6 in long jaw needle nose pliers with side cutters
- Three open-end wrenches (1/4 x 5/16 in, 1/2 x 9/16 in, 7/16 x 3/8 in)
- Snoop-liquid leak detector
- PTFE tape

| Description | Part No. |
|-----------------------------|-----------|
| General laboratory tool kit | 5180-4162 |

Wrenches

| Description | Part No. |
|---|-----------|
| Open end wrench, 1/4 and 5/16 in | 8710-0510 |
| Wrench, 1/2 and 7/16 in | 8710-0806 |
| Open end wrench, 7/16 and 9/16 in | 8710-0803 |
| Open end wrench, 7/16 and 3/8 in | 8710-0972 |
| Adjustable wrench, 12 in, for use with regulators | 8710-1712 |
| Open end wrench, 9/16 and 5/8 in | 8720-0010 |
| Open end wrench, 1/2 and 9/16 in | 8720-0025 |
| Open end wrench, 14 mm | 8710-1924 |
| Open end wrench, 12 mm, 116 mm long | 8710-1841 |
| Open end wrench, 4 mm | 8710-1534 |

LC Tool Kits

| Description | Part No. |
|----------------------|-------------|
| HPLC system tool kit | G4203-68708 |
| Compact tool kit | G4296-68715 |

Screwdrivers

| Description | Part No. |
|---|-----------|
| Screwdriver, 3 in Pozidriv shaft No. 1 pt | 8710-0899 |
| Screwdriver, 4 in Pozidriv shaft No. 2 pt | 8710-0900 |
| Screwdriver, Torx T10 | 5182-3466 |
| Screwdriver, Torx T20 | 5182-3465 |



General laboratory tool kit, 5180-4162



HPLC system tool kit, G4203-68708

Pliers and Tweezers

| Description | Part No. |
|---|-----------|
| Needle nose pliers, pointed serrated jaws | 8710-0004 |
| Tweezers, 4-3/4 in long | 8710-0007 |
| Truarc pliers | 8710-0018 |

Tube Cutters and Replacement Blades

| Description | Unit | Part No. |
|--|------|-----------|
| Precision tubing cutter for 1/16 in stainless steel tubing | | 5190-1442 |
| Hi-duty tubing cutter, 1/8 to 1-1/8 in od tubing | | 8710-1707 |
| Hi-duty tubing cutter blades | 5/pk | 8710-1708 |
| Tubing cutter, 1/8 to 5/8 in od tubing | | 8710-1709 |
| Plastic tubing cutter | | 8710-1930 |
| Blades for plastic cutter, 5/pk | 5/pk | 8710-1931 |



Plastic tubing cutter, 8710-1930

Hex Keys

| Description | Part No. |
|---|-----------|
| Hex key set: 1.5, 2, 2.5, 3, 4, and 5 mm keys, 1090A (5880/90A) | 8710-0641 |
| Hex key, 4 mm, 15 cm long, T-handle | 8710-2392 |
| Hex key, 3 mm, 12 cm long, straight handle | 8710-2411 |
| Hex key, 2.5 mm, 15 cm long, straight handle | 8710-2412 |
| Hex key, 1.5 mm, 10 cm long, straight handle | 8710-2393 |
| Hex key, 9/64 in, 15 cm long, T-handle | 8710-2394 |
| Hex key, 4.0 mm, 10 cm long, straight handle | 5965-0027 |
| Hex key, 2.5 mm, 10 cm long, straight handle | 5965-0028 |
| Tool kit hex keys, Rheotool* | 5064-8211 |
| Includes 3 hex keys, 4 mm, 1.5 mm, and 9/64 in, with straight or T-handle plus Rheotool | |



Hex keys, Rheotool, 5064-8211

*These tools are recommended for easier repair and maintenance of LC modules.



GC Column Accessories

Capillary Column Installation Kit

The Capillary Column Installation Kit contains:

- Diamond-tipped pencil
- 20x magnifier
- Ferrule removal tool
- Septum removal tool
- Refillable 2 oz bottle of Snoop

| Description | Part No. |
|--|----------|
| Capillary Column Installation Kit with diamond-tipped cutting pencil | 430-2000 |



Column installation kit, 430-2000

Capillary Column Rinse Kit

This kit makes solvent rinsing easy! Solvent rinsing removes many contaminants that accumulate in columns. The contaminants are removed by passing solvents through the column. Only bonded and cross-linked phase columns should be rinsed, or permanent damage to the column will result.

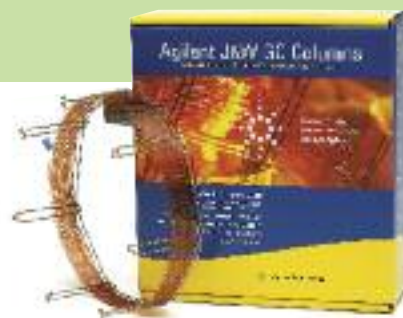
| Description | Part No. |
|----------------------------|----------|
| Capillary Column Rinse Kit | 430-3000 |



Column rinse kit, 430-3000

TIPS & TOOLS

View the latest Agilent J&W GC column focused applications, products and educational resources at www.agilent.com/chem/mygccolumns





Fused silica tubing cutters

Fused Silica Tubing Cutters

We offer a conveniently designed, pencil-shaped tool and a ceramic wafer that allow you to make clean and easy cuts in fused silica, glass and aluminum-clad capillary columns.

| Description | Part No. |
|---|-----------|
| Diamond-tipped column cutting pencil | 420-1000 |
| Ceramic wafer column cutter, 4/pk | 5181-8836 |
| Column cutter with rotating diamond blade | 5183-4620 |
| Replacement diamond blade (for 5183-4620) | 5183-4621 |

Column Baskets and Hangers

| Description | Part No. |
|---|-------------|
| 13 cm, 5 in basket for 6850 capillary columns | 19091-80060 |
| Column hanger for 5 in basket | G2630-80800 |
| Column hanger clip kit for 7 in basket | G1530-61580 |
| Column hanger for 6890, 5890, 5880A | 1460-1914 |



Column cutting tool, 5183-4620

Miscellaneous Tools

Ferrule Tools

Remove ferrules stuck inside fittings. Screw the stainless steel ferrule tool into the ferrule and pull it out. Use the smaller capillary ferrule tool for capillary column ferrules (0.32 mm id column and smaller). The megabore ferrule tool is used for megabore ferrules. The liner tool can be used to remove polyimide and tubing from inside a megabore liner. The column ferrule installation tool positions a ferrule onto a capillary column for proper installation.

| Description | Part No. |
|---------------------------------------|-------------|
| Capillary ferrule tool | RFT-2500 |
| Megabore ferrule tool | RFT-5300 |
| Column ferrule installation tool | 19251-80680 |
| MS interface column installation tool | G1099-20030 |



Capillary and megabore ferrule tool

20x Magnifier

Examine column ends for proper cuts. Jagged, rough, or non-perpendicular cuts negatively affect chromatographic performance.

| Description | Part No. |
|---------------|----------|
| 20x Magnifier | 430-1020 |



Magnifier, mirror, microprobes

Microprobes

Hardened stainless steel probes remove septum and ferrule pieces stuck in fittings. Five different styles give you all of the angles necessary for getting into those hard-to-reach places.

| Description | Part No. |
|-------------|----------|
| Microprobes | RMP-5005 |

Mirror

Inspect injection ports, the inside of fittings, and other hard-to-reach places.

| Description | Part No. |
|-------------|----------|
| Mirror | 707-0027 |

Snoop

Leak test most pressurized gas systems. We recommend that leak detecting solutions be used with care where there is any possibility of the fluid being aspirated into gas flow streams supplying the column or detector. This squeezable bottle comes with a "Snooper Tube" extendable up to 12 in (30 cm). Electronic leak detectors are preferred. In their absence, a volatile nonreactive solvent like isopropanol may be used. Use caution to avoid aspiration of materials such as Snoop into the column.



Snoop

| Description | Part No. |
|-----------------------------|-----------|
| Snoop, 8 oz (236 mL) bottle | 9300-0311 |
| Snoop, 1 gallon bottle | 460-1002 |



Injection port cleaning kit, 480-0003

Injection Port Cleaning Kit

If changing the liner and trimming the column does not remove contamination from your injection port, you probably need to clean and flush your injection port. Three stainless steel brushes and a scraper are the ideal tools for removing sample residue and septum particles. The stainless steel brushes have diameters of 5 mm, 1/4 in, and 3/8 in.

| Description | Part No. |
|-----------------------------|----------|
| Injection Port Cleaning Kit | 480-0003 |



Septum tool with knurled handle, 450-1000

Miscellaneous Injection Port Tools

| Description | Part No. |
|--------------------------------------|-----------|
| Septum tool, knurled handle | 450-1000 |
| Ferrule removal tool | 440-1000 |
| Capillary inlet cleaning wires, 5/pk | 5180-4153 |
| Cotton swabs, 100/pk | 5080-5400 |



Capillary inlet cleaning wires, 5180-4153

FID Cleaning Kit

This easy-to-use maintenance kit improves sensitivity, reduces noise, and decreases detector spiking.

| Description | Part No. |
|------------------|-----------|
| FID cleaning kit | 9301-0985 |



FID cleaning kit, 9301-0985

12-Piece File Set

This 12-piece file set scores glass, removes burrs from metal tubing, and cleans threads. The files are 5-1/2 in long.

| Description | Part No. |
|-------------------|----------|
| 12-Piece File Set | RSF-1200 |



3200P standard pH meter, G4383A

User-friendly control panel simplifies your measurements and ensures accurate results, regardless of technical knowledge or skill level.

Every Agilent Meter is backed by our 3-year replacement guarantee.

Electrochemistry Meters, Electrodes, and Solutions

Analyst-friendly features optimize your measurements and ensure accuracy

Your rapidly changing work environment demands speed and productivity without jeopardizing results. That is why all Agilent meters and electrodes are designed for easy operation, even by non-technical users, while still producing the most reliable readings.

- Unique electrode reference system, backed by our qualified material and manufacturing process, delivers fast, reliable response during meter operation
- Rugged design stands up to the toughest indoor and outdoor conditions
- High-endurance protective glass and multi-layer composite electrodes prevent breakage caused by frequent use, even in demanding environments

3200P pH Meter

3200P pH Meter Specifications*

| Specifications | | 3200P |
|--------------------------|-------------|--|
| Range | pH | -2.000-20.000 pH |
| | mV | -1999.9-1999.9 mV |
| | Temperature | -5.0-110.0 °C |
| Resolution | pH | 0.1/0.01/0.001 pH |
| | mV | 0.1 mV |
| | Temperature | 0.1 °C |
| Accuracy | pH | ±0.002 pH |
| | mV | ±0.03% FS |
| | Temperature | ±0.1 °C |
| Temperature compensation | | Manual/Auto -5.0-110.0 °C |
| Power | | Universal AC power adapter 100 V-240 V, 50/60 Hz** |
| Dimension (LxDxH) [mm] | | 190×190×105 |
| Weight (kg) | | 1 |

*EC Print software for easy and direct printing and EC Firmware software are available for free download at www.agilent.com/chem/phmeters

**Shipped with meter



3200P standard pH meter, G4383A

3200M Multi-parameter Meter

Simultaneously measure pH/pX, ion concentration, ion electrode potential (mV), conductivity (TDS, salinity), DO (concentration and saturation), temperature, and more.

3200M Multi-parameter Analyzer Specifications*

| Specifications | | 3200M | |
|----------------|-------------------|---|-------------------------|
| Range | pH | -2.000-20.000 pH | |
| | pX | 0.000-14.000 pX | |
| | mV | -1999.9-1999.9 mV | |
| | Conductivity | 0.000 μ S/cm-2000 mS/cm | |
| | Resistivity | 5.00 Ω .cm-100.0 M Ω .cm | |
| | TDS | 0.000 mg/L-1000 g/L | |
| | Salinity | 0.00%-8.00% (Chinese version) 0.0-80.0 g/L (English version) | |
| | DO | 0-45.00 mg/L | |
| | DO saturation | 0.0-300.0% | |
| | Ion concentration | | 0-19990 |
| | | | -5.0-110.0 $^{\circ}$ C |
| | Temperature | | -5.0-110.0 $^{\circ}$ C |
| | | | |
| Resolution | pH/pX | 0.1/0.01/0.001 pH/pX | |
| | mV | 0.1 mV | |
| | Ion concentration | Four effective digits (Scientific notation) | |
| | DO | 0.01 mg/L | |
| | DO saturation | 0.1% | |
| | Temperature | 0.1 $^{\circ}$ C | |

*EC Print software for easy and direct printing and EC Firmware software are available for free download at www.agilent.com/chem/phmeters



3200M multi-parameter meter, G4387A

(Continued)



3200M Multi-parameter Analyzer Specifications*

| Specifications | | 3200M |
|-------------------------|---|------------------------------|
| Accuracy | pH/pX | ±0.002 pH/pX;pXII:± 0.005 pX |
| | mV | ±0.03% FS |
| | Ion concentration | ±0.3% |
| | Conductivity | ±0.5% FS |
| | Resistivity | ±0.5% FS |
| | TDS | ±0.5% FS |
| | Salinity | ±0.1% |
| | DO | ±0.10 mg/L |
| | DO saturation | ±2.0% |
| | Temperature | ±0.1 °C |
| Power | Universal AC power adapter 100 V-240 V, 50/60 Hz** | |
| Dimensions (LxDxH) [mm] | 190×190×105 | |
| Weight (kg) | 1 | 1 |

*EC Print software for easy and direct printing and EC Firmware software are available for free download at www.agilent.com/chem/phmeters

**Shipped with meter

Cell Constant and Correspondent Measuring Range

| Cell constant (K) (cm ⁻¹) | 0.001 | 0.01 | 0.1 | 1.0 | 10.0 | 100 |
|--|-----------------------------|-----------------------------|-----------------------------|----------------------------|----------------------------|--------------------------|
| Measuring range for solutions | 0.000 µS/cm- 1.999 µS/cm | 0.000 µS/cm- 19.99 µS/cm | 0.200 µS/cm- 199.9 µS/cm | 2.00 µS/cm- 19.99 mS/cm | 20.0 µS/cm- 199.9 mS/cm | 200 mS/cm- 2000 mS/cm |

3200I Ion Meter

When matched with an ion-selective electrode and reference electrode, ion meters can measure corresponding electrode potential (mV), pX, and ion concentration.

3200I Ion Meter Specifications*

| Specifications | | 3200I |
|------------------------|--------------------|--|
| Range | pH | -2.000-20.000 pH |
| | pX | 0.000-14.000 pX |
| | mV | -1999.9-1999.9 mV |
| | Ion concentration | 0-19990 |
| | Concentration unit | mol/L, mmol/L, g/L, mg/L, µg/L (Chinese version) mol/L, mg/L, %, mg/L, µg/L (English version) |
| | Temperature | -5.0-110.0 °C |
| Resolution | pX | 0.1/0.01/0.001 pH/pX |
| | mV | 0.1 mV |
| | Ion concentration | Four effective digit (Scientific notation) |
| | Temperature | 0.1 °C |
| Accuracy | pX | ±0.002 pH/pX;pXI: ±0.005 pX |
| | mV | ±0.03% FS |
| | Ion concentration | ±0.3% |
| | Temperature | ±0.1 °C |
| Power | | Universal AC power adapter 100 V-240 V, 50/60 Hz** |
| Dimension (LxDxH) [mm] | | 190x190x105 |
| Weight (kg) | | 1 |

*EC Print software for easy and direct printing and EC Firmware software are available for free download at www.agilent.com/chem/phmeters

**Shipped with meter



3200I ion meter, G4386A



3200C conductivity meter, G4384A

3200C Conductivity Meter

Measure conductivity, resistivity, total dissolved solid (TDS), salinity, and present solution temperature.

3200C Conductivity Meter Specifications*

| Specifications | 3200C | |
|---|--|--|
| Range | Conductivity | 0.000 μ S/cm-2000 mS/cm |
| | Resistivity | 5.00 Ω .cm-100.0 M Ω .cm |
| | TDS | 0.000 mg/L-1000 g/L |
| | Salinity | 0.00%-8.00% (Chinese version) 0.0-80.0 g/L (English version) |
| | Temperature | -5.0-110.0 $^{\circ}$ C |
| Resolution | Conductivity | Four effective digital, and the lowest level is 0.001 μ S/cm |
| | Temperature | 0.1 $^{\circ}$ C |
| Accuracy | Conductivity | \pm 0.5% FS |
| | Resistivity | \pm 0.5% FS |
| | TDS | \pm 0.5% FS |
| | Salinity | \pm 0.1% |
| | Temperature | \pm 0.1 $^{\circ}$ C |
| Cell constant | 0.001, 0.01, 0.1, 1.0, 10, 100 cm^{-1} | |
| Compensation range of cell constant | \pm 20% of Standard constant value | |
| Temperature compensation range | 0-50.0 $^{\circ}$ C | |
| Conductivity and TDS standard temperature | 25.0 $^{\circ}$ C | |
| Salinity standard temperature | 18.0 $^{\circ}$ C | |
| Power | Universal AC power adapter 100 V-240 V, 50/60 Hz** | |
| Dimension (LxDxH) [mm] | 190x190x105 | |
| Weight (kg) | 1 | |

*EC Print software for easy and direct printing and EC Firmware software are available for free download at www.agilent.com/chem/phmeters

**Shipped with meter

3200D Dissolved Oxygen Meter

Membrane electrode measures DO concentration and saturation of water solutions.

3200D Dissolved Oxygen Meter Specifications*

| Specifications | 3200D | |
|---------------------------------|--|---------------|
| Range | DO | 0-45.00 mg/L |
| | DO saturation | 0.0-300.0% |
| | Temperature | -5.0-110.0 °C |
| Resolution | DO | 0.01 mg/L |
| | DO saturation | 0.1% |
| | Temperature | 0.1 °C |
| Accuracy | DO | ±0.10 mg/L |
| | DO saturation | ±2.0% |
| | Temperature | ±0.1 °C |
| Temperature compensation | Automatic: 0.0-45.0 °C | |
| Standard temperature | 20±1 °C | |
| Salinity calibration | 0.0-50.0 g/L | |
| Barometric pressure calibration | 60.0-110.0 kPa | |
| Power | Universal AC power adapter 100 V-240 V, 50/60 Hz** | |
| Dimension (LxDxH) [mm] | 190×190×105 | |
| Weight (kg) | 1 | |

*EC Print software for easy and direct printing and EC Firmware software are available for free download at www.agilent.com/chem/phmeters

**Shipped with meter



3200D dissolved oxygen meter, G4385A

Agilent Electrochemistry Meters: rigorously evaluated for durability and safety

Our environmental test specifications ensure that Agilent Electrochemistry Meters will be rugged performers in your lab, just like Agilent columns and instruments.

Environmental Test Specifications

| | |
|-------------------------------|--|
| Operating ambient temperature | 0-50 °C |
| Operating relative humidity | 5-95%, no condensation |
| Storage temperature | Meter: -40-70 °C; Electrode: -15-55 °C |
| Vibration and shock | Instrument test and package test |



Module Specifications

| Type/Model | Key Industries/Applications | Measurements | Details |
|-------------------------------------|---|---|---|
| Standard pH Meter (3200P) | <ul style="list-style-type: none"> Pharmaceutical Food safety Biological agriculture Environmental Water quality | <ul style="list-style-type: none"> Acid and alkali levels Electrode potential (mV) values of relevant ions | <ul style="list-style-type: none"> G4383A for 3200P meter only G4391A for basic package with electrode, electrode holder and buffer G4392A for kit with triode combination electrode, electrode holder and buffer |
| Conductivity Meter (3200C) | <ul style="list-style-type: none"> Environmental Petrochemical Food safety Biological | <ul style="list-style-type: none"> Conductivity Resistivity Total Dissolved Solids (TDS) Salinity Present solution temperature value | <ul style="list-style-type: none"> G4384A for 3200C meter only G4393A for package with 3200C meter, electrode and electrode holder |
| Dissolved Oxygen (DO) Meter (3200D) | <ul style="list-style-type: none"> Environmental Sewage disposal Tap water source monitoring Food safety Aquaculture Beverage production Biological agriculture Scientific research | <ul style="list-style-type: none"> Dissolved oxygen concentration Saturation of water solution | <ul style="list-style-type: none"> G4385A for 3200D meter only G4395A for package with 3200D meter, electrode and electrode holder |
| Ion Meter (3200I) | <ul style="list-style-type: none"> Food safety Biological agriculture Petrochemical Environmental protection Scientific research Disease control | <ul style="list-style-type: none"> Electrode potential (mV) values pX value and ion concentration | <ul style="list-style-type: none"> G4396A for 3200I meter only G4396A for package with 3200I meter, pH electrode, electrode holder and buffer G4397A for fluoride ion package with 3200I meter, fluoride ion electrode and electrode holder and buffer |
| Multi-Parameter Meter (3200M) | <ul style="list-style-type: none"> Water quality Disease control Environmental protection Biological agriculture Scientific research | <ul style="list-style-type: none"> Simultaneously measures pH/pX, ion concentration, ion electrode potential (mV), conductivity, Total Dissolved Solids (TDS), salinity, dissolved oxygen, and temperature | <ul style="list-style-type: none"> G4378A for 3200M meter G4398A for 3200M meter, electrode, electrode holder and buffer |

Module specifications

Agilent provides modules to fit your most challenging applications.

| Module | Specifications | Benefits |
|--------|---|---|
| 3200P | Temperature: -5.0-110.0 °C | Compatible with a wide temperature range |
| 3200C | Measuring mode: continuous/timed reading/auto-lock | Lets you perform a variety of measurements with one meter |
| 3200D | Dot-matrix LCD | Fast interpretation of results |
| 3200I | | Easy for novices to use |
| 3200M | Numeric operating keys | Simplified operation for all skill levels |
| 3200P | Automatic identification for buffers | Choice of NIST and GB buffers |
| 3200I | Impedance: $3 \times 10^{12} \Omega$ | Choose from a wider range of electrodes for your sample |
| 3200M | Accuracy of DO: ± 0.10 mg/L | Precise measurements and excellent temperature compensation provide outstanding DO accuracy |
| 3200I | Provides Ion measurement modes for H ⁺ , Ag ⁺ , Na ⁺ , K ⁺ , NH ₄ ⁺ , Cl ⁻ , F ⁻ , NO ₃ ⁻ , BF ₄ ⁻ , CN ⁻ , Cu ²⁺ , Pb ²⁺ and Ca ²⁺ | Easily exchanged electrodes (or ISEs) allow flexible multi-ion analysis |
| 3200M | Different units can be switched freely | Automatic functions optimize measurements and ensure accurate results |
| | Measuring mode in ion concentration: direct reading, "Standard" addition, sample addition, GRAN plot addition | Convenience |



3200EA electrode holder, G4389A

Wide range of Agilent electrodes help meet the needs of any application

Unlike single-layer breathable membrane electrodes, Agilent electrodes are made from multi-layered composite materials for extra durability. They also feature a specific barrier to protect the glass bubble against breakage.

What's more, the unique reference system on every Agilent electrode is backed by our uncompromising materials quality and manufacturing process – giving you fast response and high accuracy.

The electrodes shown here use universal connections, so you can use them interchangeably on Orion 3 star, 4 star meter, Hanna HI2221, and Mettler FE20pH.



P3211 pH combination electrode, 5190-3988

P3212 pH combination electrode, 5190-3989

P3214 pH combination electrode, 5190-3993

P3213 pH combination electrode, 5190-3992

P3311 pH triode combination electrode, 5190-3990

P3111 pH electrode, 5190-3991

| pH P3211 | pH P3212 | pH P3214 | pH P3213 | pH P3311 | pH P3111 |
|--|---|--|---|---|--|
| <ul style="list-style-type: none"> • Combination electrode with glass body • Refillable • BNC connector • Glass bulb measuring tip | <ul style="list-style-type: none"> • Combination electrode with PC body • Not refillable • BNC connector • Glass bulb measuring tip | <ul style="list-style-type: none"> • Combination electrode with ABS body • Not refillable • BNC connector • Spear-tipped measuring tip | <ul style="list-style-type: none"> • Combination electrode with PC body • Refillable • BNC connector • Flat measuring tip | <ul style="list-style-type: none"> • Combination electrode with glass body • Refillable • BNC and miniDIN4 connector • Glass bulb measuring tip | <ul style="list-style-type: none"> • Electrode with glass body • Not refillable • BNC connector • Glass bulb measuring tip |

Recommended uses*

| Industry | Sample | pH P3211 | pH P3212 | pH P3214 | pH P3213 | pH P3311 | pH P3111 |
|------------------------------------|---------------------------------|-------------|-------------|-------------|-------------|-------------|---------------|
| Drinks and dairy products | Milk | ✓ | ✓ | | | ✓ | ✓ |
| | Soy Sauce | ✓ | ✓ | | | ✓ | ✓ |
| | Beer | ✓ | ✓ | | | ✓ | ✓ |
| | Soft drinks (ice black tea) | ✓ | ✓ | | | ✓ | ✓ |
| Food and agricultural products | Compound fertilizer | | ✓ | | | | |
| | Jam | | | | | | ✓ |
| | Meat | | | ✓ | | | |
| | Vegetables | ✓ | ✓ | | | ✓ | ✓ |
| | Waste | ✓ | | | | ✓ | |
| Chemical reagents and electrolytes | Electroplate liquid | ✓ | | | | ✓ | ✓ |
| Coatings, dyes, and latex | Suspended solid (soil) | | ✓ | | | | |
| Water | Tap water | ✓ | ✓ | | | ✓ | |
| | Drinking water (barreled water) | | | | | | ✓ (Static) |
| | Distilled water | | | | | | ✓ (Sealed) |
| Drug or biological samples | Protein sample/protein powder | ✓ | ✓ | | | ✓ | |
| Surface measurement | Droplet size of the sample | | | | ✓ | | |
| | Textiles | | | | ✓ | | |
| Cosmetics and viscous samples | Shampoo | ✓ | | | | ✓ | ✓ |
| | Cosmetic paste | ✓ | | | | ✓ | ✓ |

*Laboratory test; for reference only



ORP8211 ORP electrode, 5190-3999

Recommended uses*

| | |
|---------|--|
| ORP8211 | Oxygen Reduction Potential (ORP) measurement of: <ul style="list-style-type: none"> • Conventional water • Wastewater • Electroplate liquid • Biological samples |
| I9111 | <ul style="list-style-type: none"> • Fluoride water samples • Surface water • Drinking water • Industrial effluent |
| I9121 | <ul style="list-style-type: none"> • Ammonium/ammonia-containing water samples • River and lake water • Tap water • Environmental protection/sewage |
| I9131 | <ul style="list-style-type: none"> • Conventional sodium water samples • Water treatment • Power plant • Industrial process control |

*Laboratory test; for reference only

pH Electrode Specifications

| Model | P3211 | P3212 | P3214 | P3213 | P3311 | P3111 |
|--------------------------|----------|----------------|----------|----------|----------|----------|
| Measurement range | 0-14 pH | 0-14 pH | 0-14 pH | 0-14 pH | 0-14 pH | 0-14 pH |
| PTS | ≥ 97% | ≥ 97% | ≥ 97% | ≥ 97% | ≥ 97% | ≥ 98.5% |
| Response time | 30s | 30s | 60s | 60s | 30s | 60s |
| Temperature accuracy | – | – | – | – | ± 0.5 °C | – |
| Electrode impedance | ≤ 300 MΩ | ≤ 300 MΩ | ≤ 500 MΩ | ≤ 500 MΩ | ≤ 300 MΩ | ≤ 250 MΩ |
| Reference type | Ag/AgCl | Ag/AgCl | Ag/AgCl | Ag/AgCl | Ag/AgCl | – |
| Liquid junction material | Ceramic | Porous polymer | Fiber | Fiber | Ceramic | – |



ORP8211 ORP electrode,
5190-3999



I9111 Fluoride combination ISE,
5190-4002



I9121 Ammonia combination ISE,
5190-4004



I9131 Sodium combination ISE,
5190-4005

| ORP8211 Oxidation Reduction Potential | I9111 Fluoride Combination ISE | I9121 Ammonia Combination ISE | I9131 Sodium Combination ISE |
|---|--|--|---|
| Combination electrode with glass body Refillable BNC connector | Combination electrode with PC body Refillable BNC connector | Combination electrode with PMMA body Refillable BNC connector | Combination electrode with glass body Refillable BNC connector |

| Ion Selective Electrode Specifications | I9111 Fluoride Combination ISE | I9121 Ammonia Combination ISE | I9131 Sodium Combination ISE |
|---|--|---|---|
| Concentration range | Saturation: -10^{-6} mol/L Saturation: -0.02 mg/L | $(10^{-1} - 10^{-6})$ mol/L | Saturation: -10^{-6} mol/L |
| Slope (25 °C) | ≥ 56 (10^{-5} - 10^{-1}) mol/L | ≥ 55 (10^{-5} - 10^{-2}) mol/L | ≥ 56 (10^{-5} - 10^{-1}) mol/L |
| Response time | 30s | 180s | 180s |
| Internal impedance | ≤ 1 M Ω | ≤ 1500 M Ω | ≤ 250 M Ω |
| Reference type | Ag/AgCl | Ag/AgCl | Ag/AgCl |

ORP8211 Oxidation Reduction Potential Electrode Specifications

| | |
|--------------------------|-----------------|
| Measurement range | ± 1999 mV |
| Potential accuracy | 263 ± 10 mV |
| Reference type | Ag/AgCl |
| Liquid junction material | Ceramic |

R8111 Reference Electrode Specifications

| | |
|----------------------------|---------------------|
| Potential accuracy | ± 4 mV |
| Internal impedance | ≤ 1 k Ω |
| Reference type | Ag/AgCl |
| Liquid junction material | Ceramic |
| Reference filling solution | AgCl, 3 mol/L KCl |

T7111 Automatic Temperature Compensation Probe Specifications

| | |
|-----------------|--|
| Measuring range | 0-100 °C |
| Accuracy | ± 0.3 °C 0-60 °C ± 1.0 °C 60-100 °C |

D6111 Dissolved Oxygen Probe Specifications

| | |
|----------------------|---------------|
| Measuring range | 0-20 mg/L |
| Zero oxygen current | 1% FS (5 min) |
| Response time (90%) | 30 s |
| Temperature accuracy | ± 0.5 °C |

Conductivity Probe Specifications

| | C5111 | C5112 | C5113 |
|-----------------|--------------------|-------------------|----------------------|
| Cell constant | 1.0 ± 0.2 | 1.0 ± 0.2 | 0.1 ± 0.02 |
| Measuring range | 2-19990 μ S/cm | 2-3000 μ S/cm | 0.2-199.9 μ S/cm |
| Accuracy | $\pm 0.6\%$ | $\pm 0.6\%$ | $\pm 0.6\%$ |

All-in-one Packages

| Description | Recommended Use | Part No. |
|--|---|---------------|
| Agilent 3200P Benchtop pH Meter Basic Package Includes: | Stable, accurate measurement of organic solution samples in fields such as scientific research, education, and chemical analysis | G4391A |
| Agilent 3200P benchtop pH meter | | G4383A |
| Agilent 3200EA electrode holder | | G4389A |
| P3211 pH combination electrode, includes 30 mL reference solution | | 5190-3988 |
| T7111 ATC probe | | 5190-3998 |
| pH buffer solutions, 4.01, 7.00, 10.01, NIST traceable, 250 mL, 3/pk | | 5190-0533* |
| pH buffer solutions, 4.00, 6.86, 9.18, GB traceable, 250 mL, 3/pk | | 5190-0534** |
| Agilent 3200P Benchtop pH Meter Package with 3-in-1 Electrode Includes: | Ordinary physical and chemical analysis in fields such as conventional water quality, education, and chemical analysis | G4392A |
| Agilent 3200P benchtop pH meter | | G4383A |
| Agilent 3200EA electrode holder | | G4389A |
| P3311 pH triode combination electrode, includes 30 mL reference solution | | 5190-3990 |
| pH buffer solutions, 4.01, 7.00, 10.01, NIST traceable, 250 mL, 3/pk | | 5190-0533* |
| pH buffer solutions, 4.00, 6.86, 9.18, GB traceable, 250 mL, 3/pk | | 5190-0534** |
| Agilent 3200C Benchtop Conductivity Meter Basic Package Includes: | Best for applications such as conventional surface water, drinking water, environmental water testing, and process analysis | G4393A |
| Agilent 3200C benchtop conductivity meter | | G4384A |
| Agilent 3200EA electrode holder | | G4389A |
| C5111 conductivity probe | | 5190-3994 |
| T7111 ATC probe | | 5190-3998 |
| Agilent 3200C Benchtop Conductivity Meter Package for Pure Water Analysis Includes: | Low-conductivity sample measurement of distilled water, boiler water, and pure water in fields such as energy, pharmacy, biology, and food safety | G4394A |
| Agilent 3200C benchtop conductivity meter | | G4384A |
| Agilent 3200EA electrode holder | | G4389A |
| C5113 conductivity probe | | 5190-3996 |
| T7111 ATC probe | | 5190-3998 |

*Default, if not specified otherwise

**For China customers only

(Continued)

All-in-one Packages

| Description | Recommended Use | Part No. |
|--|--|---------------|
| Agilent 3200D Benchtop Dissolved Oxygen Meter Package Includes: | DO measurement of conventional water in applications such as environmental, monitoring, aquaculture, sewage treatment, drinking water and research | G4395A |
| Agilent 3200D benchtop dissolved oxygen meter | | G4385A |
| Agilent 3200EA electrode holder | | G4389A |
| D6111 DO probe, 30 mL bottle of DO filling solution | | 5190-3997 |
| Agilent 3200I Benchtop Ion Meter Basic Package Includes: | pH measurement and ion analysis in fields such as scientific research, process analysis, biochemistry, and pharmacy (different ion, different electrode) | G4396A |
| Agilent 3200I benchtop ion meter | | G4386A |
| Agilent 3200EA electrode holder | | G4389A |
| T7111 ATC probe | | 5190-3998 |
| pH buffer solutions, 4.01, 7.00, 10.01, NIST traceable, 250 mL, 3/pk | | 5190-0533* |
| pH buffer solutions, 4.00, 6.86, 9.18, GB traceable, 250 mL, 3/pk | | 5190-0534** |
| P3211 pH combination electrode, includes 30 mL reference solution | | 5190-3988 |
| Agilent 3200I Benchtop Fluoride Ion Meter Package Includes: | Measurement of samples such as fluoride water, surface water, drinking water, and industrial effluent | G4397A |
| Agilent 3200I benchtop ion meter | | G4386A |
| Agilent 3200EA electrode holder | | G4389A |
| T7111 ATC probe | | 5190-3998 |
| I9111 fluoride combination ISE, includes 30 mL reference solution | | 5190-4002 |
| Agilent 3200M Benchtop Multi-Parameter Analyzer Package Includes: | pH, conductivity, and DO measurement; ion analysis in a wide range of fields (different ion, different electrode) | G4398A |
| Agilent 3200M benchtop multi-parameter analyzer | | G4387A |
| Agilent 3200EA electrode holder | | G4389A |
| P3211 pH combination electrode, includes 30 mL reference solution | | 5190-3988 |
| T7111 ATC probe | | 5190-3998 |
| pH buffer solutions, 4.01, 7.00, 10.01, NIST traceable, 250 mL, 3/pk | | 5190-0533* |
| pH buffer solutions, 4.00, 6.86, 9.18, GB traceable, 250 mL, 3/pk | | 5190-0534** |
| D6111 DO probe, 30 mL bottle of DO filling solution | | 5190-3997 |
| C5111 conductivity probe | | 5190-3994 |

*Default, if not specified otherwise

**For China customers only

Electrochemistry Meters*

| Description | Part No. |
|---|----------|
| Agilent 3200P benchtop pH meter | G4383A |
| Agilent 3200C benchtop conductivity meter | G4384A |
| Agilent 3200D benchtop dissolved oxygen meter | G4385A |
| Agilent 3200I benchtop ion meter | G4386A |
| Agilent 3200M benchtop multi-parameter analyzer | G4387A |
| Accessories | |
| Agilent 3200SA stirrer | G4388A |
| Agilent 3200EA electrode holder | G4389A |

*EC Print software for easy and direct printing and EC Firmware software are available for free download at www.agilent.com/chem/phmeters



3200SA stirrer, G4388A



P3211 pH combination electrode,
5190-3988



P3212 pH combination electrode,
5190-3989



P3311 pH triode combination
electrode, 5190-3990



P3111 pH electrode,
5190-3991



P3213 pH combination electrode,
5190-3992



P3214 pH combination electrode,
5190-3993



C5111 Conductivity probe,
5190-3994



C5112 Conductivity probe,
5190-3995



C5113 Conductivity probe,
5190-3996



D6111 DO probe,
5190-3997



T7111 ATC probe,
5190-3998



ORP8211 ORP electrode,
5190-3999



R8111 Reference electrode,
5190-4003



I9111 Fluoride combination ISE,
5190-4002



I9121 Ammonia combination ISE,
5190-4004



I9131 Sodium combination ISE,
5190-4005

Electrodes*

| Description | Kit Contents | Part No. |
|---------------------------------------|------------------------------------|-----------|
| P3211 pH combination electrode | Includes 30 mL reference solution | 5190-3988 |
| P3212 pH combination electrode | | 5190-3989 |
| P3311 pH triode combination electrode | Includes 30 mL reference solution | 5190-3990 |
| P3111 pH electrode | | 5190-3991 |
| P3213 pH combination electrode | Includes 30 mL reference solution | 5190-3992 |
| P3214 pH combination electrode | | 5190-3993 |
| C5111 conductivity probe | | 5190-3994 |
| C5112 conductivity probe | | 5190-3995 |
| C5113 conductivity probe | | 5190-3996 |
| D6111 DO probe | Includes 30 mL DO Filling Solution | 5190-3997 |
| T7111 ATC probe | | 5190-3998 |
| ORP8211 ORP electrode | Includes 30 mL reference solution | 5190-3999 |
| R8111 reference electrode | Includes 30 mL reference solution | 5190-4003 |
| I9111 fluoride combination ISE | Includes 30 mL reference solution | 5190-4002 |
| I9121 ammonia combination ISE | Includes 30 mL reference solution | 5190-4004 |
| I9131 sodium combination ISE | Includes 30 mL reference solution | 5190-4005 |

*All electrodes ship with a certificate of conformance and the certificate is also available online in the literature library

Chemicals*

| Description | Amount | Part No. |
|--|------------|-----------|
| pH buffer solutions, 4.01, 7.00, 10.01, NIST traceable | 3 x 250 mL | 5190-0533 |
| pH buffer solutions, 4.00, 6.86, 9.18, GB traceable | 3 x 250 mL | 5190-0534 |
| pH buffer, 4.01 | 3 x 250 mL | 5190-0535 |
| pH buffer, 10.01 | 3 x 250 mL | 5190-0536 |
| pH buffer, 7.00 | 3 x 250 mL | 5190-0537 |
| pH buffer, 4.00 | 3 x 250 mL | 5190-0538 |
| pH buffer, 6.86 | 3 x 250 mL | 5190-0539 |
| pH buffer, 9.18 | 3 x 250 mL | 5190-0540 |
| Ammonia electrode membrane, 5 pieces | | 5190-0543 |
| Ammonia Reference Solution | 3 x 30 mL | 5190-0544 |
| Reference solution, pH | 3 x 250 mL | 5190-0545 |
| Sodium ISE Reference Solution | 3 x 30 mL | 5190-0546 |
| DO filling solution | 3 x 30 mL | 5190-0547 |
| DO membrane sleeve, 3 pieces | 3 x 30 mL | 5190-0548 |

Accessories

| | |
|----------------------------------|-------------|
| Power adapter, E15WCP1-090100SPA | 5185-8389 |
| B620 stirring bar | G4388-27000 |
| BNC-50J short circuit plug | G4383-40000 |
| ATC temperature diagnostic tool | 5185-8390 |
| Conductivity diagnostic tool | 5185-8391 |

*Certificates of analysis ship with this product and are also available online in the literature library.



Agilent reference and filling solutions



Ammonia electrode membrane, 5190-0543



Power adapter, 5185-8389



B620 stirring bar, G4388-27000



BNC-50J short circuit plug, G4383-40000



ATC temperature diagnostic tool, 5185-8390



Conductivity diagnostic tool, 5185-8391



Integrators, Integrator Supplies and Cables

Information generation and presentation have never been more important. Agilent understands that data handling supplies are essential. We provide a convenient way to purchase ink cartridges and integrator supplies at the same time as other laboratory supplies so you never run out at a crucial moment.



Ink cartridge, 5181-1220

Integrator Cartridges and Printheads

| Description | Part No. |
|--|-------------|
| Ink cartridge, Agilent 3397A, 3396 Series III, 3396A and B, 3395, 3394 | 5181-1220 |
| Printhead for 3388A and 5880A | 19350-60540 |

Integrator Paper and Supplies

Paper and Supplies for Agilent 3397A, 3396 Series II, and 3396A/B/95/94

| Description | Unit | Part No. |
|---|------|-------------|
| Z-fold paper, sequentially numbered, 8.5 x 11 in, 500 sheets/pk, Inkjet | 5/pk | 5062-3561 |
| Perforated paper, 8.5 x 11 in rolls, Inkjet | 4/pk | 5181-1219 |
| Perforated paper, sequentially numbered, 8.5 x 11 in rolls, Inkjet | 4/pk | 5183-2009 |
| Perforated paper, A4 size rolls, Inkjet | 4/pk | 5181-1255 |
| Replacement paper roll rod | | 03394-20500 |
| Replacement paper roll brackets | 2/pk | 03396-40050 |

Thermal Paper for Agilent 3390/92/93

| Description | Unit | Part No. |
|--|------------|-----------|
| Thermal printing paper, blue print, 4.209 in (106.9806 mm) wide x 400 ft | 4 rolls/pk | 5080-8800 |

Thermal Paper for Agilent 338X/5830/3370

| Description | Unit | Part No. |
|--|----------|-----------|
| Z-fold paper, black print, 8.5 in wide | 8 pk/box | 9270-0658 |



Cables

3396 Series III Cable Sets

| Description | Part No. |
|---|----------|
| Series III Integrator General Purpose cables, signal/remote cable pair includes 35900-60630 and 03396-61031 | G2108A |
| INET interface for integrators, provides INET communications and dual-channel output, includes 1 INET cable | G1553A |

Cables to Connect 3397A or 3396/95 Series III Integrator

| Instrument | Cable Type | | |
|---------------------------|-------------|-------------|-------------|
| | Analog | Remote | Sample |
| 6890 Series GC (non-INET) | G1530-60570 | 03396-61010 | |
| 5890 GC (non-INET) | 35900-60610 | | |
| 1100/1200 Series LC | 35900-60750 | 03396-61010 | 03396-60560 |
| General Purpose | 35900-60630 | 03394-60540 | |

Cables to Connect 3394/95A and 3396A/B Integrator

| Instrument | Cable Type | |
|-----------------|-------------|-------------|
| | Analog | Remote |
| 6890 Series GC | G1530-60570 | |
| | 03396-61020 | 03396-61010 |
| 5890 GC | 35900-60610 | |
| General Purpose | 35900-60630 | |
| | 35900-60900 | 35900-60920 |

HPIB and GPIB Cables

| Description | Part No. |
|--|-----------------|
| PCI GPIB Card for Win95/98/NT (82350A/B) | G1680-63715 |
| HPIB Cable 2 m (10833B) | 10833B-2310 |
| General Purpose Cable GPIO, open end | G1103-61611 |
| HPIB Cable, 8 m (10833G) | 10833G-2310 |
| Cable, 6890 to PC 9F/9F RS232 | G1530-60600 |
| Crossover Ethertwist Cable, 10 ft | 5183-4649 |
| Adapter, extends GPIB connector (10834A) | 10834A-2310 |

Instrument Interface Cables

| Description | Part No. |
|---|-----------------|
| Signal cable, general purpose analog output cable assembly, spade lugs/6 pins | G1530-60560 |
| External event control, cable, 8 pins/spade lugs | G1530-60590 |
| Remote start cable for general use with lug | 35900-60670 |
| 6890 to PC via RS 232-C, 9 female/25 male user card cable | G1530-60610 |
| General purpose binary-coded decimals cable with spade lugs | G1530-60630 |
| Automatic liquid sampler; remote start/stop cable, 2 m 9 male/9 female | G1530-60930 |
| HPIL cable, 5 m | 82167-60003 |
| Remote Y Cable, G1512/5890A to 3396C | G1512-60530 |
| Remote Cable to 5890 | 35900-60700 |



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