

Application Data Sheet

No.121

System Gas Chromatograph

Fast NGA System without He/H₂ Analysis

Nexis GC-2030 FRGA-II2

GC-2014 FRGA-II2

This GC system is designed for determining the chemical composition of natural gases and similar gaseous mixtures within the composition range shown in the specification sheet. This test method provides data for calculating physical properties of the sample, such as heating value and relative density, or for monitoring the concentrations of one or more of the components in a mixture. A total of 5 valves and 8 columns are used in this GC system. Sample is loaded into three 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 by an Alumina capillary column and detected by FID. Using a P-N column, Air+CO+CH₄ elute as a mixed peak to packed column MS-5A, then separated, switching the valve, CO₂, C₂, H₂S elute to a P-Q column then separated. These components are detected by 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:

Four valves / five packed column and one capillary with Two TCD detectors and one FID detector

Sample Information:

Permanent gas, C₁-C₆

Methods met:

ASTM-D1945, D3588, GPA-2261

Concentration Range:

No.	Name of Compound	Concentration Range		Detector
		Low Conc.	High Conc.	
1	O ₂	0.010%	20.0%	TCD-1
2	N ₂	0.010%	50.0%	TCD-1
3	CH ₄	0.010%	80.0%	TCD-1
4	CO	0.010%	5.0%	TCD-1
5	CO ₂	0.010%	20.0%	TCD-1
6	C ₂ H ₄	0.010%	10.0%	TCD-1
7	C ₂ H ₆	0.010%	10.0%	TCD-1
8	C ₂ H ₂	0.010%	10.0%	TCD-1
9	H ₂ S	0.050%	30.0%	TCD-1
10	C ₃ H ₈	0.001%	5.0%	FID
11	C ₃ H ₆	0.001%	5.0%	FID
12	i-C ₄ H ₁₀	0.001%	1.0%	FID
13	n-C ₄ H ₁₀	0.001%	1.0%	FID
14	Propadiene(C ₃ H ₄)	0.001%	1.0%	FID
15	Trans-C ₄ H ₈	0.001%	0.5%	FID
16	1-C ₄ H ₈	0.001%	0.5%	FID
17	i-C ₄ H ₈	0.001%	0.5%	FID
18	Cis-2-C ₄ H ₈	0.001%	0.5%	FID
19	i-C ₅ H ₁₂	0.001%	0.5%	FID
20	n-C ₅ H ₁₂	0.001%	0.5%	FID
21	1,3-C ₄ H ₆	0.001%	0.5%	FID
22	C ₃ H ₄	0.001%	0.5%	FID
23	C ₆ +	0.001%	1.0%	FID

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

System Features

- Two TCD channels and one FID channel
- Calorific value software is available
- Good repeatability

Typical Chromatograms

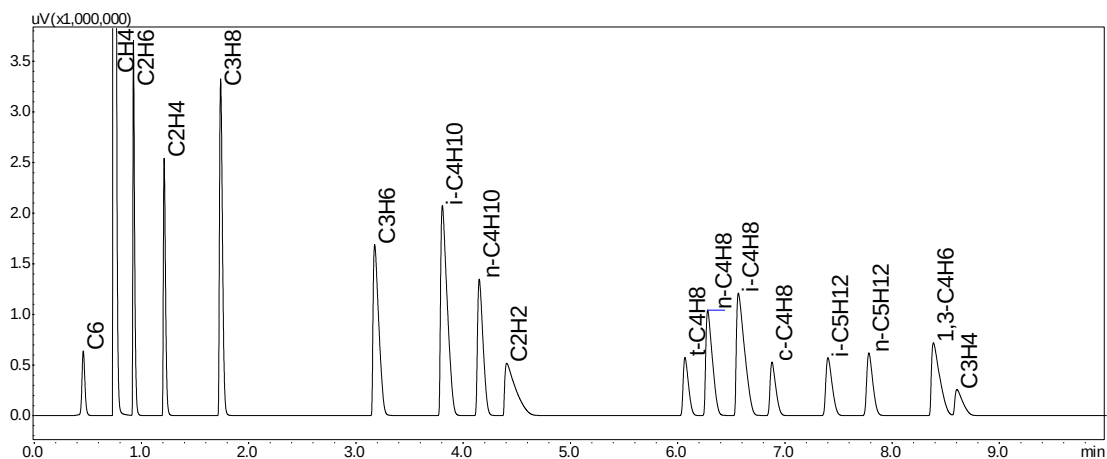


Fig.1 Chromatogram of FID

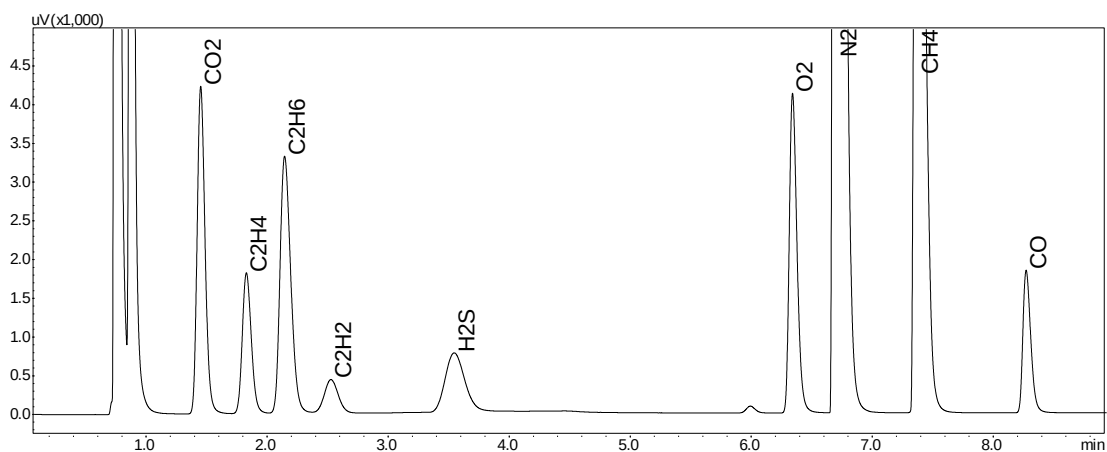


Fig. 2 Chromatogram of TCD