Analyze Greenhouse Gases in (Stack) Air, Water, Soil or Organic Materials
The Bruker Greenhouse Gas Analyzer provides a turnkey solution for the analysis of the greenhouse gases methane, carbon dioxide and nitrous oxide in stack or ambient air. With the addition of a Combi PAL™ Headspace sampler, water, soil or organic material can also be analyzed for greenhouse gases. The analyzer is configured with two chromatographic channels. Channel one is equipped with a TCD and an FID in series for the analysis of carbon dioxide and methane. The second channel is equipped with an ECD for the analysis of nitrous oxide. Optionally, this channel can be configured for the analysis of chlorofluorohydrocarbons and/or sulfur hexafluoride.
Key Benefits

Optimized for the analysis of greenhouse gases methane, carbon dioxide and nitrous oxide

The system is configured and fully tuned and tested at the factory using all Bruker components to ensure trouble-free operation. As a further guarantee, the system is installed and performance checked by Bruker at the customer’s site.

A turn-key solution

Bruker’s multi-channel 450-GC and state-of-the-art Galaxie™ chromatography software form a powerful combination, ensuring ease-of-use and fast and reliable results. In addition, this system does not require a high degree of operator skill.

Operational procedures fully documented

The Bruker Greenhouse Gas Analyzer not only incorporates proven GC hardware and software but is also pre-loaded with analysis methods and documentation specific to the application. This makes the analyzer very efficient and cost-effective.

Flexibility

The standard configuration analyzes carbon dioxide, methane, and nitrous oxide in stack and ambient air. When a Combi PAL Headspace sampler is used, the matrix can be extended with water, soil, and organic material. The application field can be extended to also analyze SF6 and CFCs.
Since the middle of the last century, the average temperature of the earth’s surface has increased. This phenomenon is known as global warming, and is thought to be largely due to increasing concentrations of greenhouse gases in the atmosphere, such as methane, carbon dioxide and nitrous oxide. These gases make the earth atmosphere recycle the heat coming from its surface, creating a “green-house” effect.

Human activity is believed to increase the amount of greenhouse gases in the atmosphere, and so there is an increasing need to measure these gases routinely in air. Furthermore, studies are undertaken to analyze the gases emitting from other sources such as water, soil and organic materials. The Bruker Greenhouse Gas Analyzer was developed to continuously measure greenhouse gases in these various matrices.

Analyzer Overview

The Bruker Greenhouse Gas Analyzer is configured with two channels. In the first channel, the carbon dioxide and methane are separated from air and sent to a Thermal Conductivity Detector (TCD) and a Flame Ionization Detector (FID) in series.

The second channel separates the nitrous oxide from water and sends it to an Electron Capture Detector (ECD). The water is back flushed to vent. The application can be extended to chlorofluorohydrocarbons (CFCs) and/or sulfur hexafluoride (SF6). These components can also be analyzed on the second channel.

When other sources need to be analyzed, a Combi PAL™ Headspace sampler is needed. Water, soil or organic material can be analyzed using this headspace sampler.

Figure 1: Carbon dioxide analyzed on the TCD.

Figure 2: Methane analyzed on the FID.

Figure 3. Nitrous oxide analyzed on the ECD.
Specifications

Applicability: The determination of greenhouse gases - methane, carbon dioxide and nitrous oxide in air, water, soil or emitting from (organic) matter.

Analysis Time: Approximately 6 minutes.

Minimum Detectability: The minimum detection level is better than 50 ppb for methane and nitrous oxide and better than 10 ppm for carbon dioxide.

Repeatability: Better than 2% relative standard deviation (on peak area) at ambient concentration levels, measured over 20 consecutive runs.

Ordering information

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<th>Description</th>
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<tbody>
<tr>
<td>Green House Gas Analyzer 120V</td>
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<td>Combi PAL Headspace sampler</td>
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<td>Mounting kit</td>
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<td>PAL Tray holder + Tray for 10 mL vials</td>
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<td>PAL Tray holder + Tray for 20 mL vials</td>
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Chemical Analysis Solutions

GC quadrupole mass spectrometers

The Bruker 300-MS series GC/MS systems stand at the pinnacle of versatility for quadrupole mass spectrometer systems. Both the 300-MS and 320-MS are configurable as either single-quadrupole, or triple-quadrupole systems.

The 300-MS delivers the performance you’ve come to expect from an industry leader in quadrupole innovation. It features an 800 Da mass range, superior negative ion sensitivity, and unmatched robustness in its performance class. The 320-MS delivers femtogram sensitivity, 2000 Da mass range, and a wide array of chromatographic and ionization configurations to uniquely match your needs - all in less than 72 cm (28 in.) of linear bench space! In minutes, our 300-MS series systems can be changed from EI to CI modes of operation. Easily, our 300-MS and 320-MS are the most sensitive, robust, and flexible quadrupole GC/MS systems currently available.

ICP mass spectrometers

Choosing an ICP-MS for your elemental analysis needs has never been easier with the Bruker 800-MS Series. The 810-MS is the instrument of choice for routine analysis with industry leading sensitivity and intuitive Web-integrated ICP-MS Expert software. The 820-MS features Bruker’s novel collision reaction interface (CRI), providing interference-free analysis and allowing you to tackle any application with ease. With a vast range of accessories, Bruker has the solution to all your ICP-MS application requirements.

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