



Application Brief:

Sulfur Compounds and C₁-C₆+ in Refinery Gas, Refining Industry

Purpose:

Lab and online analysis of gas phase sulfur compounds and C₁-C₆+ in refinery gas for component specification compliance.



Measured Components:

C₁-C₆+ and methyl mercaptan, dimethyl sulfide, ethyl mercaptan, isopropyl mercaptan, n-propyl mercaptan, tert-butyl mercaptan, isobutyl mercaptan, sec-butyl mercaptan, n-butyl mercaptan, hydrogen sulfide, carbonyl sulfide

Measurement in ppm and % range

Cycle Time: 6 minutes

Detector(s): FID and FPD

Reference Methods: D5623

Contact Falcon Analytical for a chromatogram of this application.



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General Specifications*

Operating Environment

Operating Temperature Range: 0°C to 35°C

Storage Temperature Range: -20°C to 60°C

Relative Humidity Range: 0 to 100% (non-condensing)

Power Requirements

Less than 300 watts peak power at startup, practical use < 200 Watts for gas or liquid analyses 24 VDC supplied from external power supply, 100-240VAC using 50/60Hz AC.



Safety

General purpose, light industrial (lab instrument environment)

CE Mark and Nationally Recognized Testing Laboratory (NRTL) certified (TUV Rheinland) pending.

Gas Supplies

50 PSIG, 99.995% hydrogen at up to 250 ml/min, 50 PSIG Zero air for FID operation.

Sample Requirements (via split/splitless injector with septum purge)

Air or gaseous samples. Membrane, SPME and static and dynamic headspace extracts. Direct liquid injections neat or dilute organic solvents (DCM, Hexane, MEK, Toluene, methanol, etc.).

Dimensions

17" wide by 8.5" deep by 11" high, ~ 25 lbs. Uninterrupted power supply and data acquisition computer external to the base unit.

Controls/Outputs

All functions and parameters can be set via Ethernet or USB. Start analysis can be triggered from the instrument display panel or by method from an external computer running ChromPerfect Software™. Column signals are digitized for each column in 24-bit resolution, the FID at 100 Hz and TCD at 50 Hz. ChromPerfect also supplies a full array of control and processing options for other analyzer functions and settings.

Front Panel Displays

The front panel is an LCD touch screen supplying temperature and pressure readings, function on/off, power on/off, status of analysis columns (isothermal, programming, cool down, ready, and cycles run).

Performance (application dependent)

Repeatability of $\pm 1\%$ RSD or better (area) and of $\pm 0.1\%$ RSD or better (retention times). Analysis times for VOCs can be <20 seconds and for SVOCs <60 seconds. Dynamic range depends on detector used and application (FID typically 10^5).

*Contact Falcon Analytical for any specification variances for this application.



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