

Application Data Sheet

No.3

System Gas Chromatograph

Fast Natural Gas Analyzer Nexis GC-2030FNGA1 GC-2014FNGA1

This method is for determining the chemical composition of natural gases and similar gaseous mixtures within the composition range shown below. 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 system is configured with a total of four valves and eight 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 Rtx-1 capillary column and detected by FID. Using an MS-5A column, 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. He/H₂ will be separated by on a separate MS-5A column, while backflushing the other constituents and, detected by another TCD using N₂ as carrier gas. The final analysis time is approximately 10 minutes. If He and H₂ do not need to be measured, a different Fast NGA system without He/H₂ is available. The system includes LabSolutions GC workstation software and BTU and Specific Gravity calculation software.

Analyzer Information

System Configuration:

Four valves / eight capillary and packed columns with two TCD / one FID detectors

Sample Information:

He, H₂, O₂, N₂, CO, CO₂, H₂S, C₁-C₅ (methane, ethane, propane, iso-butane, n-butane, iso-pentane, and n-pentane), C₆₊ by backflush

Methods met:

ASTM-D1945, D3588, GPA-2261

Concentration Range:

No.	Name of Compound	Concentration Range	
		Low Conc.	High Conc.
1	He	0.010%	10.0%
2	H ₂	0.010%	10.0%
3	O ₂	0.010%	20.0%
4	N ₂	0.010%	50.0%
5	CH ₄	20.000%	100.0%
6	CO	0.010%	5.0%
7	CO ₂	0.010%	20.0%
8	C ₂ H ₆	0.010%	10.0%
9	H ₂ S	0.100%	30.0%
10	C ₃ H ₈	0.001%	10.0%
11	i-C ₄ H ₁₀	0.001%	10.0%
12	n-C ₄ H ₁₀	0.001%	10.0%
13	i-C ₅ H ₁₂	0.001%	2.0%
14	n-C ₅ H ₁₂	0.001%	2.0%
15	C ₆₊	0.001%	0.5%

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

System Features

- Less than 10 minutes analysis for natural gas
- Dual TCD, FID channels
- Calorific value software is available
- Versatile software easy GC system operation

Typical Chromatograms

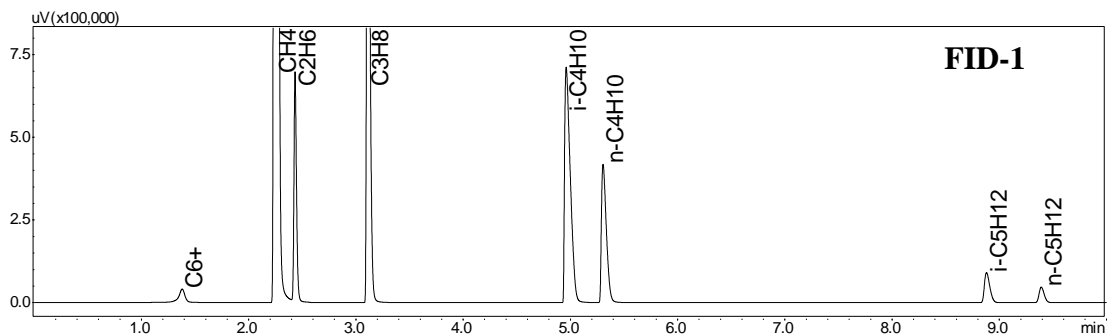


Fig. 1 Chromatogram of FID-1

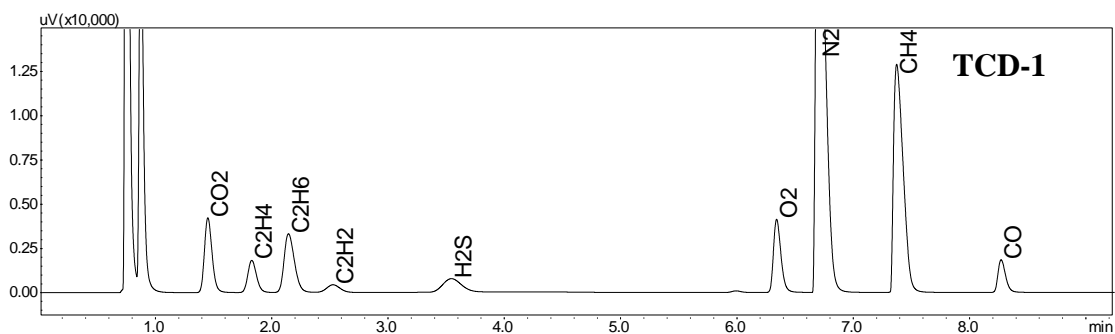


Fig. 2 Chromatogram of TCD-1

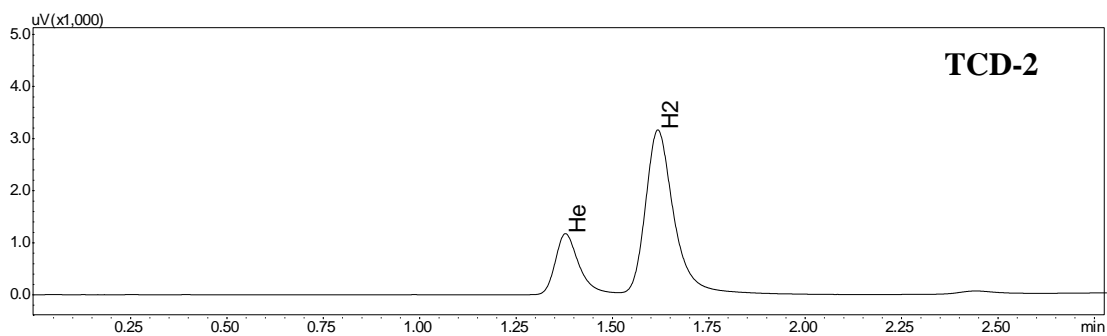


Fig. 3 Chromatogram of TCD-2