



## Providing Complete Gas Chromatography Solutions

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### AGILENT HELPS ANALYSTS IN A WIDE RANGE OF INDUSTRIES

**Chromatography is an analytical technique that separates mixtures of organic compounds into their individual components to be identified and quantified. In gas chromatography, a moving gas (the mobile phase) carries the sample across a solid support found within the instrument (stationary phase).**

Volatile and semivolatile organic samples travel across the stationary phase while being pushed by the mobile phase. Sample components separate according to their differing affinity to the stationary phase as heat is applied. Gas chromatography (as opposed to liquid chromatography) is well suited for samples that can be vaporized below 400 to 450°C.

Every gas chromatograph includes the following key components: gas flow controller, a sample introduction device, column, oven, detectors, and data handling system. Gas chromatography is often coupled with mass spectrometry to form a GC/MS system. A mass spectrometer fragments the sample components as they elute from the column. Measuring the molecular weights of these fragments provides data to determine their quality and quantity.

With 50 years of experience in gas chromatography, Agilent is the world's leader in GC and GC/MS, providing products that are known for their exceptional reliability, ease of use, serviceability, and performance. The company offers all of the necessary components for GC analysis with flexible, modular systems for a wide range of uses.

These systems include high-performance instruments for research and development, robust instruments for routine production environments, and rugged portable instruments for real-time measurements in the plant or in the field.

### KEY MARKETS AND INDUSTRIES

Agilent delivers GC and GC/MS solutions to serve the needs of customers in diverse markets.

**Pharmaceutical:** Agilent GC and GC/MS systems are used for quality control of raw materials, packaging, delivery devices, and final products in drug manufacturing.

**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 and semivolatile organic compounds that contaminate air, water, and soil. Agilent was the first company to develop a pesticide library for GC and GC/MS using a technique called retention time locking. The library lets scientists quickly and accurately screen for hundreds of pesticides in a single sample.

**Food testing:** Agilent GC and GC/MS systems are used to test for additives, residues, contaminants, 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 toxicology research.

**Hydrocarbon processing:** Traditionally the largest market for GC products, hydrocarbon processing comprises the petroleum, petrochemical, fine and specialty chemical, natural gas, industrial gas, and fuel cell industries. Agilent has the largest installed base of gas chromatographs in this industry and has been a leading developer of innovative GC applications for decades.

## KEY PRODUCTS AND TECHNOLOGIES

**GC analyzers and application kits:** Agilent provides turnkey solutions with guaranteed chromatographic performance, specifically designed to analyze natural gas, refinery gas, biodiesel, greenhouse gases, liquefied petroleum gas, reformulated fuel, polymer-grade monomers, residual solvents, and more.

**GC and GC/MS systems:** Agilent offers a range of systems that provide outstanding performance, reliability, ease of use, and advanced features such as capillary flow technology and retention time locking.

**Micro GC systems:** Agilent also offers compact instruments that are preconfigured and factory tested for applications such as analyzing natural gas, stack gas, biofuels, oxygenates, and halogenates.

For more information, please visit Agilent's [GC](#) website.