Varian 490-GC

SULFUR IN GAS ANALYZER

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Agilent Technologies

For fast, reliable on-line/at-line sulfur analysis of hydrocarbon streams, the Varian 490-GC Sulfur in Gas Analyzer equipped with the micro-machined Differential Mobility Detector (µ-DMD) measures trace levels of target components with no matrix interference. Featuring innovative dual-detection capability, the analyzer gives precise information for each selected sulfur component, as well as additional matrix compositional data to provide a complete picture of the sample.

Key Benefits

- **High sensitivity and unique selectivity.** Unique selectivity for sulfur components without interference of any other co-eluting matrix components. This, combined with trace level sensitivity, lets you monitor targeted sulfur components in gaseous hydrocarbon streams precisely and with complete confidence.
- **Dual-detector technology.** The analyzer features complementary dual-detector technology. In a single run, data are obtained on bulk matrix composition using the universal Thermal Conductivity Detector (µ-TCD) and selectively targeted sulfur components at trace levels with the highly sensitive Differential Mobility Detector (µ-DMD).
- **Electronic Gas Control.** EGC ensures high reproducibility and the use of capillary column technology guarantees high separation efficiency.
- **Turnkey solution.** To ensure a fast, accurate and reliable analysis of sulfur gas, the analyzer is factory pre-tuned and supplied with full documentation and an operational method to get you up and running quickly.
- **Measure-anywhere capability.** Its compact size makes the Analyzer suitable for on-line/at-line monitoring of operational odorant levels, as well as for analysis in the laboratory.

490-GC Sulfur in Gas Analyzer

The Varian 490-GC Sulfur in Gas Analyzer is a turnkey solution for trace analysis of sulfur components in various gaseous hydrocarbon streams. One of the most common elements, sulfur, is naturally present in most fossil fuels, including hydrogen sulfide (H_2S), carbonyl sulfide (COS) and mercaptans. Since sulfur can be extremely corrosive and toxic, efforts are underway to significantly reduce sulfur emissions from fuels. Besides the environmental impact, sulfur affects the performance of many industrial processes, causing chemical reactions, catalyst poisoning and pipeline corrosion.

The µ-DMD is fully integrated into the 490-GC and uses dual detection technology in which the µ-TCD and µ-DMD are connected in series. Varian Galaxie™ chromatography software processes signals from both detectors, providing selective/trace information (µ-DMD) and matrix information (µ-TCD) in a single analysis.

Specifications

Applicability

The determination of hydrogen sulfide, carbonyl sulfide and methyl mercaptan in gaseous hydrocarbon streams. Operational parameters, including gas flows, are factory-tuned and documented.

External Requirements

Sample must be offered as a gas, 0 °C to 110 °C, with a pressure from ambient up to 1 bar

Sample Inlet

Heated sample inlet 1/16 in. Valco®

Analysis Time

Cycle time is approximately four minutes

Dynamic Range

- Differential Mobility Detector (µ-DMD), generally three decades but component dependent
- Micro-Thermal Conductivity Detector (µ-TCD), six decades

Minimum Detectability

- µ-TCD, C5 5 mg/m^3 (1 ppm)
- µ-DMD, H_2S 300 µg/m3 (200 ppb), COS 500 µg/m^3 (200 ppb), CH^3SH 400 µg/m^3 (200 ppb)

Repeatability

µ-DMD, better than 3% relative standard deviation at 10-20 times the minimum detectability, measured over at least 20 consecutive runs

Hardware configuration

- Single channel dual detector configuration, based on the 490-GC
- Option of up to two additional GC channels using the universal µ-TCD detector

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