Global Hydrocarbon Processing Solutions

- Innovative technologies
- Reliable analytical systems
- Proven solutions backed by world-class experts
- 40 years of trusted industry partnership

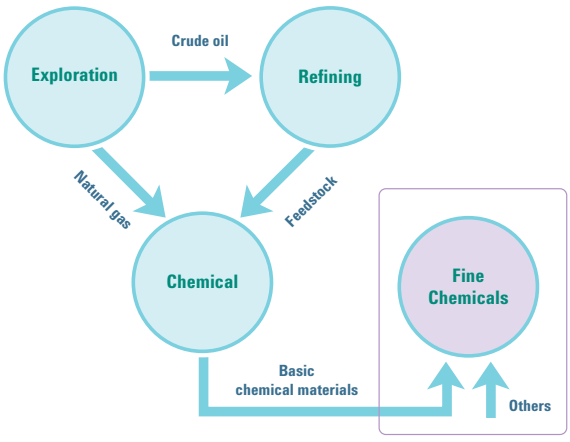
Agilent Technologies

"How can we cut costs, boost our processing efficiency, and increase yield – without sacrificing quality?"

"To stay competitive, we need to become a player in the alternative fuels market. Who can help us enhance our analytical capabilities and conform to governmental regulations?"

"Finding skilled analytical chemists has never been such a challenge. Where can we find an easy-to-use solution that can help us fill the gaps?"

"Where can we find applicated solutions that our international divisions can use on day one of a new plant opening?"



These are just some of the challenges you contend with every day. Fortunately, Agilent Technologies can help you meet these challenges with our powerful combination of reliable products and extensive industry knowledge.

From crude oil, natural gas and refining... to specialty chemicals and alternative fuels... Agilent offers the broadest analytical solutions portfolio. Additionally, Agilent is your single-source provider of complete solutions, including instrumentation, applications, supplies, services, data handling, and workflow information management.



Taking your lab to the highest level today.

Agilent has a 40-year track record of developing innovations and applying advanced technologies to benefit one company. Or the entire industry.

1973: Microprocessor control
Hewlett-Packard (now Agilent) introduces the first commercially available GC with microprocessor control (the HP 5830). This system saves time, while ensuring that method parameters remain the same for accurate, reproducible, reliable results, every time, with every operator.

1976: Benchtop GC/MS
Hewlett-Packard (now Agilent) introduces the world's first benchtop GC/MS (the HP 5992A), allowing gas chromatographers to use mass spectrometry as a routine GC detector.

1979: Fused-silica capillary columns
These columns fundamentally change GC analysis, offering a powerful combination of flexibility and chemical inertness. As a result, high-resolution capillary GC becomes a mainstream technique.

1984: EPC
Electronic pneumatics control (EPC) revolutionizes how scientists use gas chromatography. Full EPC on the Agilent 6890N and 6850N Series II gas chromatographs makes it fast and easy to set all pressures and flows, keep setpoints constant from run to run, and achieve excellent retention time reproducibility for superior results.

2004: Capillary Flow technology
Agilent applies its patented microfluidic technology to greatly improve GC performance and productivity. Capillary Flow technology makes GC in-oven flow manipulation more routine by simplifying setup, providing low dead volume, and preventing leaks, even at high temperatures.

2005: First fully integrated GC/ICP-MS system
Agilent combines the separation capabilities of gas chromatography with the high sensitivity and selectivity of the Agilent 7500 Series ICP-MS. For the first time, it becomes possible to separate and quantitate ultra-trace levels of organometallic compounds.

Now, see how we're developing the industry breakthroughs of tomorrow...

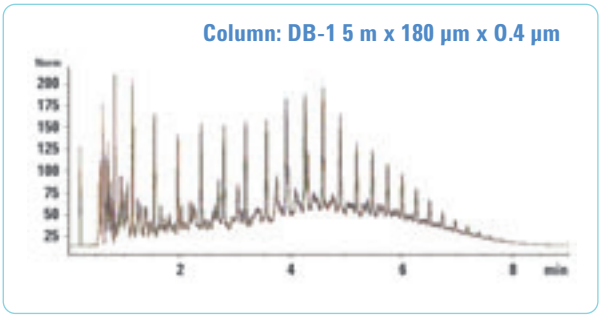
To learn more, visit **www.agilent.com/chem** or call 800 227 9770

From lab work to field work... Agilent has fresh answers for your most challenging applications.

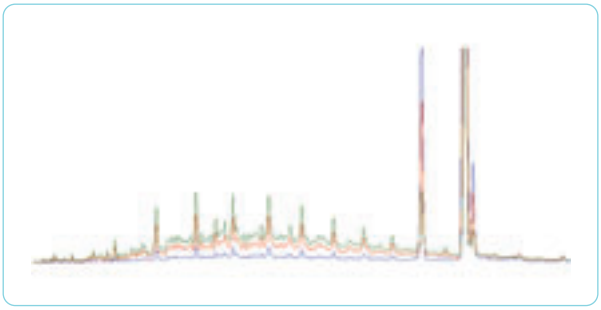
Simulated Distillation (SIMDIS)

Agilent (HP) was the first to develop SIMDIS – now an industry standard – over 25 years ago. And today, our SIMDIS solutions have evolved to include...

- A high-performance HT PTV Inlet
- Fast calculations, fast analyses, and easy-to-use software
- A complete solution for ASTM D2887, extended D2887, and D6352
- Complete support and distribution by Agilent



Fast SIMDIS, overlay of 20 reference gas oil run

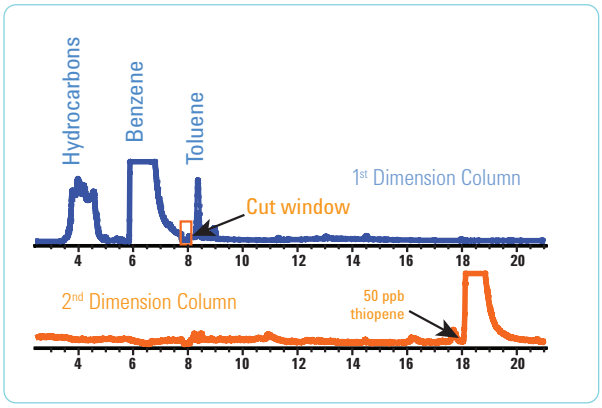


Biodiesel, B20, B50 and B80 SIMDIS

Capillary Flow Deans Switch for 2-D gas chromatography

Agilent made the 40-year-old Deans Switch more practical – and improved the performance of heart-cutting 2-D chromatography – by utilizing these cutting-edge Capillary Flow technologies...

- Optimized plumbing for capillary chromatography
- Low thermal mass tracks and fast oven temperature programs
- New column connectors that utilize inert, leak-free metal ferrules
- Precise electronic pressure controls and flow calculation software



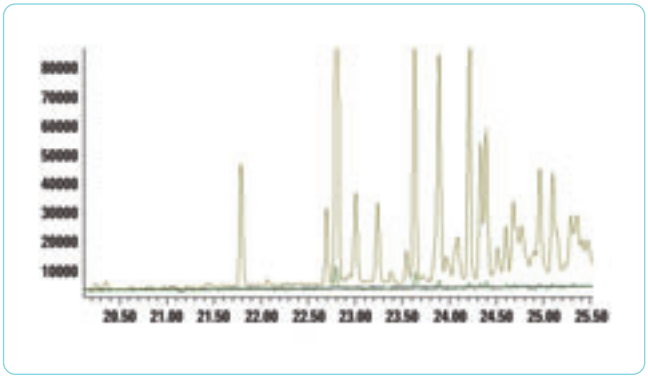
FID analysis for trace Thiophene in Benzene with heart-cutting 2-D chromatography

GC/ICP-MS

A simple, sensitive, and selective technology for performing sulfur speciation – and meeting new international regulations.

As more countries mandate lower levels of sulfur in fuels, you will need to develop more sensitive analysis techniques. And Agilent has been leading the charge with GC/ICP-MS solutions that meet current – and projected – detection limits for both total sulfur and individual sulfur species in reformulated gasolines.

When coupled to a GC, ICP-MS can detect sulfur in low ppb ranges *without* interference from coeluting hydrocarbons.



Dibenzothiophenes in diesel

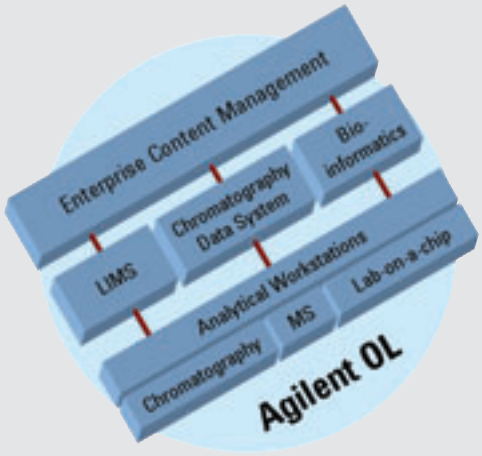
Agilent OL
laboratory information management systems...

Connecting people, instruments and processes

Combined with your existing data systems, Agilent's OL offers the benefits of complete lab management – including:

- Integrated control of Agilent and multi-vendor instruments
- The ability to operate separate data systems
- Secure storage and archiving of all electronic information
- Collaboration, data mining, and total results management
- CDS functionality in a content management system

Creation, management, process automation, analysis, active archiving of laboratory information



Count on Agilent for groundbreaking ideas that can immediately impact your company.

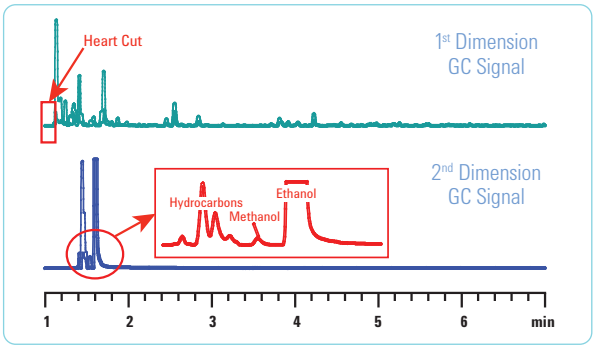
To learn more, visit **www.agilent.com/chem** or call 800 227 9770

Instruments alone don't solve business problems. Knowledge does.

Over the past four decades, Agilent has taken an active role in developing methods that have evolved into global industry standards. Our experts have invested a combined total of over **200 membership years in ASTM** – the world's most trusted source for standards development.

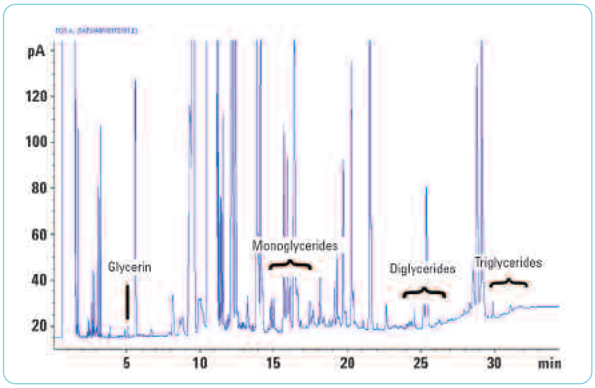
Specialized solutions for biodiesel and ethanol-renewable fuels.

2-D GC can analyze fuel ethanol purity nearly 10 times faster than the ASTM D5501 method.



Fast analysis of Fuel Ethanol by 2-D GC

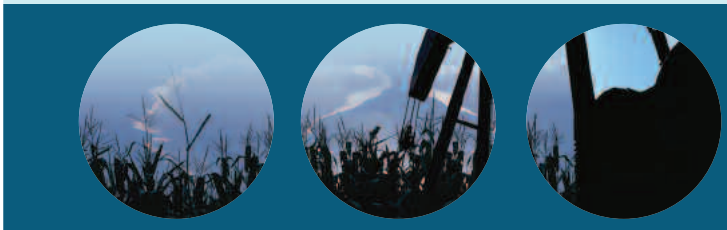
ASTM D6584 is the prescribed method for measuring free and total glycerol. Note that there is virtually no bleed with temperatures up to 380°C.



Analysis of Glycerin and Glycerides in Biodiesel ASTM D6584 and EN14105

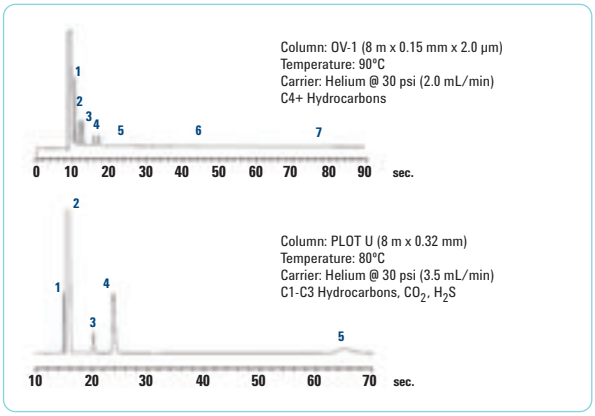
At Agilent, our resources are not limited to our own.

Our industry leadership has enabled us to nurture valuable partnerships that complement our hydrocarbon processing analysis capabilities. Together, we can offer total solutions to your most daunting challenges over a wider range of applications.



Portable field measurements for natural gas analysis

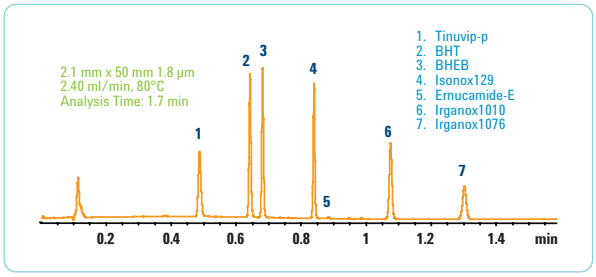
The Agilent 3000 Portable GC



Complete analysis of pipeline-quality natural gas in under 100 seconds

Fast liquid phase analysis for polymers and additives

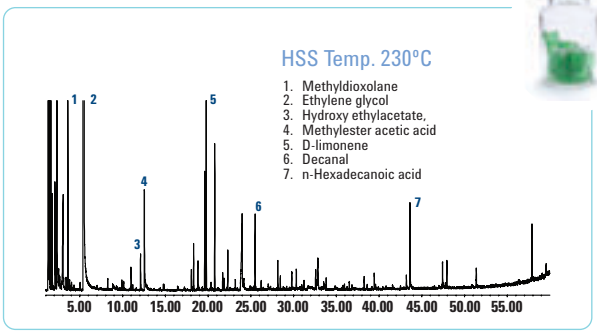
The Agilent 1200 Rapid Resolution LC



Antioxidant additives analysis in polymer

Expanded polymer analysis capabilities

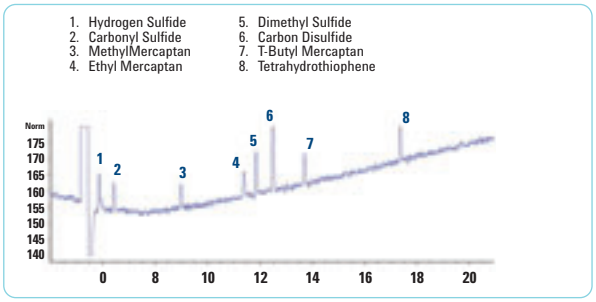
The Agilent G1888 Headspace System



High-temperature Headspace analysis of PET soda bottle

Improved contaminant trace analysis in feedstocks

A more sensitive and robust FPD for critical trace sulfur measurements



50 ppb Sulfur contaminants in propylene

The more you trust your instruments, the more you can trust your **results.**

At Agilent, we believe that our customers define reliability. They do it every day with the products and services they purchase and put their trust into.

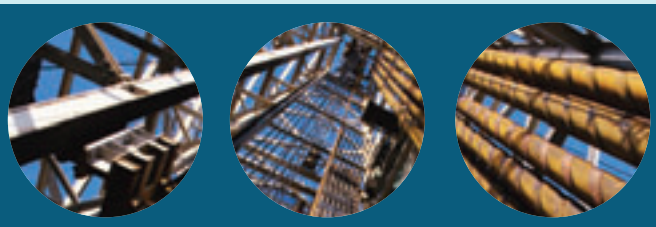
That's why all Agilent instruments are designed and manufactured to meet or exceed international standards for dependability, ruggedness, long life... and safety.

- EMC (electromagnetic compatibility) – including European Union EMC directive compliance
- Safety – including European Union low voltage directive
- Ergonomics, including international standards for sound level
- ISO 9001
- ISO 14001
- International Electrotechnical Commission (IEC)
- European Committee for Electrotechnical Standardization
- Canadian Standards Association (CSA)
- Underwriters Laboratories (UL)
- China Measuring Instruments Certification
- China Pattern Approval
- Australian Communication Authority Compliance


KEMA
CERTIFICATE
Agilent Technologies, Inc.
Life Sciences and Chemical Analysis Group
Americas, Europe and Asia Pacific
ISO 9001:2000

To ensure compliance with these meticulous standards, independent auditors conduct regular on-site inspections of Agilent's operations. Additionally, our products meet all appropriate certification criteria, which may include the below designations:

IEC C SA® US CE MC PA



Agilent's quality-control process ensures that every Agilent product works – and **keeps** working.

For starters, a typical Agilent chemical analysis product goes through **3,600 hours of quality testing** and **26,000 hours of life testing** during development.

But we don't stop there. Our products must also pass **over 150 quality production inspections**. And they are shipped with a specially designed checkout sample so performance can be verified after installation.

In addition, all Agilent products designed must pass **58 rigorous safety tests** that cover electrical, fire, mechanical, chemical, fluid pressure, acoustic, and explosive hazards – including:

- Environmental tests under extreme conditions such as...
  - 0°C to 50°C operating temperature; -40°C and 70°C storage temperature
  - 5% to 95% RH non-condensing humidity
  - 0 to 15,000 feet (4.6 km) altitude
- Transportation and vibration tests – including a 50g six face drop test
- Powerline tests that simulate conditions such as brownouts, voltage spikes, and surges
- Radio frequency immunity and emissions testing
- Magnetic immunity and emissions testing

All tests are conducted at Agilent's Hardware Test Center network, which supports our design and manufacturing sites throughout the world. So no matter where your instrument was built, you can be certain it was designed with reliability, performance – and safety – in mind.

"Reliability cannot be achieved by adhering to detailed specifications. Reliability cannot be achieved by formula or by analysis. Some of these may help to some extent, but there is only one road to reliability. Build it, test it, and fix the things that go wrong. Repeat the process until the desired reliability is achieved. It is a feedback process and there is no other way."

– David Packard, 1972

For details about Agilent's quality-control processes, visit www.agilent.com/chem/quality

Achieve top performance at every point in your process with these analytical instruments from Agilent.

7890A GC – all the elements for perfect chemistry
Next generation GC platform includes a wide range of capabilities. Ideal for R&D and QC laboratories.

7683 Automatic Liquid Sampler – up to five times faster injection speed than any ALS on the market
Choose from normal, on-column, and multiple injections.

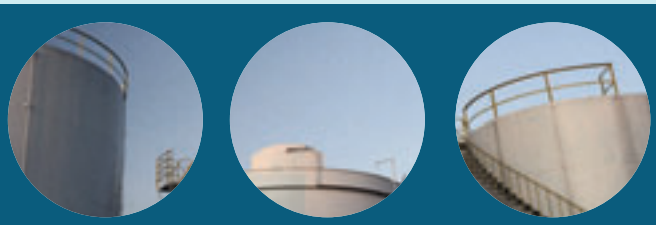
6850 Series II GC – small, rugged, and easy to use
Perfect for simple, routine applications in labs requiring at-line analysis or a single inlet and detector. Add the 6850 Automatic Liquid Sampler for increased sample capacity.

3000 Micro GC – results in as little as 120 seconds
Portable versions of Agilent's GCs are also available, so you can perform gas composition measurements right at the sample source.

5975C Series GC/MSD – advanced capabilities for complex analysis
Features an inert ion source, synchronous SIM/Scan data acquisition, and Trace Ion Detection technology. Perfect for measuring trace level contaminates or high concentration components in complex samples.

6850 Series II GC

7890A, 5975C GC/MS System



G1888 Headspace Sampler – enhancing your analysis capabilities
Automatically introduces volatile compounds from virtually any sample matrix directly into a GC or GC/MS. Features an inert sample pathway for superior chemical performance without analyte degradation or loss.

7500 Series ICP-MS – the most productive ICP-MS available
Combines ease of use with powerful performance, offering the highest level of automation and the lowest requirements for routine maintenance. It also features Agilent's unique Octopole Reaction System, which removes interferences from routine analyses.

1200 Series HPLC – the *new* industry standard
This rugged, reliable system delivers qualitative accuracy, quantitative precision, and fast results. It features a scalable, open platform that combines electronic flow controls with active feedback and real-time flow adjustment for constant flow delivery.

Informatics – optimizing workflow, increasing productivity, and reducing costs
Agilent offers a complete portfolio of laboratory informatics, including content management and chromatography data systems (CDS) for R&D and QA/QC laboratories.

Consumables – producing the right numbers under demanding deadlines
Agilent's extensive line of general chromatography supplies, accessories, columns and instruments are designed to help you get the reproducible results you need.


G1888 Headspace Sampler


1200 Series HPLC


3000 Micro GC

Make sure your technology
is aligned to your business needs.

Visit **www.agilent.com/chem** or call 800 227 9770

Custom solutions inspired by customer needs.

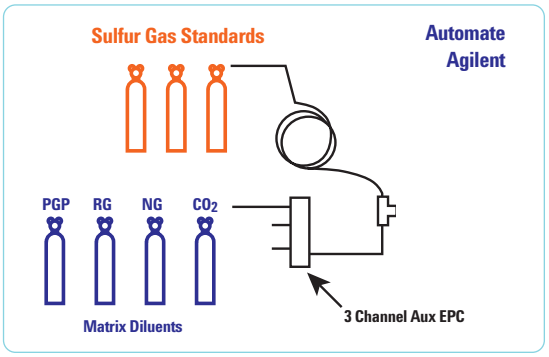
Agilent's custom solutions reflect our extensive industry knowledge and our close working relationship with HPI customers. Together with our channel partners, Agilent can provide the specialized turn-key solutions you need to meet your most challenging analytical demands and timeframes.

Natural Gas Analyzers (NGA)

Based on the 7890A GC and 3000 micro GC, Agilent's NGAs are excellent tools for determining the heating value of natural gas in BTUs or Joules/mol.

The Agilent Dynamic Blending System for automatically creating calibration gases

Allows you to easily prepare gaseous samples such as H_2S, COS, and mercaptans in the low ppb range – and in numerous matrices such as natural gas, refinery gas, and CO_2.



Automated creation of calibration gases with Agilent's Dynamic Blending System

Fast Refinery Gas Analyzers (RGA)

Like Agilent's NGAs, our RGAs are based on the 7890A and 3000 GCs. The 7890A GC can be configured to run three parallel channels; all three detectors (FID, TCD, TCD) collect data at the same time; and can complete analysis time of inert gases and hydrocarbons to n-C6 in 6 minutes.

Transformer Oil Gas Analyzers (TOGA)

Agilent's TOGA utilize an Agilent TCD detector and an FID with methanizer to analyze fixed gas impurities and light hydrocarbon compounds in transformer oil. Our solutions comply with most standard test methods such as ASTM and IEC.

Analyzers for oxygenates and aromatics in motor fuels

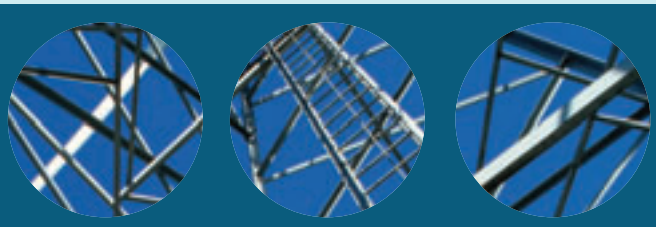
Agilent offers a full range of GC, GC/MSD, and HPLC-based solutions for oxygenates and aromatics in motor fuels covering all valid ASTM and EN methods.

Unified Aromatics Analyzers

Ten separate ASTM methods are consolidated into one easy-to-use GC method using an Agilent GC configured with split/splitless inlet and FID.

Alternative fuels

Agilent delivers solutions for alternative energy sources and motor fuels – including fuel cells, feedstock and products, biodiesel, fuel ethanol, and commercial mixtures.



Complete portfolio for trace sulfur analysis
An Agilent 7890A can be equipped with our enhanced FPDs or highly sensitive and selective SCDs, to analyze trace level sulfur compounds in a wide range of matrices.

SIMDIS Analyzer
Agilent's SIMDIS analyzers are complete systems for the three most popular ASTM simulated distillation methods: D2887, D2887 extended, and high-temperature D6352. In addition, Agilent's channel partners provide complete solutions for all international standards methods.

Stream Selection Valve Applications (4 to 16 stream selection)
The unique Integrated Sample Introduction System (ISIS) – designed and manufactured by Agilent – features high-precision peristaltic pumps and optional switching valves for complete configuration flexibility. The ISIS also offers an array of possibilities for sample introduction, and can even be used for on-line sample preparation.

Inert Sample Path Customization
Features stainless steel tubing that is chemically treated to minimize sample interactions.

Detailed Hydrocarbon Analysis (DHA)
Choose this Agilent partner method when you need detailed information at the compound level.

PIONA/Reformulyzer
This Agilent partner method utilizes Reformulyzer, and is best for samples that contain high amounts of C7-C8 olefins or naphthenes.

Analyzers for Monomer and Polymer
Agilent's analyzers incorporate our extensive industry expertise into creating *application-specific* measurement solutions, based on standard or custom configurations of gas chromatographs, supplies, and methods. All complemented by the specific knowledge of our channel partners. We also offer a wide range of polymer quality and deformulation analysis tools, including standard GPC, additives, residual monomers, and other volatiles.

Plus... a full line of GC capillary columns, including the J&W low-bleed line
Agilent J&W Scientific GC columns are designed and manufactured to offer excellent, reproducible performance for benign and difficult sample types. They feature the lowest bleed levels, the highest inertness, and the tightest column-to-column reproducibility.

The most respected companies in the world trust Agilent to enhance efficiency... simplify business processes... and maximize their return on investment.

For over four decades, Agilent's expertise and first-class solutions have helped Global 500 companies produce the superior products and services for which they are recognized.

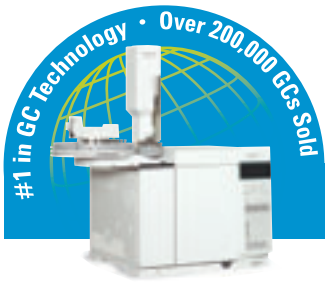
Refining companies:

BP	ExxonMobil	Royal Dutch Shell
Total	ChevronTexaco	ConocoPhillips
Sinopec	ENI	China National Petroleum
Valero Energy	Marathon Oil	Statoil
Repsol	SK	Petrobras
Petronas	Nippon Oil	Indian Oil
Reliance	Lukoil	Sunoco
Idemitsu Kosan	Nippon Mining Holdings	Amerada Hess
Fortum	Hindustan	PTT
Cepsa	Chinese Petroleum	Cosmo Oil
Bharat Petroleum	Premcor	

Chemical Companies:

BASF	Dow	Bayer
DuPont	Mitsubishi	Sabic
Akzo Nobel	Hanwha	Asahi Kasei

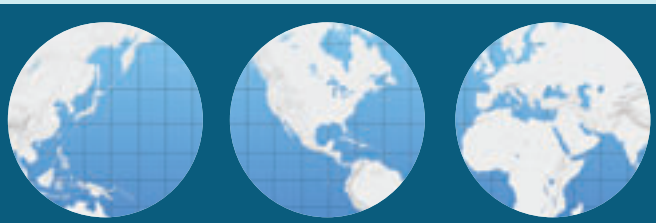
THE GLOBAL 500



Agilent Technologies

In a recent anonymous study, Agilent consistently received the highest ranking across all these categories, as compared to other major brands:

- Preferred instrument manufacturer
- Willingness to recommend to a colleague
- Industry leadership
- Overall product performance
- Satisfaction with onsite service



At Agilent, we understand that your lab is unique.

That's why our portfolio of services can suit your operations, instrumentation, regulatory requirements... and *people*.

Whether you need support for one instrument – or a multi-laboratory solution – Agilent is here to help with...

- Troubleshooting, maintenance, and repair for both Agilent and non-Agilent instruments
- Online diagnostic and monitoring services
- Regulatory compliance and education
- Training and consulting
- Cooperative Support Service

So you can solve problems quickly, increase your uptime, and optimize your lab's resources.

The Agilent service advantage...

- More than **85%** of Agilent service calls are completed the *first day*.
- Agilent customers report **98% satisfaction** with our Service Engineers.
- Our global logistics network has achieved an **on-time delivery rate of over 96%** for service parts.
- Agilent has earned an overall "best-in-class" ranking in "delivery performance to Service Level Agreement" by an independent research firm.*
- Agilent has completed over **100,000 successful system qualifications** worldwide.

**Service Supply Chain Benchmarking (SSCB) Study, PRTM, 2004*

Our exclusive Services Guarantee

We guarantee the successful repair of any Agilent instrument covered by an Agilent Service Agreement – or we will replace the instrument for free. No other company offers this level of commitment to keeping your laboratory running at peak productivity.

Reliable instruments. Deep industry knowledge.
Continuous innovation. Top-rated support.
It adds up to **all the performance, all the time.**

Visit **www.agilent.com/chem** or call 800 227 9770

No matter where you are on the Hydrocarbon Processing Industry supply chain, Agilent can help you increase production efficiency... reduce scrap and rework... and enhance product quality.

Agilent – the world leader in analytical measurement technologies – can take your company, your lab, your customers, and your results to the highest level with...

- A comprehensive portfolio of analyzers, consumables, services, knowledge, and education
- Instrument technology that is constantly evolving
- Custom methods and solutions for your specific needs
- 40 years of industry expertise from Agilent and our strategic partners

Together, we can help you meet your chemical analysis requirements and business objectives – both today and in the future.

Call toll free: **800 227 9770**, option 1 (in the U.S. and Canada).

Contact your Agilent Representative or Agilent Authorized Distributor.

Or, visit **www.agilent.com/chem**.

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