

Application Data Sheet

No. 1

System Gas Chromatograph

Natural Gas Analyzer Nexis GC-2030NGA1 GC-2014NGA1

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. The GC system uses a total of three valves and six columns. The sample is introduced into three sample loops for determination. Using a pre-column, C6+ components are back-flushed as a single peak. The valve timing then allows C3-C5, CO₂, and C₂H₆ to be eluted to a TCD through a DC-200 column in that order. Finally, using MS-5A, O₂, N₂, CH₄, and CO are separated and detected by the TCD, while He and H₂ will be separated by MS-5A and, with the other compounds vented out, detected by a second TCD using N₂ as carrier gas. The final analysis time is approximately 20 minutes. The system includes LabSolutions GC workstation software and BTU and Specific Gravity calculation software.

Analyzer Information

System Configuration:

Three valves / six packed columns with two TCD 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	0.01%	10.0%
2	H ₂	0.01%	10.0%
3	O ₂	0.01%	20.0%
4	N ₂	0.01%	50.0%
5	CH ₄	0.01%	100%
6	CO	0.01%	5.0%
7	CO ₂	0.01%	20.0%
8	C ₂ H ₆	0.01%	10.0%
9	C ₃ H ₈	0.01%	10.0%
10	i-C ₄ H ₁₀	0.01%	10.0%
11	n-C ₄ H ₁₀	0.01%	2.0%
12	i-C ₅ H ₁₂	0.01%	10.0%
13	n-C ₅ H ₁₂	0.01%	2.0%
14	H ₂ S	0.05%	30.0%
15	C ₆ +	0.01%	0.5%

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

*High Concentration specified are for ideal natural gas standard sample. The same shall vary or be customized according to the require ASTM / UOP / any other standard reference methods or any other customized application.

System Features

- 23 minutes analysis for natural gas
- Dual TCD channels
- Calorific value software is available
- Good separation for He and H₂
- Good repeatability

Typical Chromatograms

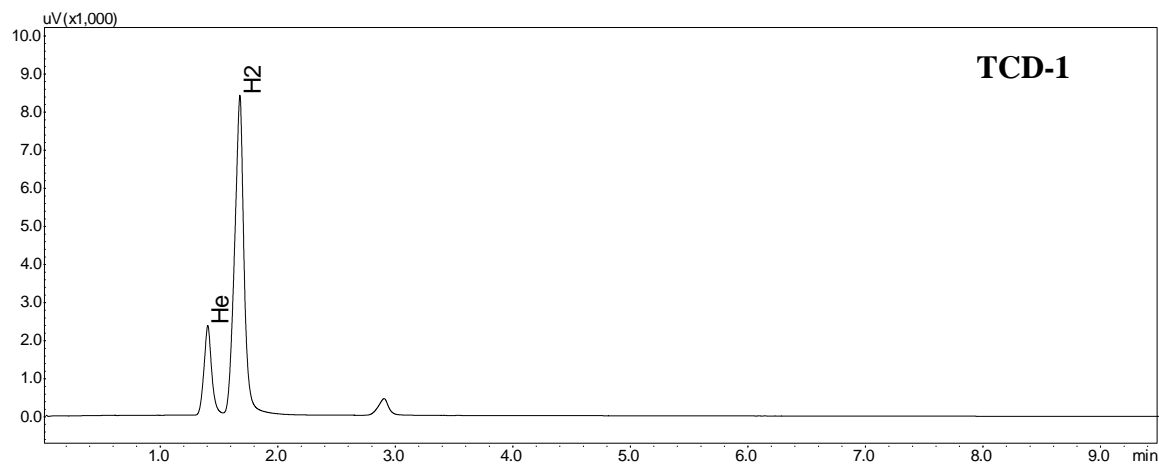


Fig. 1 Chromatogram of TCD-1

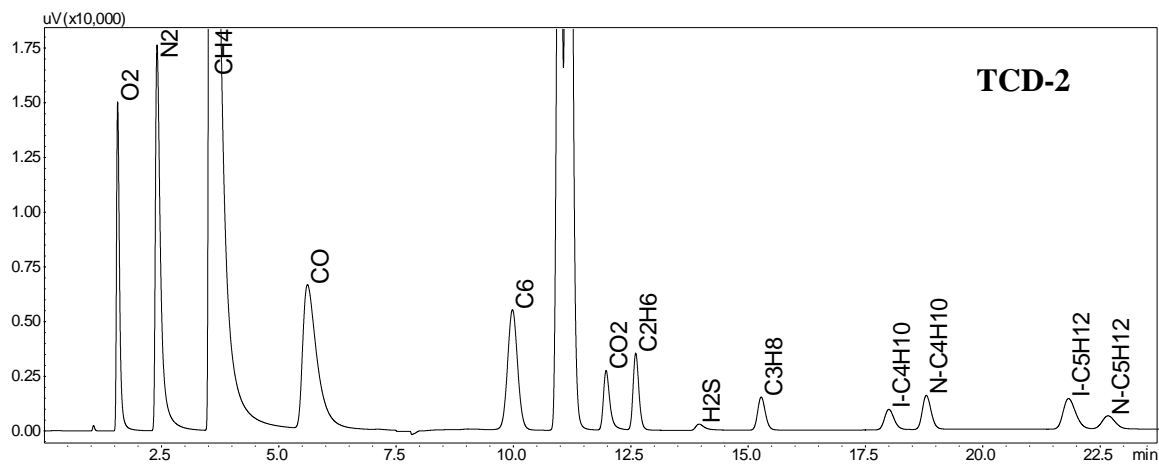


Fig. 2 Chromatogram of TCD-2

First Edition: November, 2017

