

Application Data Sheet

No.8

System Gas Chromatograph

Fast Refinery Gas Analyzer Nexis GC-2030FRGA2 GC-2014FRGA2

This method is for determining the chemical composition of natural gases and similar gaseous mixtures within the composition range shown in the specification sheet. It provides data for calculating a sample's physical properties, such as its heating value and relative density, or for monitoring the concentrations of one or more of the components in a mixture. This analyzer uses a total of three valves and six columns. The sample is introduced into four sample loops for determination. Using a pre-column, C6+ components are back-flushed as a single peak. The valve timing then allows the hydrocarbons C3 through/to C5 to be separated individually using an Alumina capillary column and detected by FID. Finally, using MS-5A, O₂, N₂, CH₄, and CO are separated. simultaneously CO₂, C₂, and H₂S are separated with an Rtx-Q plot column and detected by the TCD. The final analysis time is approximately 10 minutes. The system includes LabSolutions GC workstation software and BTU and Specific Gravity calculation software.

Analyzer Information

System Configuration:

Three valves / six capillary and packed columns with TCD / FID detectors

Sample Information:

O₂, N₂, CO, CO₂, H₂S, C₁-C₅, C₆+

Detection Limits:

The lowest level of quantification for the permanent gases is 50ppm, H₂S 500ppm by TCD and hydrocarbons is 10ppm by FID with Helium carrier gas

Methods met:

ASTM-D1945, D1946, D3588, GPA-2261

Concentration Range:

No.	Name of Compound	Concentration Range	
		Low Conc.	High Conc.
1	O ₂	0.010%	20.0%
2	N ₂	0.010%	50.0%
3	CH ₄	0.010%	80.0%
4	CO	0.010%	5.0%
5	CO ₂	0.010%	20.0%
6	C ₂ H ₄	0.010%	10.0%
7	C ₂ H ₆	0.010%	10.0%
8	C ₂ H ₂	0.010%	10.0%
9	H ₂ S	0.050%	30.0%
10	C ₃ H ₈	0.001%	5.0%
11	C ₃ H ₆	0.001%	5.0%
12	i-C ₄ H ₁₀	0.001%	1.0%
13	n-C ₄ H ₁₀	0.001%	1.0%
14	Propadiene(C ₃ H ₄)	0.001%	1.0%
15	Other Hydrocarbons	0.001%	0.5%
16	C ₆ +	0.001%	1.0%

Detection limits may vary depending on the sample.
Please contact us for more consultation.

System Features

- Less than 10 minutes analysis for refinery gas
- TCD with FID channels for simultaneous analysis
- Calorific value software is available
- Water should be removed from sample if H₂S analysis is required

Typical Chromatograms

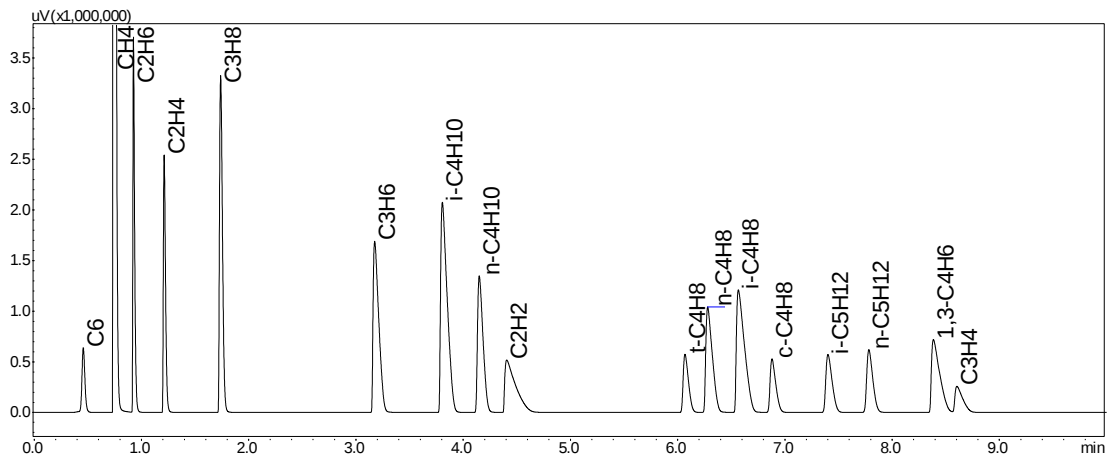


Fig. 1 Chromatogram of FID-1

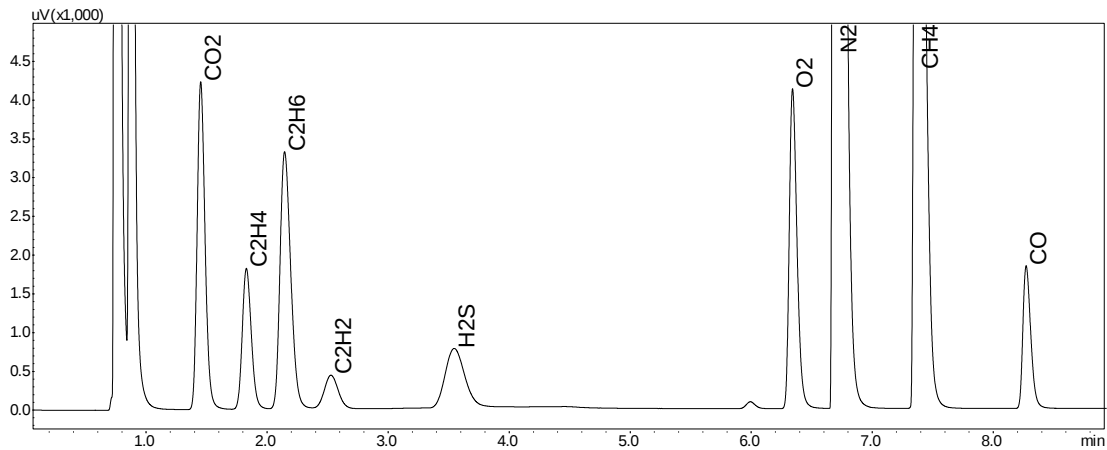


Fig. 2 Chromatogram of TCD