SCION INSTRUMENTS

Greenhouse Gas Analyzer

- Analyze Greenhouse Gases in (Stack) Air, Water, Soil or Organic Materials

Scion Greenhouse Gas Analyzer

The Scion 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 PAL Combi-xt 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.

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 Scion components to ensure trouble-free operation. As a further guarantee, the system is installed and performance checked by Scion at the customer's site.

A turn-key solution

Scion's multi-channel 456-GC and state-of-the-art compassCDS 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

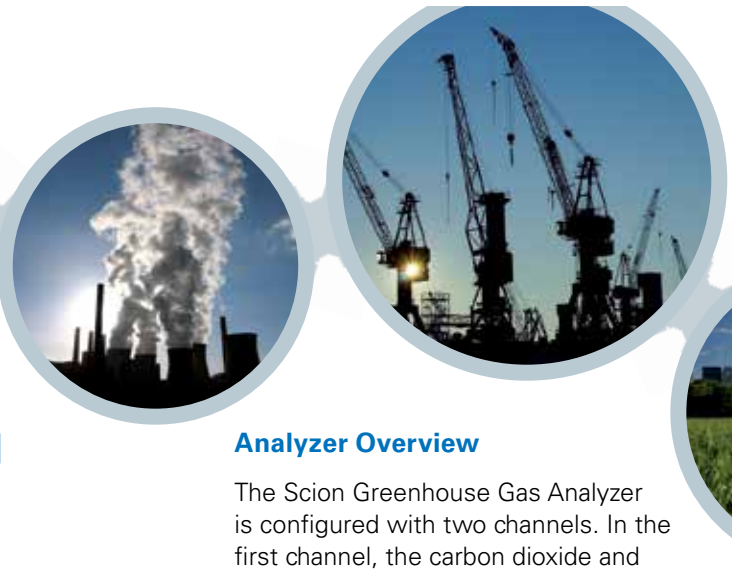
The Scion Greenhouse Gas Analyzer not only incorporates proven GC hardware and software but is also pre-loaded with analysis methods and documentation specific to the application. This makes the analyzer very efficient and cost-effective.

Flexibility

The standard configuration analyzes carbon dioxide, methane, and nitrous oxide in stack and ambient air. When a PAL Combi-xt 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 Scion Greenhouse Gas Analyzer was developed to continuously measure greenhouse gases in these various matrices.



Analyzer Overview

The Scion 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 PAL Combi-xt Headspace sampler is needed. Water, soil or organic material can be analyzed using this headspace sampler.

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.

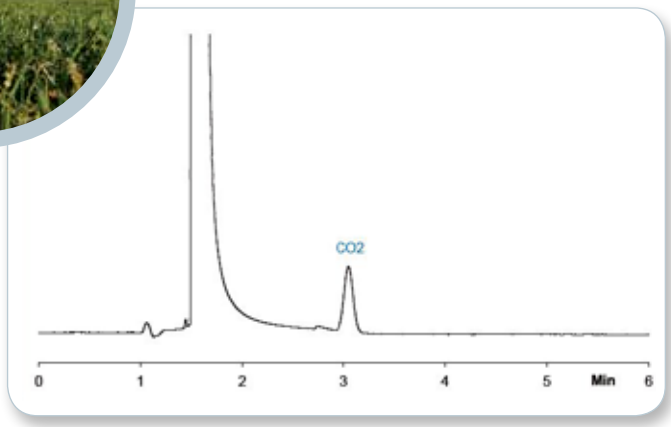


Figure 1: Carbon dioxide analyzed on the TCD.

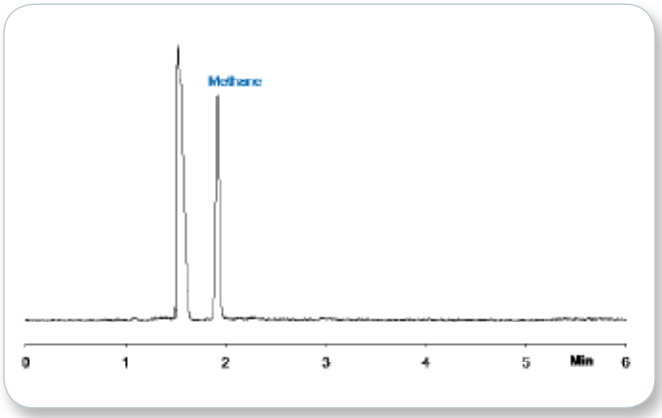


Figure 2: Methane analyzed on the FID.

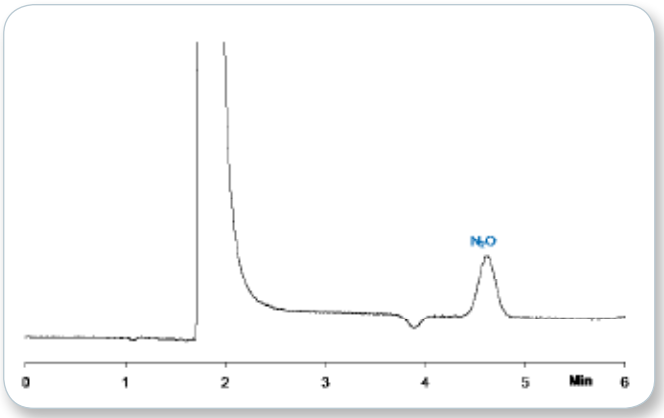
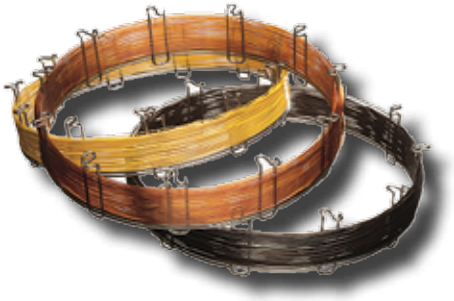


Figure 3. Nitrous oxide analyzed on the ECD.

Scion-Certified Consumables for Your SCION GC Series

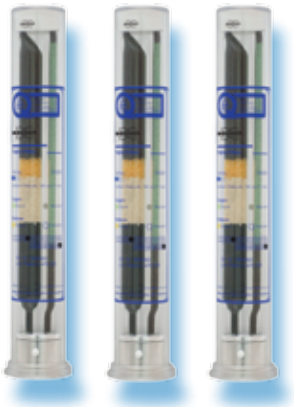
Scion GC columns span a broad range of column diameters, stationary phases, and capillary column materials: Fused Silica (FS) and Inert Steel (IS). Ideal for either routine or research type analyses. Scion GC column offerings bridge across many important applications and include a number of offerings such as:



- Standard WCOT (Wall Coated Open Tubular)
- Solid Stationary Phase PLOT (Porous Layer Open Tubular)
- Inert Steel Micro-Packed and Packed

Super Clean™ Gas Filters

Scion Gas Purification Systems have the range to satisfy your needs from individual to combination filters, from Ultra purity combined with Ultra capacity, to all in one solution kits. Innovative features designed into the product yield extensive benefits to the user.



- Ultra-high capacity for long life, less change and improved productivity
- High-purity output ensures 99.9999% Pure Gas
- "Quick connect" fittings for easy, leak-tight filter changes
- Glass internals prevent diffusion; plastic externally for safety
- Easy-to-read indicators for planned maintenance and improved up-time

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