

The Agilent 5975C Series GC/MSD Performance, productivity and confidence.

Our measure is your success.



The Agilent 5975C Series GC/MSD

Proven performance, superior productivity—and maximum confidence in your results.

Welcome to the next generation of the industry-proven Agilent 5975C Series GC/MSD—the most popular GC/MS of all time. The Agilent 5975C inert GC/MSD combines innovative design features to boost your lab's productivity, and advanced analytical capabilities that help you achieve better results faster. Perfectly complemented by the new 7890A GC, the platform delivers all the elements for perfect chemistry—superior performance, unmatched reliability, greater productivity and enhanced ease of use.





The modular mass analyzer incorporates a proprietary quartz quadrupole, a solid inert ion source and industry-leading detector. This powerful combination provides better MS resolution and the lowest mass deviation available; it also assures superior sensitivity and spectral integrity-for the highest confidence in your results. New Trace Ion Detection technology provides even more capabilities at trace level.

Higher Throughput

Comprehensive automation features and faster separation and detection cycle times enable you to process more samples, with more confidence. Advanced analysis routines let you get more information from every run, and automated spectral deconvolution, identification and quantification software simplifies post-run analysis.

Maximum Uptime

Thoughtful, real-world engineering features allow faster, easier routine maintenance, and new self-diagnostic and preventive maintenance software makes it easier than ever to keep your lab up and running at peak performance-all the time.



Gold quartz quadrupole with proprietary design

1050 u mass range

350°C inert ion source

and late-eluters. Page 5

calibration. Page 4

Enhances both performance and reliability up to 1050 u, covering all applications from routine EI to more demanding CI analyses. Page 4

Extends system performance for all models, and

delivers superior performance for even the most demanding high mass applications; industry's lowest

mass deviation ensures longer-lasting tuning and









Trace Ion Detection technology

Now programmable up to 350°C, delivers

enhanced response for active compounds

Lowers detection limits in complex matrices; together with the high temperature inert ion source, this new technology gives your lab powerful new analytical capabilities. Page 5



Synchronous SIM/Scan mode

Lets you selectively monitor for ions of interest at high sensitivity while simultaneously acquiring library-searchable scan data. Page 6



All ionization modes in one automated sequence

Electron impact (EI) ionization with standard Cl ion source; Auto CI feature makes CI as easy as EI. Page 7



New hydrogen El signal-to-noise specification

Permits faster analysis under safe conditions with no compromise on analytical quality. Page 7



GC/MS software

Fits your workflow and your application powerful features and advanced functionality enhance your lab's performance and productivity. Page 10



Deconvolution Reporting Software Gives you fast answers with the confidence you need; together with new Retention Time Locking databases, DRS significantly reduces post-run analysis time. Page 12



GC/MS columns and supplies

High performance Agilent J&W GC columns and supplies meet every analytical need. Page 15

Engineering that's all about performance and productivity.

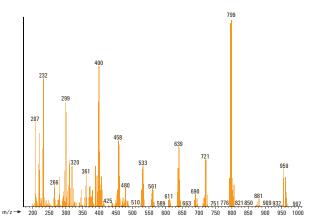
At Agilent, building the world's most trusted GC/MS solutions is an ongoing challenge and a process of continual improvement. With each new generation of instruments, we never lose sight of our goal—to help your lab get better results with higher confidence, and process more samples in the shortest possible time.

The gold standard in quadrupole design and performance

The quadrupole used in the Agilent 5975C Series GC/MSD incorporates a combination of patented, proprietary Agilent technologies to deliver superior performance and significantly enhanced reliability.



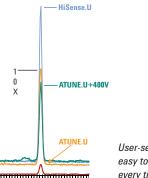
The true hyperbolic quartz structure offers extremely low thermal expansion, and exhibits excellent dimensional stability. The unique design results in lower field errors versus round rod quadrupoles, as well as excellent resolution and mass axis stability, regardless of laboratory temperature fluctuations. The submicron-layered gold hyperbolic electrode surfaces give maximum transmission while maintaining resolution across the full mass range, up to 1050 u. Bakeout to 200°C enables more robust determinations, as well as outstanding high mass stability and minimal maintenance. An available high mass checkout kit provides added confidence that high mass is accurately reported.

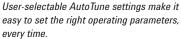


Analysis of Decabromodiphenyl ether (PBDE 209) demonstrates exceptional high mass detection capability (959 m/z).

High sensitivity AutoTune makes it easy to optimize system performance

Take the trial and error out of optimizing operating conditions by automating the process. The 5975C system's AutoTune feature saves time, boosts performance and improves instrument-to-instrument consistency.





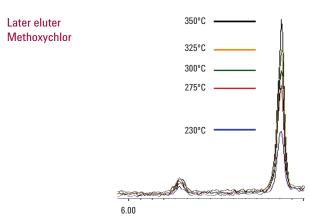
Solid inert ion source up to 350°C boosts your system performance

Agilent's proprietary inert source is now programmable up to 350°C to provide enhanced response for active compounds and late-eluters—including pesticides. It delivers exceptional electron

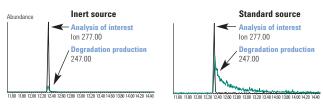
impact ionization, and lets you run sample after sample with complete confidence. The source is constructed of a solid inert material, so there is no inert coating that can wear away over time and which can ultimately compromise your data.



The inert ion source eliminates surface activity reactions, for more reliable library matches. It also requires less frequent cleaning, improving your lab's productivity.



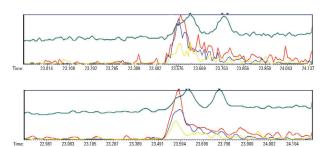
Enhanced Analysis for Organochlorine Pesticide shows dramatic improvement for the later-eluting compounds. Agilent's 350°C inert ion source increases sensitivity in all modes—EI, PCI and NCI. A net improvement in peak shape can as well be observed in NCI mode.



Mass chromatograms for the pesticide Fenitrothion acquired via the inert source (left) and a standard source design (right). The black line indicates the ion abundance of the molecular ion of Fenitrothion (m/z 277); the green line is attributed to a low concentration degradation product (m/z 247).

Trace Ion Detection delivers a real performance improvement for complex matrices

Revolutionary Trace Ion Detection technology lets you lower your Method Detection Limit (MDL), as well as your limit of quantitation (LOQ). It reduces false negatives and further enhances the performance of the inert ion source at trace levels. The technology also ensures more reproducible baselines, dramatically reducing the number of manual interventions during peak integration. Trace Ion Detection technology gives you a better spectral fidelity, increasing your confidence level in the results when doing library matching.

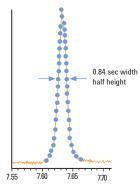


Analysis of Fenamiphos. Without Trace Ion Detection enabled (top) the compound of interest was missed. Trace Ion Detection is activated (bottom) revealing a clear hit for Fenamiphos.

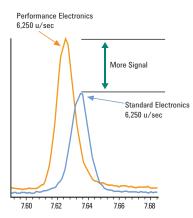
Powerful analytical capabilities improve results and productivity.

Fast electronics enhance performance and enable synchronous SIM/Scan

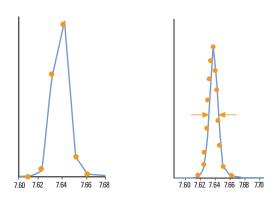
Fast electronics used in the 5975C Series GC/MSD maximizes signal transmission for fast GC/MS in full scan and Selected Ion Monitoring (SIM) modes. It also enables synchronous SIM/Scan functionality—without compromising analytical performance.



More data points. 50 full scan data points across 0.84-sec peak (measured at half height). Data acquired at 10,000 u/sec.half height.



More signal. Total ion chromatogram of Heptachlorobiphenyl compares standard electronics (Agilent 5973 Series MSD) to new fast electronics. Both chromatograms were acquired by the same instrument at the same scan speeds (horizontal offset for clarity).

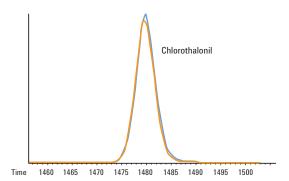


Fast GC/MS in SIM. Fast electronics capture more data points for improved integration of narrow peaks, giving you more accurate, sensitive and reproducible quantitation.

High-Performance Selected Ion Monitoring (SIM) and Full Scan

Agilent's synchronous SIM/Scan functionality lets you capture SIM data and full scan data in the same acquisition. Because of the ease of setup and availability of spectral libraries, many labs use full scan for most of their data collection. SIM mode, on the other hand, offers a significant improvement in sensitivity over full scan data; however, SIM data cannot be searched against commercially available spectral libraries for match confirmation.

Now, with the 5975C system's synchronous SIM/Scan operation, you can get both—in a single run! Even better, you don't have to be a GC/MS expert to do it. Agilent's AutoSIM software capability automatically converts full scan data into SIM or SIM/Scan acquisition parameters for use in synchronous SIM/Scan methods. SIM dwell times can be set in 1 msec increments from over 100 msec to as low as 1 msec dwell time.



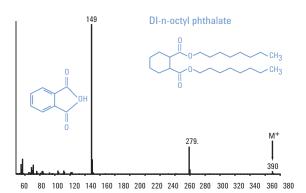
No sensitivity loss in SIM. The overlay above compares SIM-only acquisition (blue) to the SIM signal from a synchronous SIM/Scan acquisition (red).

6 To learn more about the Agilent 5975C Series GC/MSD, visit www.agilent.com/chem/5975C. Or call toll-free, 800-227-9770 (U.S. and Canada).

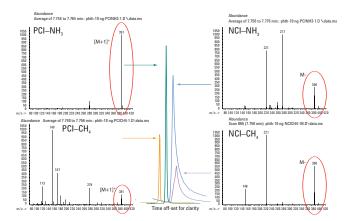
CI as easy as EI

Chemical Ionization (CI) has long been considered an advanced GC/MS technique because of complex setups, reagent gas adjustment and ion source tuning. Now the Agilent 5975C inert GC/MSD makes CI as routine and easy as EI—without sacrificing the spectral information of EI.

The dual inlet port configuration allows you to operate your Cl system at optimum performance levels without having to constantly reconfigure. Methane is used to optimize the ion source and perform the mass calibration; a separate inlet port is provided for a second reagent gas, including ammonia. An intuitive software user interface and a Cl flow control module work together to automatically adjust the Cl reagent gas flow for optimum Cl performance.



Dioctyl Phthalate El Mass spectrum obtained using Cl source in automated sequence.

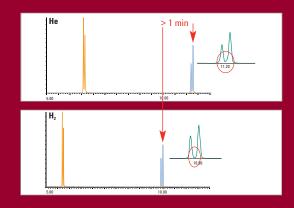


Dioctyl phthalate in all Cl modes.

Many compounds yield little identifying information in EI; for example, all phthalates look very similar. CI provides valuable additional spectral information: PCI with ammonia (upper left); PCI with methane (lower left); NCI with methane (lower right); and NCI with ammonia (upper right). Notice the differences in spectra and total response (shown at center).

Use hydrogen to lower your cost per analysis

The new hydrogen signal-to-noise specification for the 5975C Series GC/MSD makes Agilent the first and only instrument manufacturer to certify the performance and safety of hydrogen as a carrier gas. In fact, hydrogen often can provide faster analysis times, with no compromise of analytical quality.



Analysis of polyaromatic hydrocarbons using He and H₂. In this example, H₂ actually provides better resolution.

An upgrade can give new life to your older instruments

If your lab has a 5973 GC/MSD, here's some good news: your instrument can be upgraded to high performance SIM/Scan capability. In fact, most of the new features presented in this brochure are available for older instruments through upgrades that enable you to take advantage of the latest technology.

The Agilent 7890A Gas Chromatograph: The next level of GC performance and productivity.

Adding an exciting new chapter to a 40-year history of GC leadership, Agilent's new 7890A flagship GC gives you everything you need to take your lab to the next level of GC/MS performance, including advanced chromatographic capabilities, powerful new productivity features and real-time self-monitoring instrument intelligence. Plus, of course, legendary Agilent reliability.



Agilent Performance and Reliability

5th-generation electronic pneumatics control (EPC) and digital electronics set a new benchmark for retention time locking (RTL) precision and retention time repeatability, and help make the 7890A Agilent's most dependable GC ever.

Higher Productivity

Faster oven cool-down, robust backflush capability, advanced automation features and faster GC/MS oven ramps let you get more done in less time, at the lowest possible cost per sample—all easily incorporated into your existing methods.

Expanded Chromatographic Capabilities

Highly flexible EPC design enables even more sophisticated hydrocarbon analyses. An optional 3rd detector (TCD) can speed up complex gas analyses, and allows more types of analyses to be run on a single GC.

Easier Operation

Practical, time-saving design features speed up and simplify routine maintenance.

The Agilent 7890A GC works right into your current 6890 workflow, with no major changes to your methods

You can increase your productivity and take advantage of the new capabilities of the 7890A system with no disruption to your lab's smooth operation. Right out of the box, operators will be right at home with the familiar controls and user interface—and because the 7890A system is built upon proven 6890 GC inlets, detectors and GC oven, you can transfer methods to your new 7890A GC with complete confidence.

Breakthrough Capillary Flow Technology

Agilent's innovative Capillary Flow modules enable reliable, leakfree in-oven connections. Available in a number of useful configu-



rations, these inert, low-mass, low-dead-volume devices not only make it easy to make secure connections, they give you the ability to precisely divert your gas flow, where

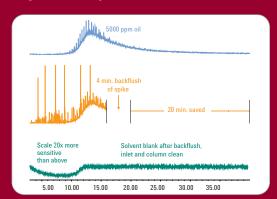
and when you want. This opens the door to highly useful techniques, such as flow splitting, backflushing and Deans Switching, that can improve your analytical results, as well as saving time and resources.

Perform SSL inlet maintenance in seconds!

Convenient new Turn-Top design is built into each split/splitless (SSL) inlet, allowing you to change liners and columns more quickly and easily than ever before—without special tools or training.



7890A GC gives you a net improvement in productivity



EPA 8270. 5 ppm EPA 8270 standard run spiked into 5000 ppm of a heavy oil to simulate interference from a hazardous waste.

Peaks of interest elute by 16 minutes, but a 24-minute bake-out at 320°C is required to elute heavy components. Using the 7890A system's backflush capability, the sample was rerun with a 4-minute backflush saving 20 minutes per run (50% total cycle time savings). ALS Overlap and faster cool-down save an additional 4 minutes per cycle.



The Agilent 6850 Series II GC—small, rugged, easy to use

Is your lab doing simple, routine applications or at-line analysis? The Agilent 6850 GC, combined with the 5975C VL GC/MSD, is the perfect choice if you need just a single inlet and detector. The small-footprint system offers a surprising number of advanced features—as well as legendary Agilent reliability.

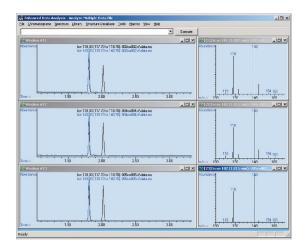
GC/MS software that fits your workflow and your application—perfectly.

The Agilent MSD Productivity ChemStation makes it easy even for non-expert operators to take advantage of all the advanced capabilities of the Agilent 5975C inert GC/MSD system. You'll find everything designed to help you make the most of every run, and every workday.

The MSD ChemStation software includes four industryfocused packages: Enhanced Mode, EnviroQuant, DrugQuant and Aromatics in Gasoline.

Unique productivity features

- Control of two GC/MS systems from a single MSD ChemStation via built-in LAN communication saves time, resources and bench space.
- Automatic tuning ensures more accurate results every time for EI, PCI and NCI modes.
- Retention Time Locking (RTL) gives you repeatable retention times across systems regardless of operator, detector type and column maintenance. In combination with Agilent or user-created databases, it will let you quickly screen unknown peaks with added confidence.
- Synchronous SIM/Scan and AutoSIM automatically and easily convert any full scan method to a high sensitivity SIM or SIM/Scan method—enabling you to acquire both SIM and Scan data in a single run.
- eMethods functionality allows you to efficiently share and distribute methods across multiple laboratories or to save development time by downloading application methods from the Agilent Website.
- SemiQuant estimates the concentration of uncalibrated compounds that may be of potential importance.
- Data reprocessing lets you reprocess a previously run sequence while new data are being collected.
- Enhanced Data analysis and Easy EIC tools expand your system's qualitative analysis capabilities.



The enhanced Data Analysis tools allow you to analyze files simultaneously.

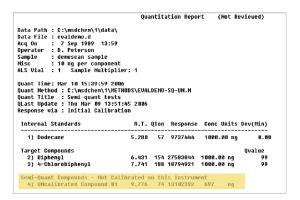
Enhanced flexibility features

- Simple, standard reports or easily customizable reports let you best meet your lab's needs. A variety of reports may also be easily exported to XLS, HTML or XML formats.
- Advanced macro programming provides additional capability for customization.
- Integrated control of PAL autosamplers enables automated, largevolume sample injection. (Available option)
- Deconvolution Reporting Software (DRS), combined with application-specific Retention Time Locked Libraries, reduces hours of manual data review to only minutes of automated processing. (Available option)
- Integration with Agilent OL Enterprise Content Manager (ECM) makes it easy to store, retrieve and organize GC/MS methods, data and reports.

SemiQuant. Quickly and easily estimate the concentration of non-calibrated compounds

Agilent's SemiQuant capability works together with Retention Time Locking (RTL) databases to increase confidence in your compound identification and speed up the quantification process.

When an unknown peak appears, a library search provides only a possible match with the sample spectrum. Using the appropriate RTL database, you can increase certainty by matching the retention time of your compound with a fixed retention time in addition to spectral data. Should you wish to quantify the compound, SemiQuant helps by estimating the concentration, so that you can inject the appropriate level of the standard.

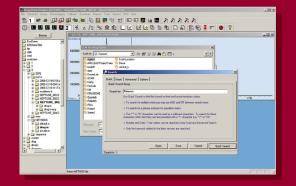


SemiQuant compounds are highlighted at the bottom of the Quantitation Report.

eMethods. Replicate, share and distribute methods

With Agilent eMethods, recreating and replicating a new GC/MS method is now a quick and fully automated process. You can bring a new GC/MS online in the shortest possible time, and maximize lab productivity by standardizing on methods—whether your instruments are across the hall, or across the world.

Integration with Agilent OL Enterprise Content Manager (ECM) streamlines data handling and organization.



Agilent OL Enterprise Content Manager (ECM) is a web-based application that provides a secure, centralized repository for all of the electronic data generated in your organization. Comprehensive search and collaboration tools allow users to effectively find, use and re-use the information they need to make intelligent business decisions. Agilent OL ECM makes your lab more efficient, productive and confident by enabling the collection and conversion of the broadest range of analytical data into accurate and actionable information.

Rapid Deconvolution, Identification and Quantification in Complex Matrices.

Agilent's simple, easy-to-use Deconvolution Reporting Software (DRS) is an optional software feature that saves hours of analysis and review. The best deconvolution software in the industry, the software quickly finds compounds that traditional data analysis packages miss. In fact, it reduces data review time from hours of tedious work to minutes of unattended computer analysis.

The DRS software automates the following operations:

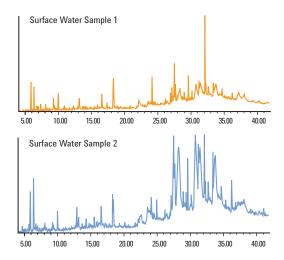
- Quantitation by target compound analysis software
- · Spectral Deconvolution, or "cleaning" of full scan spectra
- · Library searching of cleaned spectra

The revolutionary solution combines three different software packages:

- Agilent's GC/MSD ChemStation
- The National Institute of Standards and Technology (NIST) Mass Spectral Search Program with the NIST MS Library
- NIST's Automated Mass Spectral Deconvolution and Identification Software (AMDIS)

Three new database libraries:

- Hazardous Chemical Compounds RTL Database for rapid and accurate identification of chemical agents
- Pesticide and Endocrine Disruptor RTL Database for rapid and accurate quantitation of these agents in large numbers of samples
- Indoor Air Toxics RTL Library for identification and quantitation of toxics in the workplace



Total Ion Chromatogram of typical surface water extracts. (Data courtesy of the California Department of Food and Agriculture)

	California Department of Food and Agriculture (CDFA)	Deconvolution Reporting Software (DRS)
Number of pesticide hits	37	Same 37 plus 99 additional
Number of false positives	1	0
Time required to process	8 hours	32 minutes

Comparison of the time to process 17 surface water samples.

CDFA: A skilled analyst processing the 17 samples took about 8 hours to review results and eliminate false positives.

Agilent DRS: Fully automated process took about 30 minutes and found an additional 99 compounds.

Accessories and options make your 5975C even more versatile and productive.

Automatic Liquid Samplers—perfect productivity partners for your 5975C Series GC/MSD

Add an Agilent 7683 Series Automatic Liquid Sampler. Offering the fastest injection times of any GC autosampler, greater solvent capacity, multiple sampling options, dual simultaneous injection, certified autosampler vials—and more—the 7683 ALS is ready to go to work.



Boost your lab's output with automated sample preparation

Choose the versatile CombiPAL sample injector for liquid injection, headspace and solid-phase microextraction (SPME). The economical GC PAL platform can be configured for liquid injection only, but offers many of the other capabilities of the CombiPAL including large volume injection (LVI), multiple vial and syringe sizes, and extended sample vial capacity.





Agilent G1888A Headspace Sampler adds to your analysis capabilities

Automatically introduce volatile compounds from virtually any sample matrix directly into a GC or GC/MS. An inert sample pathway from vial through column to source provides superior chemical performance without analyte degradation or loss.

Oil-free pump—clean and virtually maintenance free

Agilent is the first mass spectrometer manufacturer to offer this unique pump, which requires virtually no routine maintenance. There's no oil, and no danger of oil contamination or leaking.



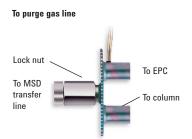
Designed for supportability and maintenance.

Agilent GC/MSD systems have always been designed for easy serviceability and maintenance—and the Agilent 5975C Series GC/MSD takes this design philosophy to a whole new level.

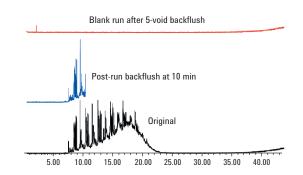


- Modular analyzer assembly offers complete access to the filament ion source, mass analyzer and electron multiplier for faster routine maintenance—in fact, the entire analyzer assembly can be removed in less than two minutes, without tools! A modular, self-contained electronics module minimizes problems with cables and wiring harnesses.
- Front glass window provides simple source identification, as well as a complete view of critical connections—so you can see for sure the column is connected properly.
- High-reliability vacuum system assures maximum long-term performance; available oil-free pumping system virtually eliminates pump maintenance and reduces noise, and can be used with corrosive gases such as ammonia.
- Off-axis high-energy dynode (HED) detector delivers long life and superior sensitivity. New Electron Multiplier Saver feature further extends system service duty cycle.
- **Optional ion gauge** helps to troubleshoot and isolate leaks as quickly as possible.

QuickSwap Capillary Flow device saves time and money with every column change and system maintenance



Tired of waiting around for a mass spec to vent before you can change a column out or perform routine inlet maintenance? Using a "QuickSwap" Capillary Flow device, you can safely disconnect the column without venting, and without losing vacuum—in about 30 seconds!



The QuickSwap device can also be used for column backflushing, reducing MSD contamination by high-boiling sample components, shortening analysis time and increasing the lifetime of your ion source.

High performance Agilent J&W columns and supplies for the Agilent 5975C Series GC/MSD.

To help you achieve better results faster, Agilent is continuously improving the cleanliness, convenience and reliability of columns and supplies for Agilent GC/MSD systems. From market-leading J&W columns—with rigorous quality control and QC testing that ensure reproducibility, efficiency and inertness—to GC flow path supplies designed, manufactured and packaged to maintain the integrity of your sample, Agilent columns, supplies and accessories will improve your lab's performance, productivity and confidence.



Performance

Choose Agilent J&W columns and supplies for a leak-free, inert flow path to ensure lowest bleed and best signal-to-noise performance in Agilent GC/MSD systems.

From among the full suite of Agilent low-bleed J&W columns, the inert HP-5MSi column was selected to ship with the new 5975C. Specially tested to ensure maximum area response performance of strong acid and base compounds, this column is also compatible with Agilent Pesticide Libraries for MS.

Tight inlet seals are needed to keep MS system performance at its peak. Agilent liners pre-cleaned and conditioned liner O-rings matched with our new, proprietary, injection-molded gold-plated seal—prevent the tiniest leaks that cause column bleed, and signal deterioration.

Productivity

Agilent supplies help keep routine maintenance routine. Our capillary column ferrules, O-rings and septa are packaged to not only remain clean and ready for use, but to conveniently dispense one at a time as needed for fast inlet maintenance.

An exclusive non-stick plasma coating on our premium inlet septa and pre-cleaned 0-rings makes maintenance quicker and easier no unscheduled inlet maintenance due to residue on the inlet surface, and shorter bakeout times after preventive maintenance, so you can start running samples sooner.

Confidence

Agilent J&W columns and supplies ensure your Agilent 5975C system delivers as promised. In fact, our GC and GC/MS instrument specifications are determined using industry-leading Agilent J&W columns and Agilent brand chromatography supplies.

Eliminate concerns about lost samples or productivity from unexpected sequence interruptions by using Agilent certified autosampler vials, septa and caps, and Gold Standard syringes. Each comes with a Certificate of Conformance to assure you all specifications are met.

Agilent J&W GC columns and our portfolio of chromatographic supplies are available through Agilent and authorized Agilent distributors.

Agilent services let you focus on what you do best.

Agilent's service organization is the most respected in the industry. Whether you need support for a single instrument or a multilaboratory operation, we can help you solve problems quickly, increase your uptime and optimize your lab's resources. We offer:

- On-site preventive maintenance to ensure dependable operation and minimize unplanned downtime
- Troubleshooting, maintenance and repair for Agilent as well as non-Agilent instruments
- · Remote diagnostic and monitoring services to maximize instrument uptime and lab productivity
- · Industry-leading regulatory compliance services and education
- Expert consulting and training
- Cooperative support for in-house service organizations

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 that system toward an upgraded model. Not only does Agilent ensure a safe purchase now, we help ensure your investment is as valuable to you in the long run.

The Agilent Service Guarantee



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

No other manufacturer or service provider offers this level of commitment to keeping your laboratory running at maximum productivity.

For more information

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