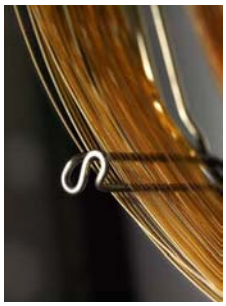
Agilent Technologies

Media Backgrounder – perspective and detail for journalists:

AGILENT IN GAS CHROMATOGRAPHY

OVERVIEW



Chromatography is an analytical technique that separates mixtures into their individual components to be identified and quantified. In gas chromatography (GC), a moving gas (the mobile phase) carries the sample across a stationary phase (the solid support found within a GC column). The sample components travel across the stationary phase at different speeds to become separated from one another and their matrix. It is estimated that 10-20% of known compounds can be analyzed by gas chromatography. GC is normally used when the sample can be vaporized below 400-450°C. More information on gas chromatography can be found on the Agilent Web site at: www.chem.agilent.com/cag/cabu/whatisgc.htm.

Every gas chromatograph includes the following key components: flow controller, a sample introduction device, column, oven, detectors, and data handling system. A powerful and widely used combination is to couple a GC to a mass spectrometer (MS) to form a GC/MS system. A mass spectrometer measures the molecular weight of a compound to provide data for both quantitation and qualitative identification. It usually provides greater sensitivity and far more specificity than most other LC detectors.

With nearly 40 years of experience in gas chromatography, Agilent Technologies is the world's leader in GC and GC/MS, providing products that are known for their exceptional performance, reliability, ease of use and serviceability. Agilent offers all of the necessary components for GC analysis with flexible, modular systems for a wide range of uses. These systems range in cost, complexity and precision from high performance systems for research and development to robust instrumentation for routine production environments to fast, rugged portable solutions for real-time measurements in the plant or in the field.

MARKETS

Agilent provides GC solutions to a diverse group of customers in a wide range of markets, including the environmental, food safety, pharmaceutical, forensics, homeland security and hydrocarbon processing industries. While the need for GC spans the globe and demand is relatively stable, today's growing needs come from rapidly industrializing countries such as China and from regions newly focused on addressing environmental and food safety concerns.

Pharmaceutical: Agilent GC and GC/MS systems are used for drug manufacturing QA/QC. The most common application is the measurement of volatile organic impurities and residual solvents in pharmaceutical formulations, final product and packaging.

Environmental: Agilent's customers are primarily government, industrial and independent labs that are focused on regulatory enforcement and compliance. Specific GC and GC/MS analyses include volatile organic compounds, semivolatiles, pesticides and trace metals. Agilent was the first company to develop a pesticide library for GC and GC/MS using its retention time locking (RTL) technique. The library lets scientists quickly and accurately screen for more than 500 pesticides without having to use standards.

Food safety: Food safety analysis includes testing for additives, residues, contaminates and toxins in food products, with a focus on regulatory compliance and enforcement. Globalization, more stringent import/export regulations, and growing attention to food purity are driving demand in this market.

Forensics: Agilent is the world's largest provider of GC/MS systems to government agencies, universities, hospitals and private labs for crime scene evidence analysis, drug screening and confirmation and toxicology research.

Homeland Security: Agilent has a long history of working with U.S. and international government, military, law enforcement, and health agencies in detecting, identifying, confirming and disarming biological and chemical warfare agents and toxic industrial compounds. Agilent gas chromatographs are crucial components of the Agilent mobile laboratory, a state-of-the-art self-contained lab that provides researchers a protective environment to conduct accurate, reliable tests at the scene of contamination.

Hydrocarbon Processing Industries (HPI): Traditionally the largest market for GC products, HPI comprises the petroleum, petrochemical, fine and specialty chemical, natural gas, industrial gas and fuel cell industries. Agilent has the largest GC installed base in this industry and has developed several GCs for use in the HPI, such as its 6850 GC and 3000 Micro GC families. Agilent has also been a leading developer of innovative GC applications for HPI over the last several decades. For example, Agilent is the birthplace of simulated distillation, an industry-standard method for characterizing petroleum and hydrocarbon mixtures using a GC column, instead of a laboratory distillation apparatus.

MAJOR PRODUCTS

7890A GC—Agilent's newest flagship GC has the industry's best flexibility, reliability and performance for all popular applications. Fully automated system accommodates a wide range of inlets, detectors and sample introduction choices. Advanced features include breakthrough Capillary Flow Technology, built-in local area networking, fifth-generation electronic pneumatics control (EPC), retention time locking, and fast GC capabilities.

5975C inert MSD—Building on the success of the 5973 MSD series, the market-leading 5975C inert MSD features novel Trace Ion Detection for unmatched signal-to-noise ratio, user interface that allows the electronic sharing of application methods. The redesigned hyperbolic mass analyzer features a higher mass range capability, providing quality data for higher mass range applications.

7000A Triple Quadrupole GC/MS—The latest addition to Agilent's MS portfolio, the 7000A offers breakthrough sensitivity and selectivity for even the dirtiest samples. The system provides better method reliability and laboratory productivity at lower MDLs than can achieved with traditional single quadrupole SIM MS. The 7000A combines femtogram-level sensitivity and research flexibility with Agilent's traditional reliability, and is supported by MassHunter software, which was designed to make MS analyses easier—from tuning to final report.

6850 GC—Network-ready one-channel workhorse GC for routine chemical, petrochemical and petroleum analyses. Provides state-of-the-art performance, ease of use and reliability in half the bench space of a standard dual channel GC.

7820 GC—Rugged GC for cost-conscious laboratories that do not require the automation of electronic pneumatics control. It's based on the same platform as the 7890A, the latest generation of the world's most popular GC. Available in selected geographic regions.

3000 Micro GC—Family of simple, portable GCs for analyzing gas samples right at the sampling point. They are available in two- and four-channel models or the Micro GC Portable, which does not require an outside power source or external gas supply.

ChemStation Software—The Agilent ChemStation software is known as the industry's most widely sold data system, handling a wide variety of chromatographic techniques such as GC, LC, LC/MS, CE and CE/MS. The B.04.01 release now has a new, state of the art user interface, which dramatically improves the workflow of reviewing your result data. While this reduces the number of mouse operations by up to 80%, it keeps the well established fundamental concepts of the ChemStation.

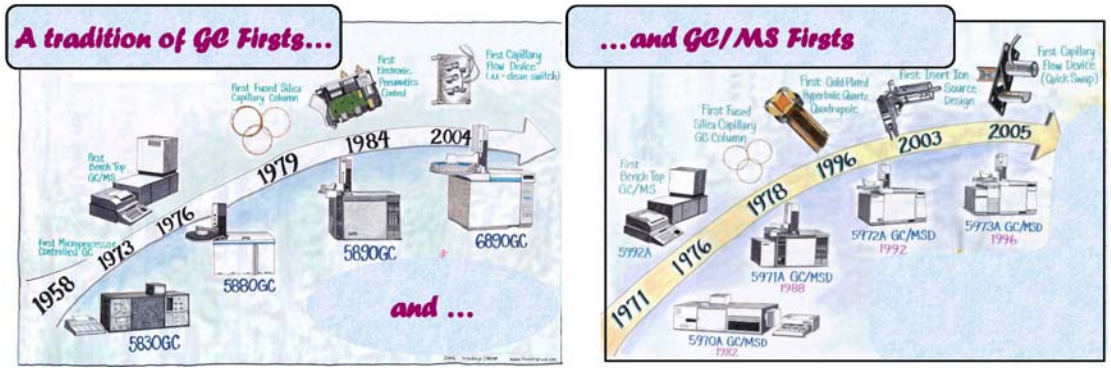
EZChrom Elite Chromatography Data System -- EZChrom Elite provides chromatography data acquisition, processing and control of GC and LC chromatographs and is used in chromatography operations ranging from single user/single instrument to multi-user/multi-instrument laboratories throughout the world. Supporting multiple chromatographs from over 25 different manufacturers, EZChrom Elite provides a unified computing environment.

MassHunter Software—This new software platform for Agilent MS systems provides common data analysis, review and reporting tools that enable users to process more samples in less time and with complete confidence in results. An intuitive user interface enables powerful compound-centric data navigation, "Batch at a Glance" data review and fast peak integration with quantitation. Consistent software across all Agilent MS platforms improves productivity by shortening learning curves and reducing training costs.

HISTORY

Prior to 1999, Agilent Technologies was part of Hewlett-Packard (HP). That year, HP announced the spinoff of its test and measurement, chemical analysis and medical businesses which were renamed Agilent Technologies. Agilent becomes a fully independent company in June 2000, following HP's distribution of its Agilent shares to HP shareholders.

Over the last 40+ years, the organization generated a continuous stream of breakthroughs and innovations that made the gas chromatography and GC/MS accessible throughout the analytical chemistry community.



1965 HP enters the analytical instrumentation field with the acquisition of GC manufacturer F&M Scientific Corporation of Avondale, Pennsylvania. This expands HP's measuring and testing expertise into chemical analysis.

1973 HP introduces the first microprocessor controlled GC, the 5830.

1976 HP introduces world's first benchtop GC/MS system, the 5992.

1979	HP introduces fused silica capillary columns for gas chromatography and makes the technology available royalty-free, transforming the GC industry
1984	HP introduces electronic pneumatics control, tremendously increasing ease of use and improving analytical results.
1994	HP introduces ChemStation data analysis software.
1996	HP introduces the 5973 MSD which became the world's best selling GC/MS.
1996	HP introduces the gold-plated hyperbolic quartz quadrupole mass filter, a breakthrough in resolution and mass axis stability regardless of laboratory temperature fluctuations.
1997	HP introduces retention time locking, which allows reproducible retention times within hundredths of a minute between Agilent gas chromatographs, regardless of operator, location, detector or column length.
2000	Agilent acquires J&W scientific, world's largest manufacturer and supplier of capillary GC columns.
2001	Agilent introduces the 3000 Micro GC.
2003	Agilent introduces the 6820 GC.
2004	Agilent develops the precursor to Capillary Flow Technology.
2005	Agilent acquires Scientific Software, Inc., developer of EZChrom Elite chromatography software.
2006	Agilent introduces the 5975 inert MSD with eMethods, permitting users to share Methods between instruments.
2007	Agilent introduces the 7890 GC and 5975C GC/MS, raising the standard for throughput, performance, flexibility and reliability.
2008	Agilent introduces first commercial GC/MS metabolite library.
2008	Agilent introduces cryogen-free GC x GC, triple axis detector.
2008	Agilent introduces 7000A Triple Quadrupole GC/MS.
2008	Agilent ships 10,000th 5975 GC/MS.
2009	Agilent introduces the 7693A automatic liquid sampler with sample prep capabilities

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