Agilent

Trusted Answers

Assure Composition, Purity, and Calorific Value to Deliver Your Best Product Quality

Agilent Natural Gas Analyzers

Apply the Latest GC Technologies Without Disrupting Your Application Workflow

Natural gas is widely used as an energy source for heating, cooking, generating electricity, and clean-burning combustible engines. This naturally occurring mixture consists primarily of methane. However, it can also include other hydrocarbons (C_1 to C_{12} chain length), along with small amounts of oxygen, nitrogen, carbon dioxide, hydrogen, helium, and sulfur compounds.

Before it can be transported or sold, natural gas must meet specifications for calorific value and purity. Upstream and downstream activities—including exploration, extraction, production, transportation, and distribution—demand testing for hydrocarbons, permanent gases, and impurities.

Agilent 8890 GC system

Agilent 990
Micro GC system

Produce reliable data and maximize product quality with Agilent Natural Gas Analyzers

Agilent Natural Gas Analyzers (NGAs) are based on the Agilent 8890 GC system and Agilent 990 Micro GC system. Each is configured in the factory and chemically tested to help you evaluate the composition of natural gas, natural gas liquids, and processing by-products.

You can also measure permanent gases and hydrocarbon content (C_1 to C_5 with C_{6+} as backflush), and perform extended analysis of hydrocarbons in natural gas to C_{12}.

Agilent NGAs reflect industry standards and our stringent quality-control process

Each includes:

Factory

- System configuration and leak testing
- Instrument checkout
- Installation of appropriate columns
- Factory-run chemical checkout using application checkout mix

Delivery

- Instrument manual for running the method
- DVD with method parameters and checkout data files for easy operation from the start
- Consumables included—no separate ordering required
- Consumables information for easy reordering

Installation

- Duplicate factory checkout with checkout sample onsite by factory-trained support engineer
- Optional application startup assistance

Intelligent GC instruments that work as hard as you do

Agilent NGAs are part of a new breed of instrument that monitors system health, alerts you to potential issues, and helps you solve problems. That means you can plan your work—including maintenance—rather than react to unexpected downtime.

In addition, analyzers feature core microchannel-based electronic pneumatic control (EPC). Unique to Agilent, this design protects against gas contaminants—such as particulates, water, and oils—improving reliability and longevity.

Best of all, you can check on your lab anytime, from anywhere. Mobile access features let you view setup information, troubleshoot problems, check for leaks, backflush columns, pause and start sample runs, and manage method development.

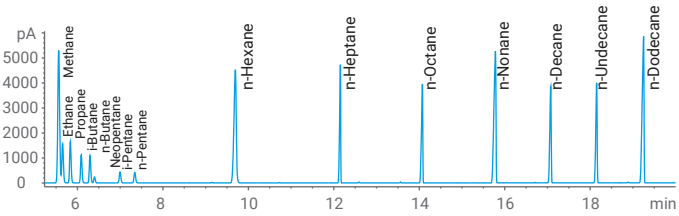
Generate Reliable Data About Operations and Finished Products

Agilent 8890 Extended NGA: reliably quantify components and ascertain quality

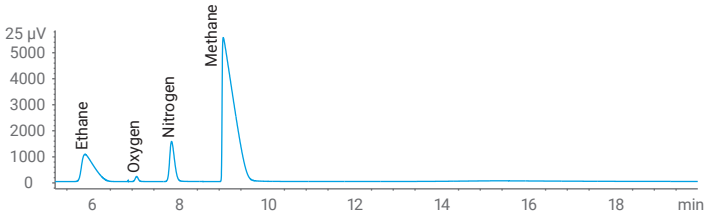
The Agilent Extended NGA measures C_1 to C_{12} hydrocarbons—as well as permanent gases (oxygen, nitrogen, carbon dioxide, and carbon monoxide). Features include:

- Dual channel with thermal conductivity detector (TCD) and flame ionization detector (FID)
- FID channel for detecting C_3 to C_{12}
- TCD channel with packed column for permanent gas analysis

Results are reported per GPA 2286.



Hydrocarbons (C_3-C_{12}) separated on a PONA column and measured on FID.



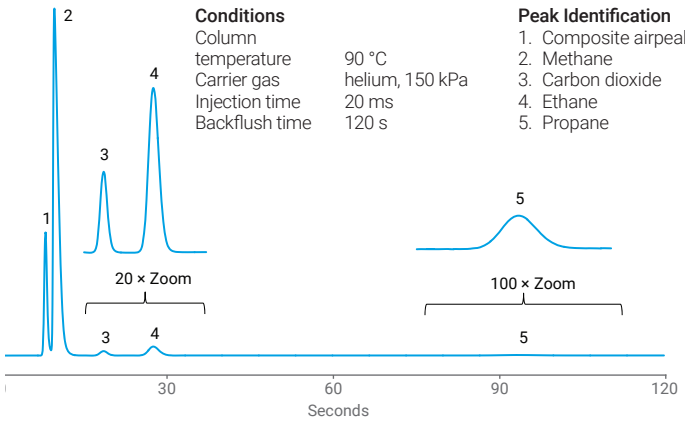
Methane, ethane, and permanent gases (oxygen, nitrogen, carbon dioxide) measured using a TCD channel with packed column.

Micro GC NGA: when every second matters

Do you require maximum flexibility and speed? In the lab or in the field, Agilent 990 Micro GC analyzers quickly deliver the data you need.

- Ready-to-go configuration includes proven hardware and software.
- Isothermal technology allows ultrafast sequential operation.
- Optional integrated Micro-Gasifier gives you the flexibility to analyze liquefied gases.

What's more, each of its four channels is optimized for specific NGA analytes.



990 Micro GC NGA: HayeSep A column with backflush

Here are the capabilities of Agilent Natural Gas Analyzers

Agilent 8890 NGAs

Analyzer	Extended NGA	NGA	2-Channel NGA	GPA 2261 NGA	GPA 2286 NGA
Option number	G3545 #610	G3545 #611	G3545 #612	G3545 # 613	G3545 #615
Valves	3	3	4	3	4
Detectors	TCD/FID	TCD	TCD/TCD	TCD	TCD/FID
Columns	4 (packed and capillary)	4 (packed)	6 (packed)	4 (packed)	3 (packed and capillary)
Analysis time	20 min	18 min	20 min	25 min	40 min
Hydrocarbon range	C_1–C_{12}	C_1–C_5 (C_{6+} as backflush)	C_1–C_5 (C_{6+} as backflush)	C_1–C_5 (C_{6+} as backflush)	C_1–C_{14}
Permanent gases	O_2, N_2, CO, CO_2	O_2, N_2, CO, CO_2	H_2, He, O_2, N_2, CO, CO_2	O_2, N_2, CO, CO_2, H_2S	O_2, N_2, CO_2
Minimum detection level (hydrocarbons)	10 ppm for C_3–C_{12}	100 ppm	100 ppm	100 ppm	50 ppm (C_1–C_5), 10 ppm (C_5–C_6)
Minimum detection level (permanent gases)	50 ppm	100 ppm	100 ppm	100 ppm	100 ppm
Minimum detection level (H_2S)	NA	NA	NA	500 ppm	NA
Configured per		ASTM D1945, GPA 2261 (H_2 and He not included)	ASTM D1945, GPA 2261	ASTM D1945, GPA 2261	GPA 2286

Micro GC analyzers

Analyzer	NGA A	NGA A Extended	NGA B	NGA B Extended
Option number	G3599 #120	G3599 #121	G3599 #122	G3599 #123
Valves	NA	NA	NA	NA
Detectors	µ-TCD (2)	µ-TCD (3)	µ-TCD (2)	µ-TCD (3)
Columns	2 (WCOT and PLOT)	3 (WCOT and PLOT)	2 (WCOT and PLOT)	3 (WCOT and PLOT)
Analysis time	100 seconds until C_7 400 seconds until C_9	100 seconds until C_{10} 240 seconds until C_{12}	75 seconds until C_6 400 seconds until C_9	75 seconds until C_6 400 seconds until C_9
Hydrocarbon range	C_1–C_9	C_1–C_{12}	C_1–C_9	C_1–C_9
Permanent gases	CO_2, air	CO_2, air	CO_2, air, hydrogen sulfide	H_2*, He*, CO, CO_2, air, hydrogen sulfide, O_2, N_2
Minimum detection level (hydrocarbons)	0.5 ppm	0.5 ppm	0.5 ppm	0.5 ppm
Minimum detection level (permanent gases)	2 ppm	2 ppm	2 ppm	2 ppm
Minimum detection level (H_2S)	NA	NA	5 ppm	5 ppm
Configured per	ASTM D3588-98, GPA 2172, ISO 6976, GOST	ASTM D3588-98, GPA 2172, ISO 6976, GOST	ASTM D3588-98, GPA 2172, ISO 6976, GOST	ASTM D3588-98, GPA 2172, ISO 6976, GOST, ASTM D1945, GPA 2261, ISO 6974-6

* Requires argon carrier gas on MolSieve 5 Å channel.

Other standard analyzers:

- Liquefied natural gas
- Sulfur impurities in natural gas
- Conventional natural gas (large valve oven, with the flexibility to add another channel in the main GC oven)

Need a custom analyzer?

We can help you meet your most challenging demands with specialized technologies that significantly reduce your time from system arrival to final validation.

With preconfigured hardware and method-specific separation tools, your analysts can focus on calibration and validation per your lab SOPs.

A Complete GC Workflow That Supports Your Business Goals

For more than 50 years, Agilent has led the way with cutting-edge GC and GC/MS instruments, consumables, software, and service.

We have also taken an active role in developing methods and applications, many of which have evolved into global standards for energy/fuels analysis. Today, Agilent experts are actively involved in standards development with some of the world's most trusted standards organizations, such as ASTM.

Simplify sample preparation with prepackaged Agilent Bond Elut QuEChERS kits

- Extraction kits with preweighed salts in anhydrous packets let you add salts after the organic solvent—avoiding exothermic reactions.
- Dispersive kits accommodate the aliquot volumes specified by current AOAC and EN methodologies.

Produce cleaner extracts using Agilent Bond Elut SPE

- A selection of polymer, silica, and other sorbents in formats ranging from multiple cartridge sizes to 96-well plates.
- Consistent particle size ensures superior flowthrough and performance.
- Vacuum manifolds and accessories help you meet all your SPE challenges.

Make sample preparation consistent, accurate, and safe with the Agilent 7696A sample preparation workbench

- Combines precise automation with an intuitive software interface to eliminate variability in dilution, extraction, standards addition, and other key steps.
- Significantly reduces exposure to hazardous solvents for long-term peace of mind.
- No need to transfer to other sample containers. All prepared samples are finished in 2-mL vials that are compatible with most GC and LC autosamplers.

Don't miss a thing in your GC analysis: Agilent Inert Flow Path

- Ensure consistent inertness from injector to detector.
- Decrease analyte adsorption for lower limits of detection and better signal-to-noise response.

Onsite assistance gives you peace of mind

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

Flexible service and support options keep your lab up and running

- Agilent University: education and training to fit your needs with classroom and online options.
- Maintenance and repair: on-demand, service plan, and service center repair options available.
- CrossLab Connect Smart Alerts: email notification for consumables replacement and preventive maintenance, as well as instrument monitoring for your entire lab.

When authenticity counts, choose genuine replacement parts for Agilent detectors

- Minimize background interference, low signal counts, and response changes.
- Maintain reliable performance, consistent signal output, and maximum uptime.
- Backed by the Agilent service agreement—plus a 90-day warranty from the date of shipment.

Agilent OpenLab

Capture, analyze, and share data

OpenLab CDS supports instrument control and digital data acquisition from chromatography systems and hardware manufacturers around the world.

- Single platform for most GC and LC instruments: supports many common third-party instruments.
- Scalable and easy to use: all versions share a common user interface and formats for data and method files.
- Grows with your lab: no costly retraining or method revalidation.

Learn more:
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