



Agilent 7820A GC System

THE EASY CHOICE FOR ROUTINE ANALYSES



THE AGILENT 7820A GC SYSTEM

FORWARD-THINKING INNOVATION, EVERYDAY RELIABILITY AND VALUE

Is your lab looking for better, more reproducible results for all your standard GC analyses, run after run and day after day? Are you looking for proven quality in an affordable solution that maximizes uptime, minimizes maintenance, and provides the highest return on your investment? Here's exactly what you've been looking for: the 7820A GC system from Agilent.



Run after run, day after day, the affordable Agilent 7820A GC delivers the reliability you are looking for and performance you can count on.

An easy-to-own choice for labs like yours

Now any lab can take advantage of innovative instrumentation, versatile software, and application-matched columns and supplies. This robust GC solution is designed to optimize routine performance, while minimizing complexity. And because it's from Agilent, it gives you the proven quality you expect from the GC industry leader.

Consistent, dependable results

The 7820A GC offers uncompromising GC performance for all your routine applications—including those that must comply with regulatory requirements. Proven electronic pneumatic control (EPC) and digital electronics ensure excellent reproducibility, as well as reliable accuracy and precision. Electronic pneumatic regulation (EPR) provides a precise, easy-to-use, economical alternative to traditional manual pneumatics based systems.

Easy to learn and operate—for all users

With an intuitive user interface and “minimalist” 5-button keypad, the 7820A GC is very easy to operate, even for inexperienced or infrequent users. Because there are no gauges or manual gas knobs, errors are minimized. And with convenient, real-world design features and built-in self-diagnostics, the 7820A GC is also easy to maintain.

Lab-proven quality and long-life Agilent reliability

Why settle for “good enough,” when you can invest in quality? With a heritage of more than 50 years of GC innovation, Agilent has earned a worldwide reputation for reliability and uptime under the most demanding operating conditions.

Flexible automatic selection for better repeatability and higher productivity

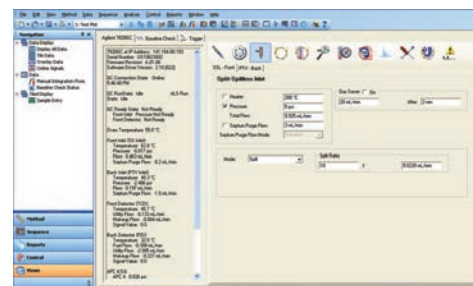
With Agilent automated GC injectors and samplers, you can eliminate the variables of manual injection and increase your lab's throughput. These optional accessories offer unprecedented sample handling flexibility, and allow fully unattended operation—from injection through final reporting.

Maximize your uptime with built-in service and support

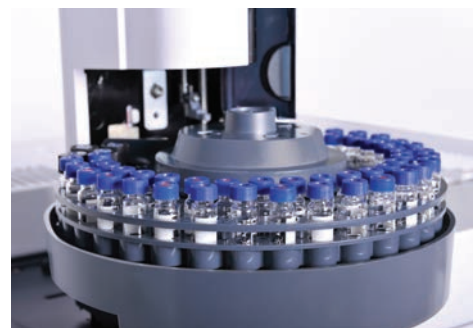
The 7820A GC system's integrated hardware and software simplify your operations with features such as a guided system set-up that helps get you up and running without a visit by an Agilent service representative. And of course, our world-class customer service engineers and certified support partners are available to provide installation, familiarization, training, maintenance, contractual repair, and compliance services.



Simple 5-button keypad minimizes the chance of operator errors.



Proven OpenLAB CDS software platform—running in chromatography labs around the world—makes it easy for all users to set up and operate the 7820A GC system. (Shown is a 7820A GC method creation screen.)



The Agilent 7650A autoinjector provides capacity for up to fifty 2 mL vials

To learn more about the Agilent 7820A GC System, visit www.agilent.com/chem/7820A

SIMPLIFIED OPERATION AND EXTRA VERSATILITY HELP YOU GET MORE DONE, EVERY DAY

The goals that motivate Agilent innovation are your goals: maximum reliability and trouble-free operation under all conditions. And this spirit of innovation is reflected in the engineering features and technology of the 7820A GC.

EPC: Setting the standard for performance and control

Full electronic pneumatics control (EPC)—available on all inlets and detectors—ensures a better repeatability of retention times and peak areas. By using the software to set gas flows, you can now save all of the important parameters of your method. Digital electronics keep your set points constant from run to run, and operator to operator. So you get better retention time repeatability, more consistent results, and less rework.

Standard high precision inlets

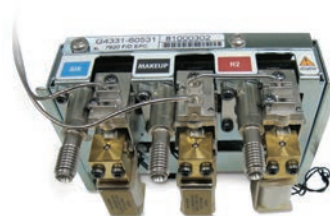
- Split/splitless (SSL) for large bore and all capillary columns
- Purged packed injection port (PPIP) for wide bore capillary and packed columns
- Programmable cool on-column (PCOC) for columns ≥ 0.250 mm id

Automatic valve control

For chemical and hydrocarbon processing applications, the 7820A GC system can automatically control up to two heated valves.

Retention time and area repeatability split/splitless inlet and FID				
Compound	Retention Time (min)		Peak area (pA)	
	24 °C	30 °C	24 °C	30 °C
C13	3.7843	3.7820	45.2143	44.5105
C14	4.4213	4.4190	45.5790	44.8429
C15	5.0369	5.0344	457.8670	449.3625
C16	5.6238	5.6211	456.6820	449.5554

Retention time and area count changes are minimal—even as lab temperatures change throughout the day.



Electronic Pneumatic Control (EPC) module for the 7820A GC.

High-sensitivity Agilent detectors for every sample type

Flame ionization detector (FID): Wide dynamic response range enhances accuracy and minimizes sample prep requirements for samples that contain very high or very low compound concentrations.

Nitrogen-phosphorus detector (NPD): Offers superior sensitivity and selectivity for nitrogen- or phosphorus-containing compounds, such as pesticide residues in food and environmental samples.

Thermal conductivity detector (TCD): Single-filament design provides lower noise and higher sensitivity for general purpose applications.

Electron capture detector (micro-ECD*): Combines unprecedented sensitivity and linearity with ruggedness and reliability—an ideal choice if your lab is analyzing halogenated organic compounds such as pesticides, PCBs, and chlorinated solvents.

Single wavelength flame photometric detector (FPD Plus): High sensitivity detector specifically for sulphur or phosphorus containing compounds in food, environmental, or petrochemical samples.

* Not available in Japan.

NEW EPR: The simplicity of manual operation with high precision digital display, electronic stability, and ease-of-use

Electronic Pneumatics Regulation (EPR) provides a simple, precise, and cost-effective alternative to traditional manual pneumatics operation for select inlets and detectors. Based on industry-leading Agilent pneumatics technologies, EPR makes it easy to manually adjust gas pressures and flows electronically.

What's more, EPR has built-in ambient temperature and pressure compensation, resulting in more stable retention times and detector baselines than traditional manual pneumatics-based systems.



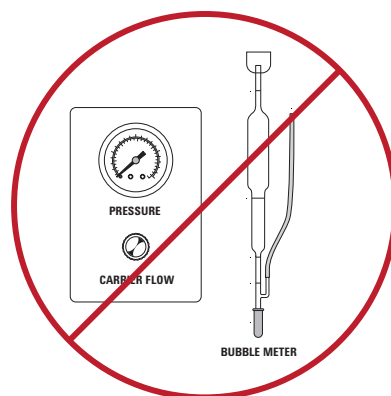
Pressure (or flow) values are digitally displayed and adjusted manually. There are no pressure or flow set points that can be entered or saved to a method.

With EPR, you manually adjust pressures (or flows) higher or lower using the "+" or "-" keys on the 7820A software keypad. You can also make these adjustments from a PC positioned near the GC... or even remotely.

No gauges or bubble meters needed

EPR digitally displays pressure and flow—significantly improving precision over manual pressure gauges and eliminating the need for inconvenient bubble meters to measure and adjust the flows.

You can manually adjust gas pressures/flows electronically, avoiding mechanical regulators, which are susceptible to drift over time and temperature.



SOFTWARE OPTIONS TO FIT YOUR APPLICATION, WORKFLOW, AND BUDGET

Innovative Agilent software platforms help you make the most of every run, and every workday.

Agilent OpenLAB CDS EZChrom Compact: Economical data acquisition and analysis

- Total control of up to two instruments—including the 7820A GC, 6820 GC, 490 Micro GC, and Agilent 1220 Infinity LC—from one PC
- Quick access to your most common tasks
- Pre-defined reports and built-in templates for customized report layouts
- The ability to upgrade to OpenLAB CDS EZChrom when your needs change
- View instrument status, current data, and run queue on a single screen

Agilent OpenLAB CDS VL: Your choice for value

OpenLAB CDS VL lets you choose between ChemStation and EZChrom Editions. Both provide a fully functional OpenLAB CDS workstation for controlling your 7820A GC.

Agilent OpenLAB CDS: Comprehensive instrument control

OpenLAB CDS Workstation and ChemStation Edition provide full control of Agilent instruments (LC, GC, CE, LC/MS, and CE/MS), while OpenLAB CDS EZChrom Edition adds multi-vendor instrument control. Both editions let you control Agilent Headspace Sampler(s), and allow optional integration with OpenLAB ECM for central data storage, GLP, and compliance features.



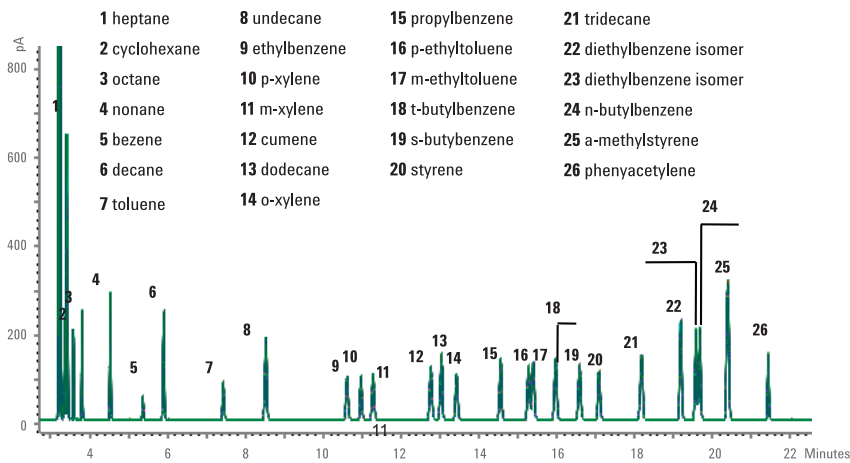
Agilent DA Express Data Analysis Software: Your most cost-effective choice with superior ease-of-use

This innovative software simplifies data analysis, and makes it easy to perform integration, reporting, and calibration functions. Integrated into the 7820A GC software keypad, advantages include:

- Data analysis based on methods created and saved on a computer
- Data analysis for up to two 7820A GCs
- Data analysis functions using only 5 screens
- Common integration parameters, easy-to-build calibration tables, and basic report options
- The software keypad allows you to create and save GC methods to the 7820A GC

THE UNCOMPROMISING PERFORMANCE YOU EXPECT FROM AN INDUSTRY LEADER

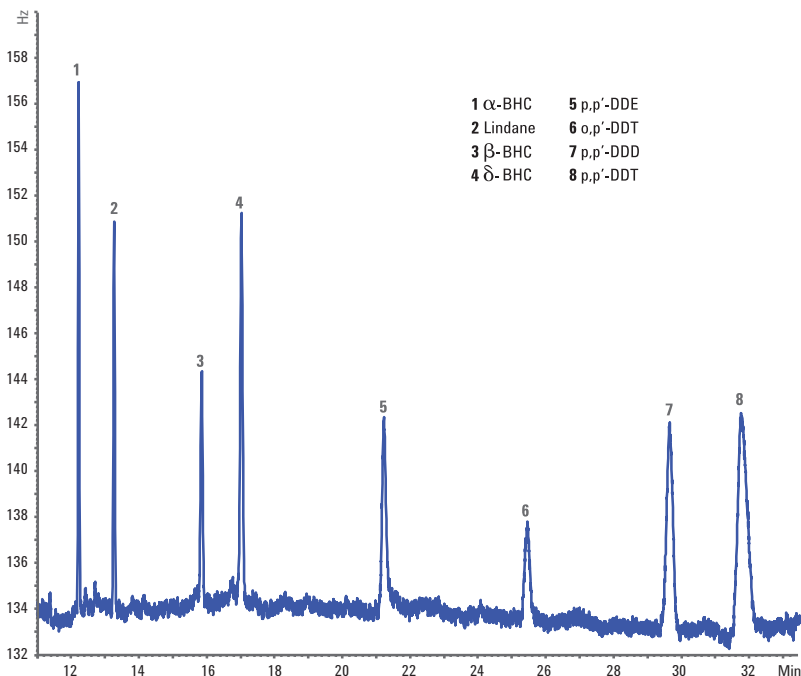
The 7820A GC offers performance you can depend on for all your routine analyses: outstanding sensitivity, reproducibility, accuracy, and precision. Exactly what you look for—and what you know you'll find—in every Agilent analytical solution.



Overlay of 10 runs demonstrates the 7820A system's outstanding repeatability.

FID analysis for aromatic solvent

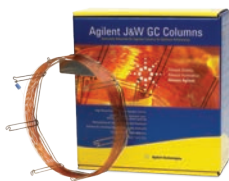
An easy-to-use, single-column method for aromatic solvent purity analysis meets the requirements of ten separate ASTM methods. EPC control and automatic injection ensure excellent repeatability for both retention time and peak area. In a single run, the wide dynamic response range of the flame ionization detector (FID) enables quantitative analysis of samples containing both very high and very low concentrations.



Chromatogram of 500 ppt organochlorine pesticides run on the Agilent 7820A GC with ECD.

Trace pesticides in drinking water

The high sensitivity of the micro-ECD ensures confident detection, easily meeting stringent requirements of international regulatory agencies. In addition, the micro-ECD's reduced susceptibility to contamination enables analyses in a variety of complex matrices. In this example, using nitrogen in place of helium as the carrier gas dramatically reduces cost per sample.



Agilent J&W GC capillary columns and supplies: consistent performance and reliability

You can be confident that Agilent J&W GC columns will provide a leak-free, inert flow path for optimal signal-to-noise performance. They are engineered to deliver the lowest column bleed, the highest column inertness, and the tightest column-to-column reproducibility.



Agilent CrossLab combines the innovative laboratory services, software, and consumables competencies of Agilent Technologies and elevates service for the entire lab, delivering vital, actionable insights that drive improved economic, operational, and scientific outcomes.

Learn more:

www.agilent.com/chem/7820A

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Achieve High Mass Accuracy on the Agilent 5977B Series GC/MSD

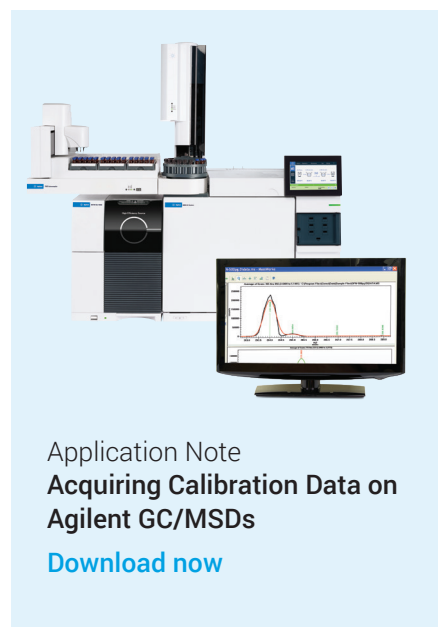
MassWorks software makes determining elemental composition more affordable

It is now possible to achieve high mass accuracy on an Agilent 5977B Series GC/MSD using Cerno Bioscience MassWorks' novel MS calibration technology. The software makes accurate mass elemental composition determination significantly more affordable for environmental, forensic, food safety and metabolomics laboratories. It has also proved to be a great tool to teach undergraduate and graduate science students the concept of isotopes, isotope distribution, accurate mass, and unknown ID.

Uniquely powerful, easy to use

MassWorks combines an innovative peak shape calibration and m/z assignment algorithm with the stability and robustness of the Agilent 5977B Series GC/MSD to deliver a uniquely powerful, easy-to-use data analysis tool.

- Easy calibration setup with PFTBA tune gas
- Easy push-button calibration using AutoCal
- Increases mass accuracy by up to 100x
- Up to 99% Spectral Accuracy for high-confidence compound ID
- Identify unknowns, with or without a compound library
- Orthogonal confirmation for raw scan or profile mode qualitative analysis
- A cost-effective and easy solution to elemental composition determination
- Fully integrated with NIST library search for compound ID



Application Note
**Acquiring Calibration Data on
Agilent GC/MSDs**

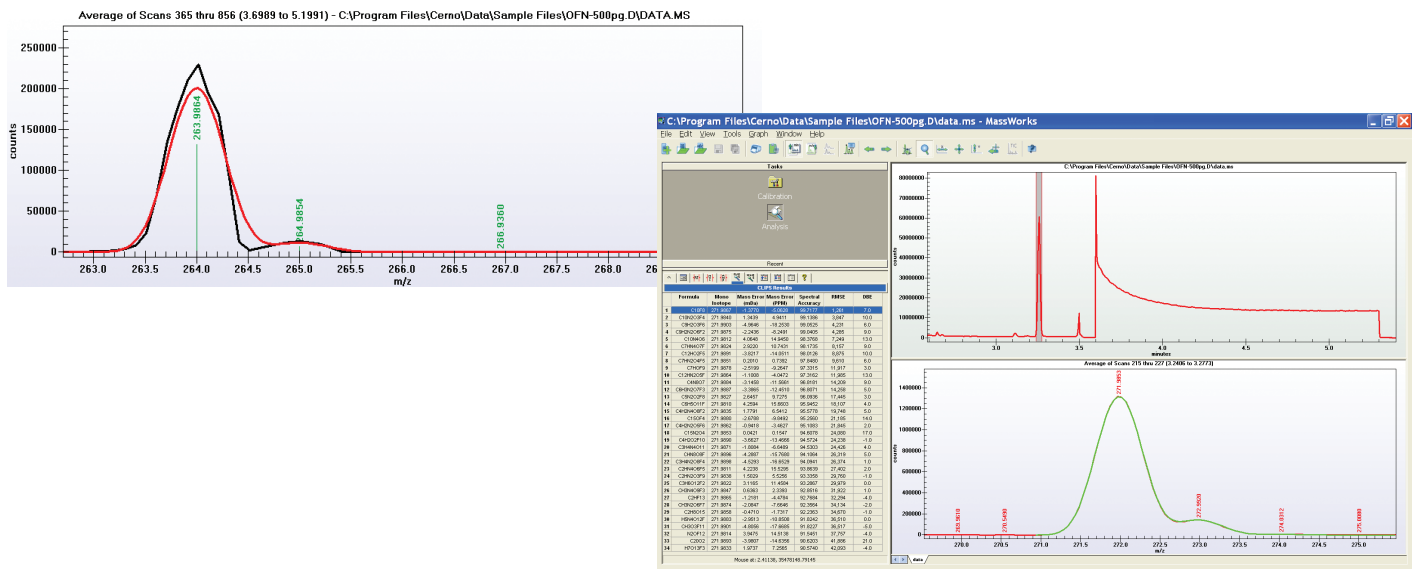
[Download now](#)

Accurate mass analysis that works seamlessly with your Agilent GC/MSD

PFTBA tune gas availability on a GC/MSD system allows for easy acquisition of the raw scan or profile mode data required to build the MassWorks calibration. The calibration function is then used to assign appropriate accurate masses to any molecular or fragment ions.

Uniquely available on GC/MSD systems, the AutoCal feature makes the entire process even easier when a reference PFTBA spectrum is acquired within the same run.

- MassWorks can be launched from within MassHunter or Chemstation Data Analysis through a single added menu item
- MassWorks detects the presence of PFTBA peak in a TIC and automatically performs an AutoCal when opening an MS data file, once inside MassWorks software, with or without MassHunter or Chemstation Data Analysis software.



Applying the PFTBA calibration to OFN peak eluted at 3.25 minutes. The accurate monoisotope mass of OFN is found within 2 mDa of its exact mass. CLIPS elemental composition search correctly identifies its elemental composition with the highest spectral accuracy of 99.7% where its theoretical (green) and calibrated (red) mass spectrum is matched down to noise level.

Get the economic solution for accurate mass compound identification.

Learn more about Agilent 5977B Series GC/MSD with MassWorks at:

agilent.com/chem/MassWorks

For technical and application support, provided by Cerno Bioscience, visit:

cernobioscience.com

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