

# Discover the Possibilities

Agilent 5977C GC/MSD



# A history of leadership in GC and GC/MS

Agilent has over 50 years of leadership in GC and GC/MS. The story of Agilent's leadership in mass spectrometry started with the founding of HP back in 1938. Every step of the way, your goals become our goals: improving user experience, laboratory operation, and business success.



1971

## 5930A Tabletop MS

The first GC/MS from HP with an oscilloscope and strip chart was introduced.



1982

## 5970 MS

This landmark Agilent product was the first of a long line of GC/MS instruments. With a mass range almost as good as the early floor standing models, the sensitivity was comparable to our earlier benchtops.



1994

## GCD

Gas chromatography/mass spectrometry as a technology gained so much popularity that we introduced an easier-to-use model, the GCD.



1996

## 5973 GC/MSD

The 5973 showcased extended mass range and sensitivity. MSD ChemStation and the Local Control Panel allowed two GC/MSDs to be controlled by one PC.



2005

## 5975 GC/MSD

The 5975 GC/MSD further extended the mass range up to 1050 m/z and delivered a sensitivity S/N of 100:1 with 1 pg OFN.



1976

## 5992A Benchtop GC/MS

Up until this time, all GC/MS systems were floor-standing units. The 5992 marked a milestone with the first benchtop instrument.



1988

## Unix and DOS ChemStation

The Unix ChemStation was the successor to the Pascal workstation. The Agilent DOS Chemstation included low-cost PCs and more sophisticated operating systems that made it possible to move to more common computing platforms.



1996

## Hyperbolic gold-coated quartz quadrupole

Hyperbolic, gold-coated, quartz quads enhanced sensitivity, performance, spectra, and isotope ratios.



2007

## MassHunter software

From instrument settings to data analysis and reporting, MassHunter software made GC/MS analysis both powerful and routine for all.



2009

### 7000A triple quadrupole GC/MS

The first GC/MS system from Agilent harnessed the selectivity and associated sensitivity gains of true GC/MS/MS capability.



2012

### 7200 GC/Q-TOF

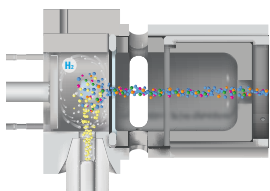
The ideal tool to solve complex problems, the 7200 GC/Q-TOF introduced high-resolution accurate mass to the Agilent GC/MS portfolio.



2015

### 5977B GC/MSD and high-efficiency ion source

Delivered unparalleled analytical sensitivity with extreme operational efficiencies for ultra trace-level applications.



2017

### JetClean self-cleaning ion source

Greatly reduced or eliminated the need for source cleaning, thereby enhancing productivity on the single and triple quadrupole GC/MS systems.



2019

### QuickProbe GC/MS

The Agilent QuickProbe GC/MS system was designed for forensic laboratories looking to do direct analysis in real time without sample preparation.



2022

### 7000E and 7010C

Agilent 7000E and 7010C GC/TQ expand instrument intelligence to enable new acquisition modes and more self-aware diagnostics. The 7000E is also compatible with the Agilent HydroInert source.

2012

### Removable ion source

The removable ion source (RIS) allowed vent-less exchange of EI and CI source technologies on the Agilent 7200 GC/Q-TOF.



2013

### 5977A GC/MSD

The 5977A introduced the Extractor EI Ion Source for enhanced sensitivity and thermal profile improvement. It also featured direct communication between 7890B GC and the MSD.



2016

### 7010B triple quadrupole GC/MS

The Agilent 7010B represented the evolution of proven performance, featuring compatibility with the high efficiency and JetClean sources, plus the introduction of dMRM Acquisition.



2017

### 7250 GC/Q-TOF

Featuring simultaneous high resolution and high dynamic range, the 7250 enhanced and expanded upon the high-resolution accurate mass workflows of its predecessor, the 7200 GC/Q-TOF.



2022

### 5977C

5977C offers improved analytical performance and technologies that maximize instrument uptime. The new HydroInert source improves performance with H<sub>2</sub> as a carrier gas.





The Agilent 5977C GC/MSD system

## Meet Your Business Goals, Today and in the Future

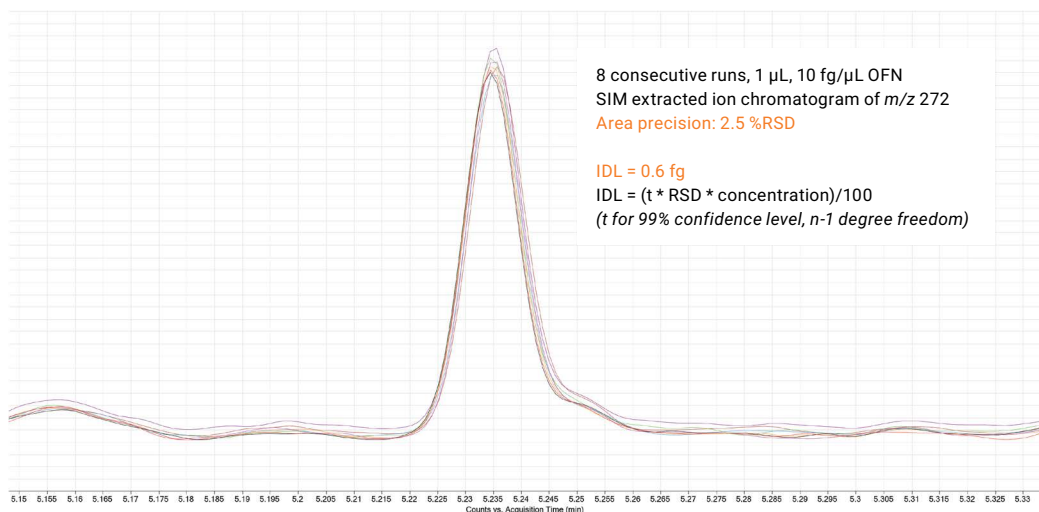
Instrument downtime, quality data, sample reruns, and data reviews are just some of the challenges associated with turnaround times that are critical to your business and reputation. Meet the [Agilent 5977C GC/MSD](#). Coupled with new technologies that drive maximum productivity in your lab, the 5977C is designed to provide robust, day-in, day-out performance so you can focus your time on things that add value to your lab.



## Your GC/MS analyses demand the highest performance standard: The IDL

IDL (instrument detection limit) is based off of the USEPA's definition of MDL (method detection limit) and is based on a statistical analysis of precision (%RSD) of 8 consecutive injections. Since IDL is measured close to the detection limit, it is a meaningful metric for what the instrument can actually achieve.

### The accuracy of instrument detection limit (IDL)



How does the 5977C measure up? All Agilent GC/MS systems include IDL demonstration at installation, with industry-leading performance.

For more information about IDL, [view our FAQ](#).

## Mass spectrometry performance that helps you stay competitive

### Stainless steel source

The traditional stainless steel source performs most similarly to previous Agilent MSD instruments at a budget-friendly price. Designed for sample-dependent applications.

Agilent 5977C  
EI MSD

### HydroInert source

The HydroInert source is a novel EI source designed to improve performance with hydrogen carrier gas in GC/MS. It addresses issues such as hydrogenation and dechlorination reactions.

5977C Inert Plus MSD  
with HydroInert source

### Extractor source

The inert extractor EI source enables high analytical sensitivity for active compounds that are most likely to interact with noninert surfaces. Designed for routine labs across various industry applications for optimum operational efficiency.

Agilent 5977C  
Inert Plus EI MSD

### Extractor source for EI; CI source for CI

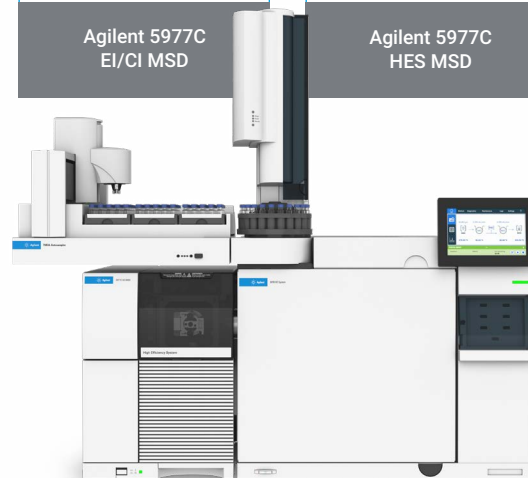
An inert extractor EI source provides high analytical sensitivity. The CI source delivers softer ionization for molecular formula determination and enhanced selectivity.

Agilent 5977C  
EI/CI MSD

### HES source

The inert HES delivers unparalleled analytical sensitivity for ultra trace-level applications. Ideal for high-throughput labs that need to save time and money with extreme operational efficiencies.

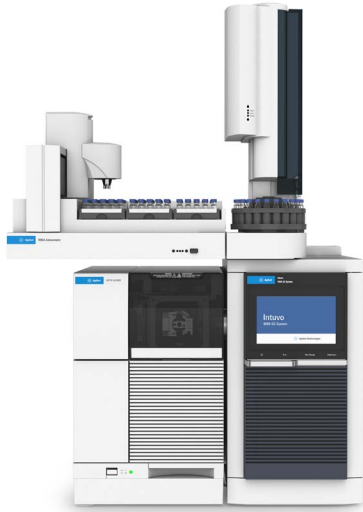
Agilent 5977C  
HES MSD





## Reliable and unparalleled GC separation

Building the world's most trusted gas chromatography system is an ongoing process. With every step, we increase speed, improve functionality, and incorporate new analytical capabilities, while never losing sight of the most important objective—business results.



### Unlock your lab's revenue potential

The [Agilent Intuvo 9000 GC](#) stands in a class by itself. Its innovative compact design offers fast, direct heating, ferrule-free fittings, Guard Chip technology, and no-trim columns to provide faster sample runs as well as fewer and faster column changes. Intuvo continues the Agilent legacy of reliability and gold-standard performance in a compact and powerful complete package.



### Meet your analytical needs today—and tomorrow

The [Agilent 8890 GC system](#) offers outstanding flexibility. As the next evolution of the trusted Agilent GCs, the 8890 drives productivity, delivers high-quality data, and provides unparalleled confidence to all users.

- Configure with any GC/MS system and combine with a wide range of GC detector options.
- [Helium conservation module](#) provides cost-saving carrier gas options.
- Analyzers provide preconfigured and tested systems for a wide range of specific applications.

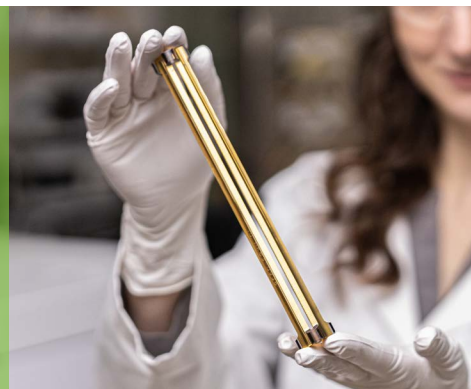


### A new outlook on routine GC

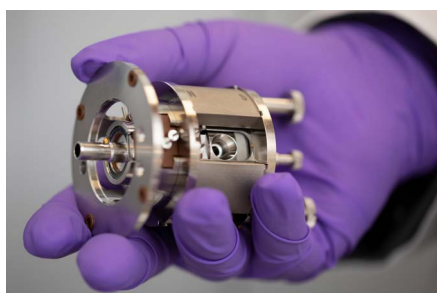
The [Agilent 8860 GC system](#) combines simplified operation with the proven reliability expected from Agilent GC systems. It can be configured with a range of GC detectors, and can be upgraded for use with the 5977C GC/MSD with stainless steel source, for reliable delivery of high-quality data. What's more, the 8860 GC enables user-induced instrument diagnostics and has an easy-to-learn touch screen interface that lets you instantly view GC setpoints and status.

# Innovations That Drive Profitability

Throughput. Uptime. Efficiency. Operating costs.



No matter what business you're in, these are fundamental factors that impact profitability. You face constant pressure to analyze more and more samples, even as resources shrink and analytical challenges grow. In your lab, every task has the potential to increase or decrease your profit. Every instrument has to contribute. Every sample counts.



## Agilent JetClean self-cleaning ion source

During routine analysis, matrix deposits inevitably build up. The Agilent JetClean self-cleaning ion source maximizes instrument uptime and sample throughput by greatly reducing or even eliminating the need for manual ion source cleaning, resulting in an additional one to two days per month to perform analyses. JetClean is available as an option on Agilent single quadrupole and triple quadrupole GC/MS systems.

[Learn more](#) about the JetClean self-cleaning ion source.



## Built-in GC intelligence

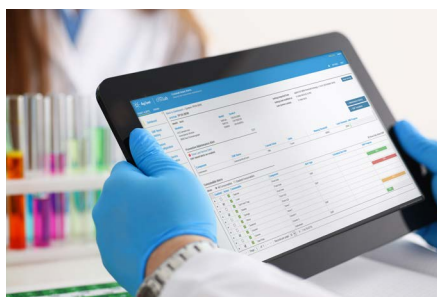
Self-aware GC features enable a variety of useful and convenient diagnostic and maintenance options that prevent common GC problems. The browser interface provides remote connectivity through the lab network and access to features without the need for a data system. Users can view instrument status, run diagnostics, check maintenance logs, and view helpful service videos—all from a mobile device.

[Learn more](#) about GC intelligence.

*"With the 5977/JetClean combination, time we would usually spend recalibrating, working on methods, or cleaning the ion source can now be spent running more samples, with greater confidence in the quality of results being produced. That translates to a real competitive advantage."*

- **Bob Symons,**  
Regional Technical Manager, Eurofins | Environment Testing, Sydney, Australia





### Smart Alerts

Agilent CrossLab Smart Alerts software monitors instrument health and provides email-based alerts, notifying you when to consider replacing key consumables, when to perform preventive maintenance, and when an instrument stops running anywhere in your lab. The Remote Assist feature allows you to send an immediate service request to Agilent.

[Learn more](#) about Smart Alerts.



### Hyperbolic gold-coated quartz quadrupole

The quartz monolith guarantees perfect alignment for hyperbolic surfaces throughout the life of the mass spectrometer. Gold surfaces stay clean and are maintenance-free at high temperatures—up to 200° C.



### Capillary Flow Technology

Many GC and GC/MS analyses are performed on complex samples that contain high-boiling compounds. Agilent Capillary Flow Technology lets you backflush the column once all peaks of interest have eluted, thus forcing out any remaining components. The benefits include reduced cycle times, less column maintenance, better data, and enhanced productivity.

[Learn more](#) about Agilent Capillary Flow Technology.



### Agilent IDP-3 dry scroll pump

The Agilent IDP-3 dry scroll pump offers oil-free operation that lowers your cost of ownership without the worry of oil leaks, spills, or hazardous oil disposal. It also has a small footprint and enables a quieter lab environment. The IDP-3 is compatible with Agilent 5977, 5975, and 5973 GC/MS systems; instruments that use hydrogen as a carrier gas; and JetClean.

[Learn more](#) about the Agilent IDP-3 dry scroll pump.



### Helium conservation module

Achieve better control of laboratory operating expenses and fewer workflow disruptions by stretching your helium tank usage from weeks to months. This module allows you to use helium for your GC runs and switch to a different gas (typically nitrogen) when your GC is idle.

[Learn more](#) about the helium conservation module.

# HydroInert source: Maximizing efficiencies with H<sub>2</sub> carrier gas

## Overcome the challenges of using hydrogen as a carrier gas

With helium being a finite resource with an inefficient production, it is expensive. Hydrogen is a low cost, renewable gas that is the best alternative to helium. The new HydroInert source minimizes loss in sensitivity and spectral anomalies associated with H<sub>2</sub> gas. These are some of the unique advantages of HydroInert:

- Spectral fidelity, even for compounds highly susceptible to hydrogenation
- Superior high-boiler peak shape, especially for PAHs
- Unchanged source parts and familiar assembly procedure

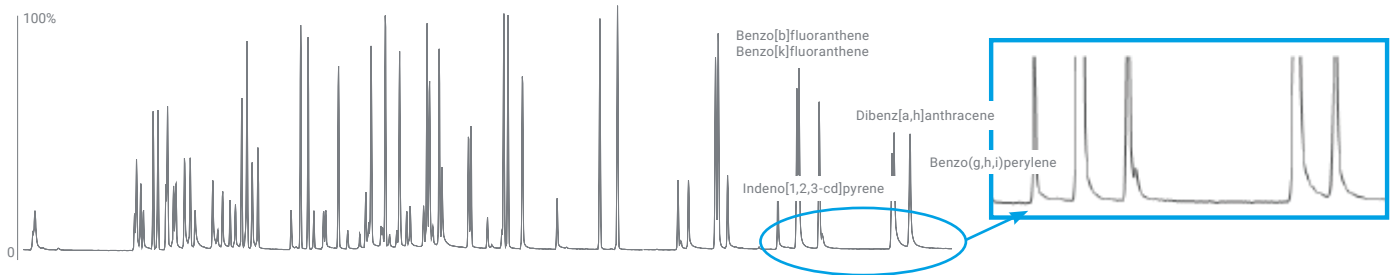


*"Helium shortages are becoming commonplace, so this will be an excellent alternative to He."*

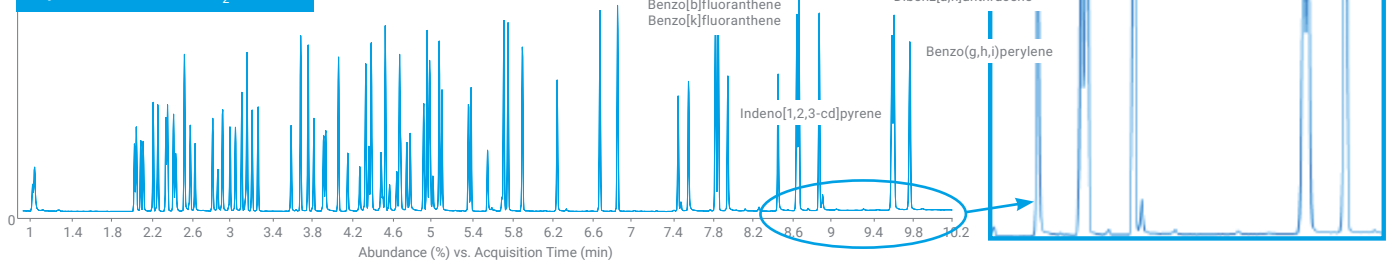
- **Bill Mock**,  
Manager of the Innovation Laboratory  
Pace Analytical Services

## EPA Method 8270 SVOCs analysis: 50 ppm standard in a scan with H<sub>2</sub> carrier

Conventional EI source upgraded with 9 mm extractor lens, H<sub>2</sub> carrier



HydroInert source H<sub>2</sub> carrier



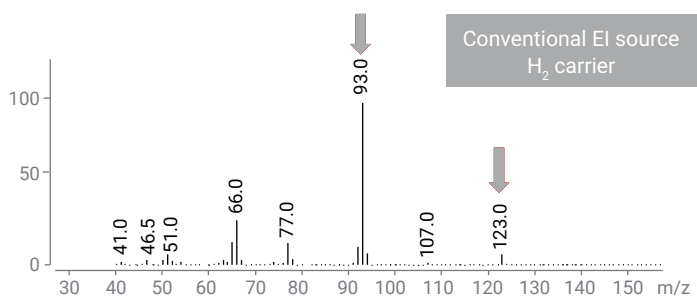
Peak shape and resolution is significantly improved with the HydroInert source with H<sub>2</sub> carrier.

## Safety considerations when converting to hydrogen carrier gas

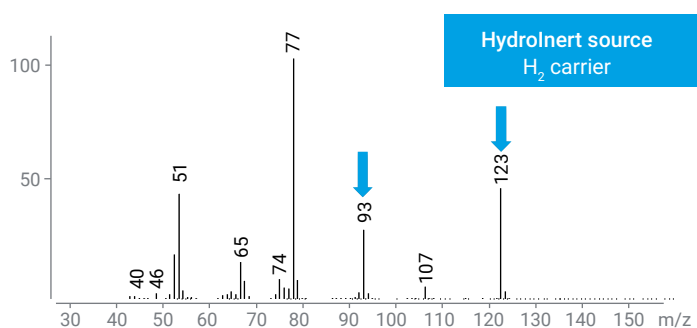
Safety is the most important consideration when handling hydrogen due to the concern of flammability. For detailed safety information, see the Agilent Hydrogen Safety Manual for GC/MS (part number G7006-90053). The entire safety manual must be read and understood before connecting and using hydrogen as the carrier gas.

## Analysis of nitrobenzene—a compound vulnerable to in-source reactions and hydrogenation

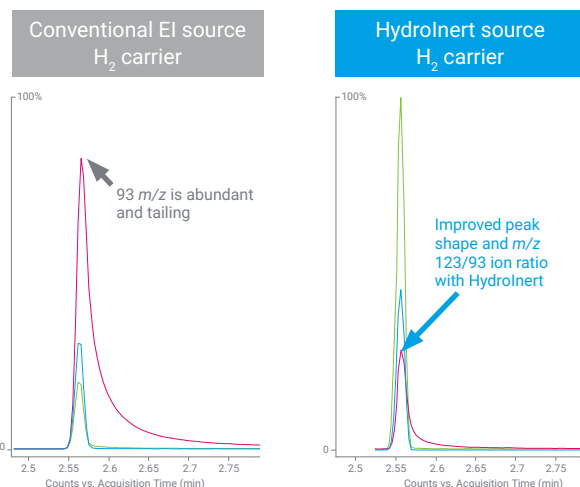
Spectral fidelity, resolution, and peak shape is greatly improved with Hydrolnert while running on H<sub>2</sub> carrier gas



The Extractor source (3 mm extraction lens) showed hydrogenation to aniline with the abundant  $m/z$  93 ion.

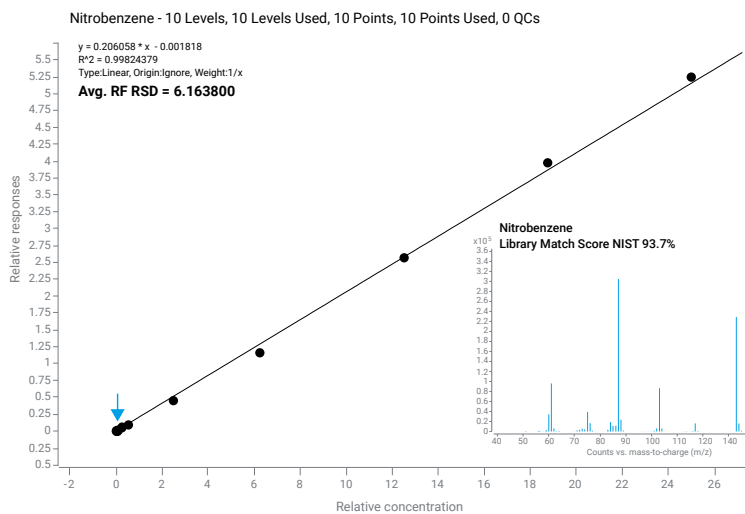


Improved spectral fidelity, showing excellent ratio of  $m/z$  123



Typical performance showing hydrogenation to aniline with the abundant  $m/z$  93 ion.

The Hydrolnert source showed an improved mass spectrum that correlates to nitrobenzene.



Excellent calibration linearity is achieved with the hydrolnert source as well as spectral accuracy for high confidence comparison to conventional EI libraries.

### Resources to help conserve or convert your GC/MS carrier gas

Use these links to help with your GC/MS conversion to hydrogen

#### [Handle the Hassles of the Helium Shortage](#)

Explore ways to manage price fluctuations and potential delivery interruptions with helium carrier gas for GC analyses.

#### [Helium Conservation Cost Savings Calculator](#)

See how much you could save by using Agilent Gas Saver with and without nitrogen standby.

#### [Helium Conservation Module](#)

Prevent disruptions by managing your helium usage.

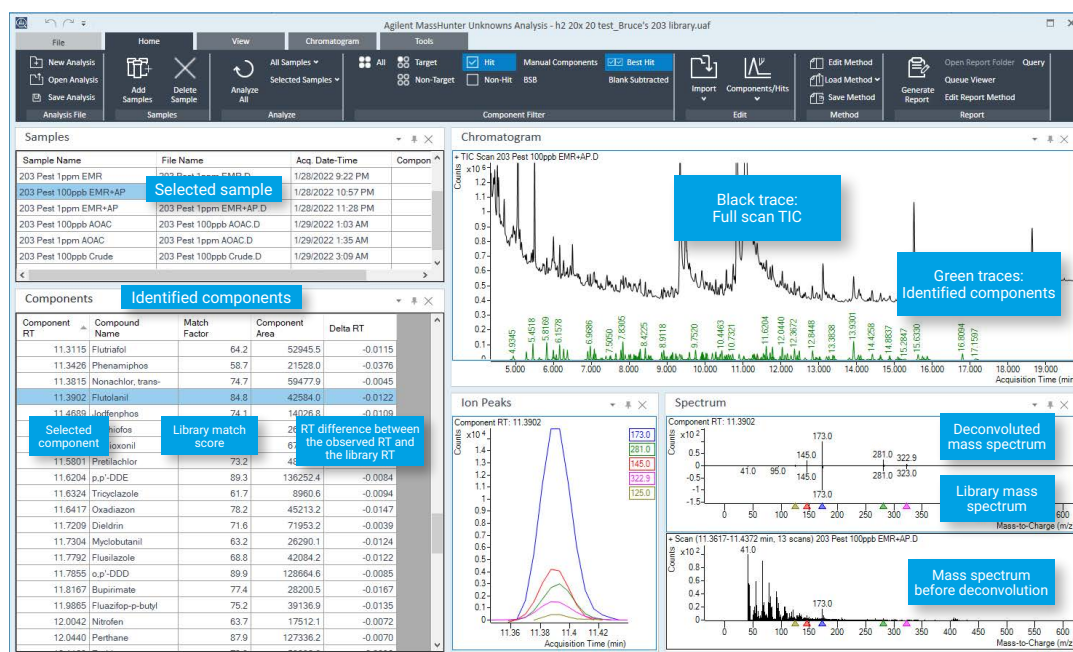
#### [Agilent EI GC/MS Instrument Helium to Hydrogen Carrier Gas Conversion User Guide](#)

Get detailed instructions on converting your Agilent EI GC/MS system from helium to hydrogen carrier gas.

# MassHunter software: Your faster route to insight

Agilent MassHunter software is designed to solve your everyday problems to make your GC/MSD analysis faster, easier, and more productive. What's more, it enables operators of all levels to drive confident results.

This intuitive software supports multiple applications with customizable features, easy-to-use method templates, and a comprehensive spectral library that includes retention time and/or retention index information. It also supports instrument control and data acquisition for your Agilent GC/MSD.



Easy and intuitive: Agilent MassHunter Unknowns Analysis software provides automated deconvolution and library searching to identify compounds of concern.

## With the MassHunter Quantitative Analysis software, you get:

- Built-in workflow templates that are dynamically linked in data review.
- Easy selection of parameter-less integrators with built-in peak validation capability allows you to focus exclusively on problem peaks and minimize manual reintegration.
- Customization of workflows with Unknowns Analysis and Library Editor to perform sample analysis against NIST, and creation of custom RT-locked spectral library and quantitation method from acquired scan data with library search.
- Associated peaks, spectra, and calibration data with the click of a result.
- Target deconvolution that enables enhanced confidence in compound identification.
- Enhanced data integrity standards—provides the technical controls to securely acquire, process, report, and store data in laboratories that must follow the compliance guidelines of FDA 21 CFR Part 11, EU Annex 11, GAMP5, as well as ISO/IEC 17025 and EPA's 40 CFR Part 160.

Learn more about what Agilent MassHunter software can do for your lab.

# Mass spectrometry with OpenLab CDS software

OpenLab CDS software offers a single-user interface that can control your Agilent LC, GC, LC/MSD, and GC/MSD. With OpenLab CDS, you can acquire, process, and report mass spectrometry data to meet your requirements and complete your workflow.

## Instrument tune and calibration

- OpenLab CDS allows for full control of GC/MSD instrument tuning, including Autotune, Checktune, and Manual Tune capabilities.
- Optimize analytical methods with multiple scan segments to utilize the scan time efficiently.

## Data analysis

- Display, background correct, and search MS spectra—either ad hoc as part of sample investigation or as part of automated result processing.
- Create extracted chromatograms (EIC) manually from a total ion chromatogram (TIC) or directly from a MS spectrum.

## MS library search

- OpenLab CDS supports NIST format libraries for spectral library screening and ad hoc library searches.

## Reporting

- OpenLab CDS offers multiple predefined MS report templates that can be easily modified to meet your needs.

## Shorten method development and compound confirmation

- Quickly create or update a compound list through automatic MS compound table generation from known samples.
- Use integrated library search to identify target compounds or utilize SIM acquisition method information.
- Confirm target compound identity with qualifier ion and ratio specification or reference spectral comparison.

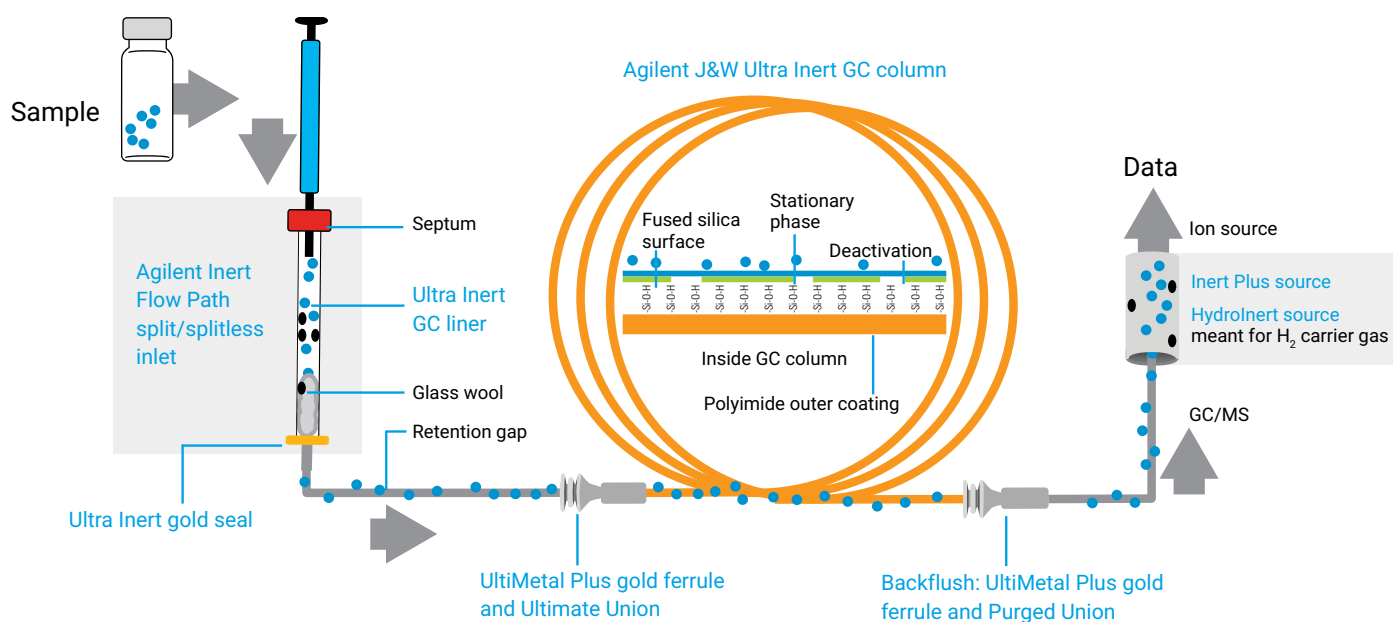
The screenshot displays the OpenLab CDS software interface. The top menu bar includes options like File, Home, Processing, Autotune, and MS Spectrum. The main workspace is divided into several panels:

- Chromatograms:** Shows a Total Ion Chromatogram (TIC) with several peaks. A blue box highlights a peak at approximately 9.8 minutes, with a callout stating: "TIC chromatograms Easily display known m/z signals for comparison with TIC or other signals".
- MS Spectrum:** Shows a mass spectrum with a base peak at m/z 67. A callout box says: "Search spectrum on the NIST libraries Send spectrum to NIST MS program".
- MS Lib Search Results:** A table showing search results for various compounds. The table has columns for Compound Name, Match Score, Reverse Match Score, Probability %, Library Name, CAS #, NIST #, and LibraryID.
- Extract Chromatograms:** A dialog box with the title "Extract Chromatograms" and "Chromatogram extraction parameters". It includes dropdown menus for Signal type (Scan), Scan m/z value(s), Polarity (Positive), Ionization (ESI), and Fragmenter (LIS). There is also a checkbox for "Auto re-process when extracted" and "OK" and "Cancel" buttons.

OpenLab CDS supports NIST format for spectral libraries searches.

# Ensuring an inert flow path has never been more critical

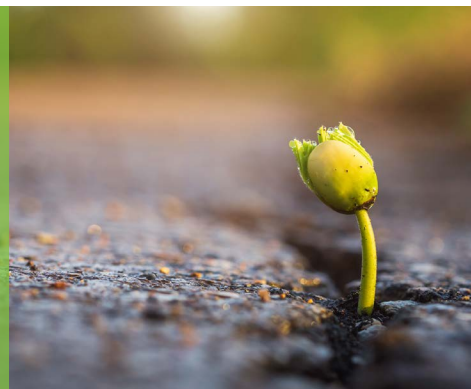
As samples become smaller, increasingly active, and more complex, you cannot afford losses caused by flow path activity. Having to repeat or verify suspect analyses wastes valuable resources, hinders productivity, and hurts your bottom line. With trace amounts of active analytes, you might not even get a second chance, because there may be no more sample left to analyze.



## Don't miss a thing in your GC/MS analysis

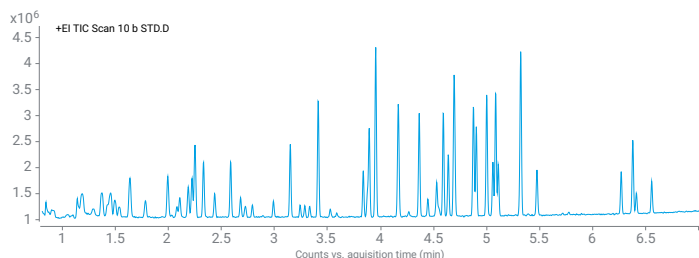
From analyzing active environmental samples to screening for drugs of abuse, Agilent Inert Flow Path solutions help ensure higher analytical sensitivity, accuracy, linearity, and reproducibility. [Learn more](#)

# Proven Reliability for All of Your Applications

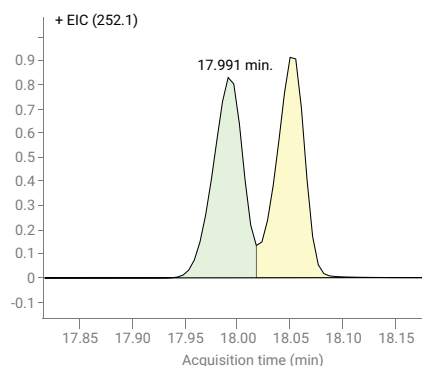


## Staying competitive to meet changing environmental regulations

The methodology described within United States EPA Method 8270 for the analysis of semivolatile organic compounds by GC/MS requires simultaneous measurement of diverse compound classes over a wide concentration range. The 5977C Inert Plus GC/MSD meets these requirements over a range of 0.2 to 160 ppm using a single injection (one calibration). Better initial calibration results lead to longer continuing calibration, so more samples can be analyzed without intervention—lowering your cost of operation. Here, we achieved a wider calibration range and low compound %RSDs, translating into greater laboratory productivity.



Scan TIC of 10 ppb VOC Cal Standard using H<sub>2</sub> carrier gas and Hydrolnert source.



Benzo[b and k]fluoranthene isomer resolution at 50 ppm (midpoint). Split is 3:1 (17 ng injected), LPD liner, and 9 mm diameter drawout lens. Sufficient resolution is achieved if the height of the valley between two isomer peaks is less than 50% of the average of the two peak heights at the midpoint concentration level (8270D). This data was collected on an Agilent 7890B GC coupled to an Agilent 5977B Inert Plus GC/MSD equipped with a SSL inlet.

## Volatile organic compounds analysis in drinking water with headspace GC/MSD using hydrogen carrier gas and Hydrolnert source

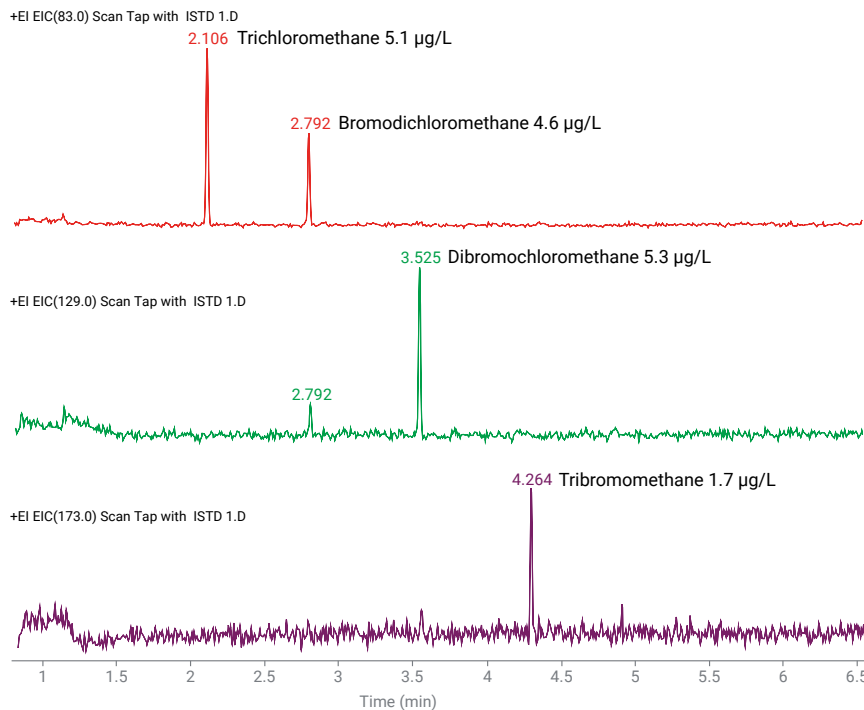
Having a rapid method for identifying and quantitating volatiles at low µg/L levels would be a useful tool for quantitating contaminants in water. Together, the Agilent 8697 headspace sampler, 8890A GC, and 5977C MSD—used with hydrogen carrier gas and the new Hydrolnert EI source—provide this capability. The headspace approach often provides a simpler alternative to purge and trap sampling when local regulations allow it.

## Chinese standard and GB methods for water analysis

Agilent GC/MS systems are widely used for a range of Chinese environmental and food GB methods, as they demonstrate excellent performance in terms of repeatability, sensitivity, and linearity.

Test	Method	Description
VOC	GB/T5750.8.4.2	55 VOCs—purge and trap GC/MS
	GB/T5750.8.20.1	Epichlorohydrin—GC/MS
	HJ639	Water quality VOCs—purge and trap GC/MS
	HJ810	Water quality VOCs—headspace GC/MS
Off-odor	GB/T5750.8.75.1	Headspace SPME test of geosmin and 2-methylisoborneol
	GB/T5750.8.85.1	2 thioether test—purge and trap GC/MS
SVOC	GB/5750.8.15.1	15 SVOCs SPE—GC/MS
	GB/5750.9.41.1	Acetochlor test—SPE GC/MS
	GB/5750.8.88.1	18 PCB test—SPE GC/MS
	GB/5750.10.24.1	8 NDMA test—SPE GC/MS
	HJ699	Water quality—organochlorine pesticides and chlorobenzenes—GC/MS
	HJ715	Water quality—polychlorinated biphenyls (PCBs)
	HJ744	Water quality—phenols—GC/MS

## VOCs analysis of municipal tap water



	RT	NIST LMS
Trichloromethane	2.107	93
Bromodichloromethane	2.792	86
Dibromochloromethane	3.526	88
Tribromomethane	4.267	80

Deconvoluted scan data searched against NIST confirms identities even at low µg/L levels.



# Increased reliability with lower detection limits for food analysis

## Analysis of PAHs in infant formula with the novel HydrolInert source and hydrogen carrier gas

Manufacturers of infant formula products must comply with strict requirements regarding the allowed concentration of PAHs. The European Commission has established safe level requirements of benzo[a]pyrene, benzo[a]anthracene, chrysene, and benzo[b]fluoranthene as four key PAH markers (requirement no. 835/2011). Regulations require the total concentration of the four key PAHs to be less than 1.0 µg/kg in infant formula powders. High fat content matrices pose a great challenge in sample preparation and can result in interferences in GC/MS analysis.

Our optimized sample preparation procedure provided highly efficient and selective lipid removal from infant formula matrix, while delivering acceptable recoveries for hydrophobic PAHs. The resulting low levels of matrix interferences enabled the use of GC/MS in SIM mode to achieve sub-ppb level sensitivity.



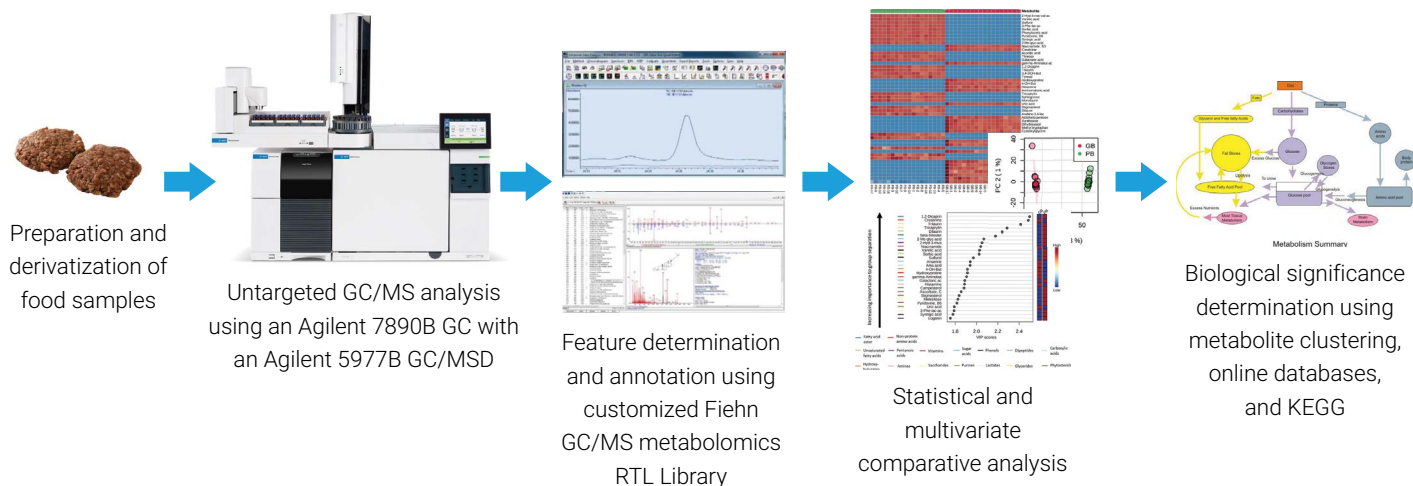
Highly customizable Compounds-at-a-Glance view for 1,2,9,10-dibenzopyrene, 1,2,4,5-dibenzopyrene, and dibenzo[a,i]pyrene-d14 at 0.1, 0.5, 1, calibration levels.

# Reliably confirm metabolites and gain deeper insights into biological systems

## Enhance your research, gain new perspectives on metabolism, and answer challenging biological questions

Metabolomics typically involves global metabolite profiling by hyphenated GC/MS analysis techniques, followed by a familiar software workflow to process the GC/MS data files. Agilent offers software workflows for performing global metabolite profiling by GC/MS. In these workflows, features are found across all data files, and the results are analyzed using multivariate techniques. Important differential features are identified and visualized on pathways to aid biological interpretation.

This advanced analysis software relies on the highly reproducible data produced by the 5977C GC/MSD system—particularly when using Agilent MassHunter Profinder to identify complex metabolomics data. After statistical analysis using Mass Profiler Professional, compounds are identified using the Fiehn retention time locked EI library. The data is then visualized on pathways using Pathway Architect.



Overview of GC/MS-based metabolomics workflow used to compare the chemical profiles of plant-based and traditional meats.

# Perform reliable chemical, petrochemical, and materials identification and quantitation

## GC/MS analysis of phthalate plasticizers

Positive chemical ionization (PCI) lets you unambiguously identify phthalates based on an intense molecular ion response. You can configure the 5977C GC/MSD hardware to handle CI reagents, including hydrocarbons (such as isobutane and methane) and softer reagents (such as CO<sub>2</sub> and NH<sub>3</sub>)—all with trace-level analytical sensitivity.

## Biofuel characterization

The 5977C GC/MSD exceeds the criteria for accurate, sensitive biofuel analysis. Its inert flow path, high-efficiency source, and heated gold-plated quartz quadrupole combine to deliver robust, high-analytical sensitivity analysis for the full range of biofuel analytes. The system is easily set up for simultaneous SIM/scan data acquisition to maximize analytical sensitivity and selectivity, while providing full spectra for qualitative analysis.

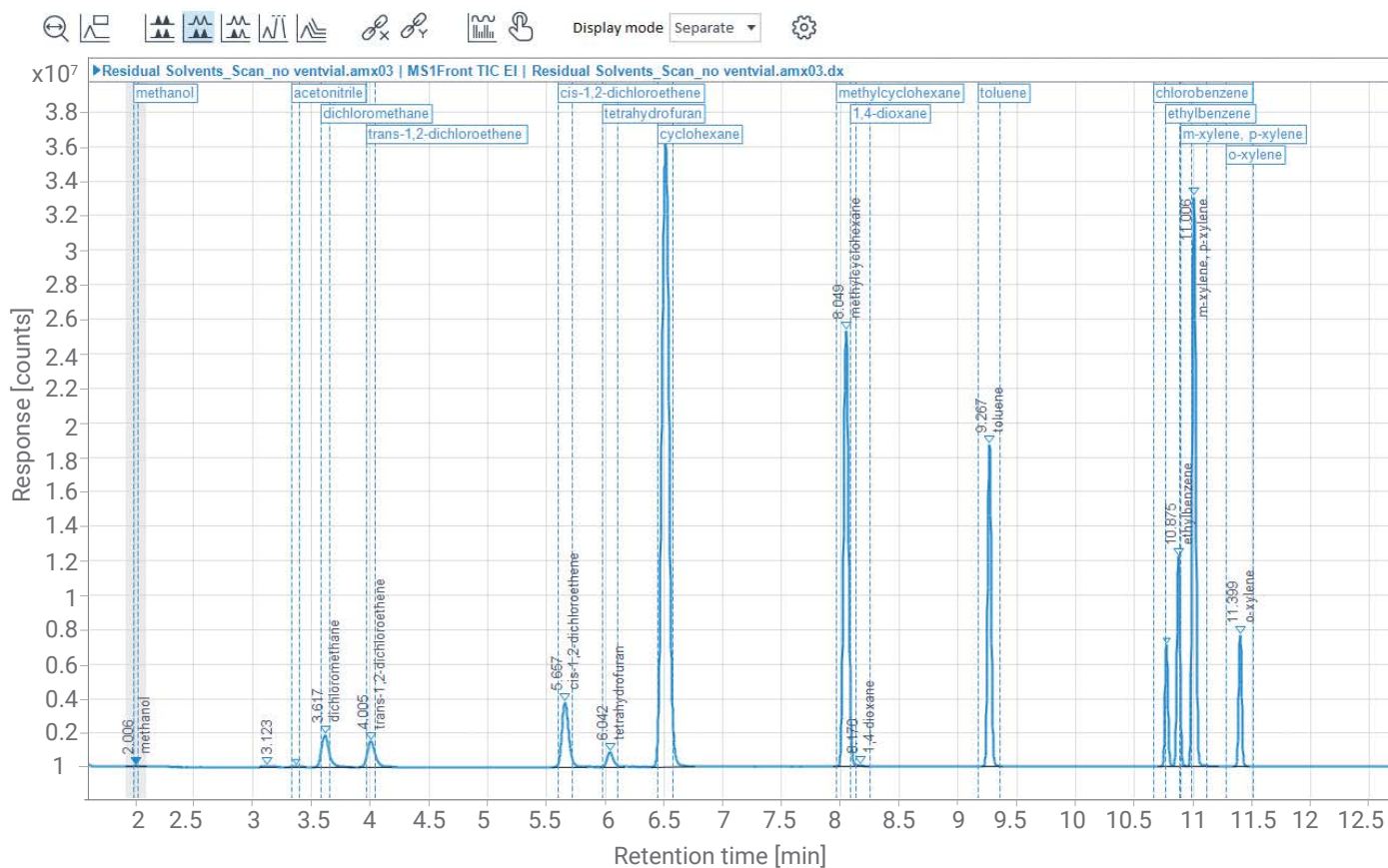


# Improve your compliance-based pharmaceutical residual solvent analysis

## Accurate, sensitive, and trouble-free GC analysis with headspace sampling

The Agilent 8697 headspace sampler is an ideal companion for your 5977C GC/MSD. Designed with advanced hardware features, such as the microchannel-based EPC module with atmospheric pressure compensation and valve-based sampling, the 8697 delivers unprecedented precision and performance.

These features work with the integrated intelligence found in Agilent 8890, 8860, and Intuvo 9000 GCs, plus remote accessibility through the browser interface of those systems. That means you can get instrument status updates wherever you are, inside or outside the lab. In addition, Agilent OpenLab CDS software helps you meet compliance requirements for residual solvent analysis and other relevant applications.



Reference chromatogram for Class 2 (Mix A) residual solvents. Solvents were collected using the Agilent 7697A headspace sampler and the 5977B GC/MSD on OpenLab CDS. The software gives you multiple ways to interact and present your GC/MS data, while ensuring the high degree of data integrity expected in FDA regulated labs.

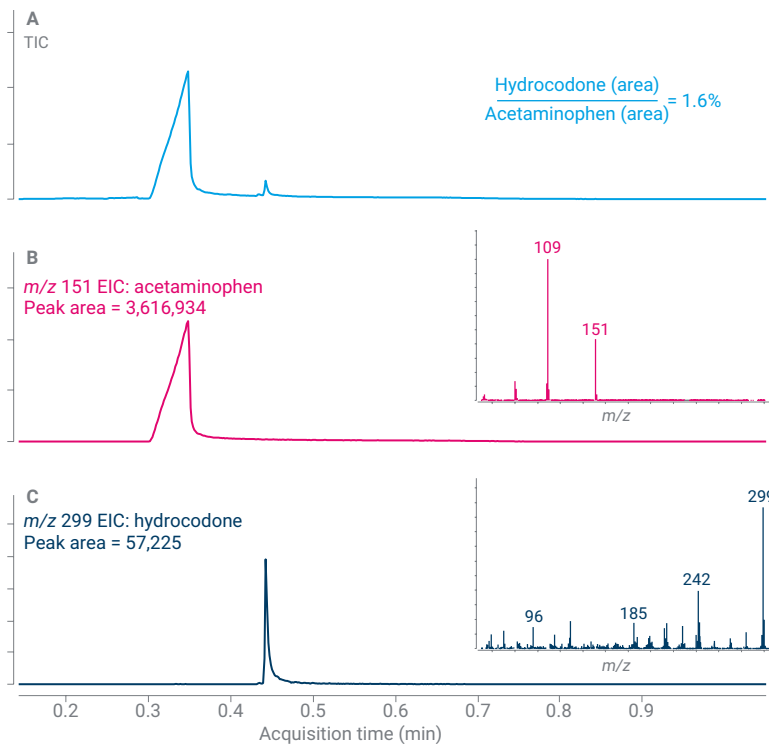
# Quantify drugs and metabolites more quickly and reliably

## QuickProbe GC/MS analysis of a Vicodin tablet in under one minute with no sample preparation

This technique successfully separated acetaminophen and hydrocodone, the two main components. Also, the two active ingredients were identified with a NIST library match of >90—even when the hydrocodone accounted to <2% by weight of acetaminophen.

## Deconvolution reporting software

Broad-range screening for drugs in forensic samples requires full-spectrum identification and confirmation for an unlimited number of targets. It also demands spectral identification of nontargets. The 5977C with deconvolution reporting software and a forensic toxicology database enables screening of a greater number of targets at low-concentrate ions while reducing analysis time. Resulting spectra are classical and NIST searchable.



Pulverized Vicodin tablet (5:300 mg of hydrocodone:acetaminophen) analysis in ~one minute. A) Total ion chromatogram (TIC). Extracted ion chromatograms (EIC) for acetaminophen  $m/z$  151 (B) and hydrocodone  $m/z$  299 (C). NIST library match was >90 for both components



## Partnering for sustainability and business success

Sustainable thinking is transforming the way researchers, scientists, and manufacturers approach their products, processes, and supply chains. However, it can be a challenge for labs to lower their environmental impact while continuing to optimize workflows and lower costs.

At Agilent, we believe that efficiency, productivity, and sustainability are interlinked.

Working toward sustainability is an integral part of how we conduct business and respond to our customers' challenges. Together, we can help your lab achieve its sustainability goals—while increasing output, maintaining accuracy, and staying competitive.



### Partnership with My Green Lab

Agilent has partnered with My Green Lab to have our instruments independently audited for their Accountability, Consistency, and Transparency (ACT) label. ACT labels provide information about the environmental impact of manufacturing, use, and disposal of a product and its packaging, so purchasers can make informed, sustainable choices. Agilent 5977C, 8860, 8890, and Intuvo 9000 GC systems have been comprehensively evaluated and achieved ACT labels. [Learn more about My Green Lab.](#)

### Commitment to Net-Zero Emissions

Since our founding, Agilent has worked to reduce our energy, waste, water, and CO<sub>2</sub> emissions. Now we're taking it a step further. We're proud to announce that we will achieve net-zero greenhouse gas emissions by 2050. Our comprehensive approach to net zero includes Paris Agreement climate targets, clearly defined interim goals, and a commitment to the Science-Based Targets Initiative. [Read more in our news release.](#)

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

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Europe:

[info\\_agilent@agilent.com](mailto:info_agilent@agilent.com)

Asia Pacific:

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