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Application Data Sheet

No.44

System Gas Chromatograph

High Speed Refinery Gas Analyzer Nexis GC-2030HSRGA2 GC-2014HSRGA2

This method is for determining the chemical composition of natural gases and similar gaseous mixtures within the composition range shown below. This test method 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 GC uses a total of four 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 through an alumina capillary column and detected by FID. Finally, using MS-5A, O2, N2, CH4, and CO are separated. At the same time, CO2, C2, and H2S are separated using an Rtx-Q plot column and detected by a TCD. The final analysis time is approximately six minutes. The system includes LabSolution 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:
O_2, N_2, CO, CO_2, H_2S, C_1-C_5 , C_{6+}

Methods met:
ASTM-D1945, D1946, D3588, GPA-2261, UOP 539

Concentration Range:

No.	Name of Compound	Concentration Range	
		Low Conc.	High Conc.
1	O2	0.01%	50.0%
2	N2	0.01%	50.0%
3	CH4	0.01%	80.0%
4	CO	0.01%	10.0%
5	CO2	0.01%	30.0%
6	C2H4	0.01%	10.0%
7	C2H6	0.01%	10.0%
8	C2H2	0.01%	10.0%
9	H2S	0.05%	30.0%
10	C3H8	0.01%	5.0%
11	C3H6	0.01%	5.0%
12	i-C4H10	0.01%	1.0%
13	n-C4H10	0.01%	1.0%
14	C3H4	0.01%	1.0%
15	C2H2	0.01%	1.0%
16	Other Hydrocarbons	0.01%	0.5%
17	C6 plus	0.01%	0.5%

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

System Features

- Less than 6 minutes analysis for refinery gases analysis with H2S can be carried out
- TCD with FID channels for simultaneous analysis
- By using split/splitless injector, liquid hydrocarbons can be analyzed by the FID
- Calorific value software is available

Typical Chromatograms

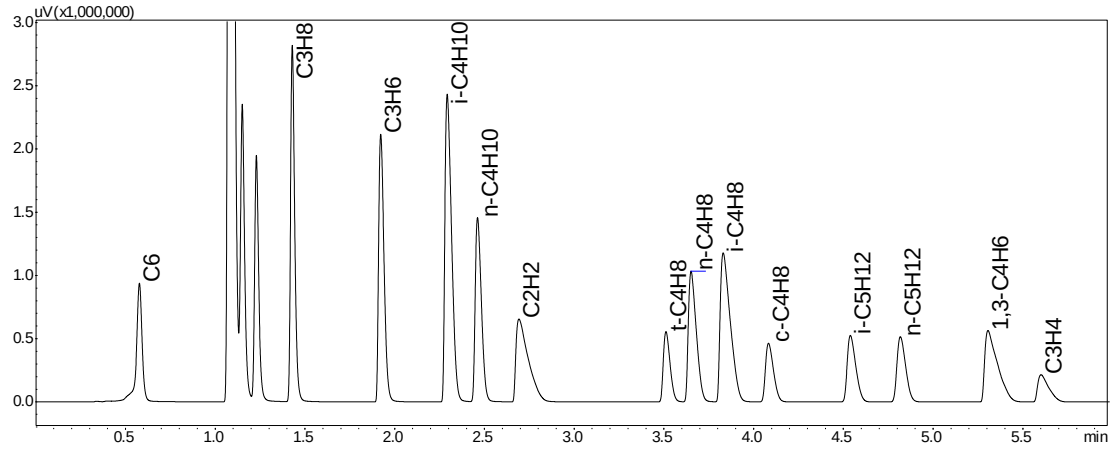

Fig. 1 Chromatogram of FID

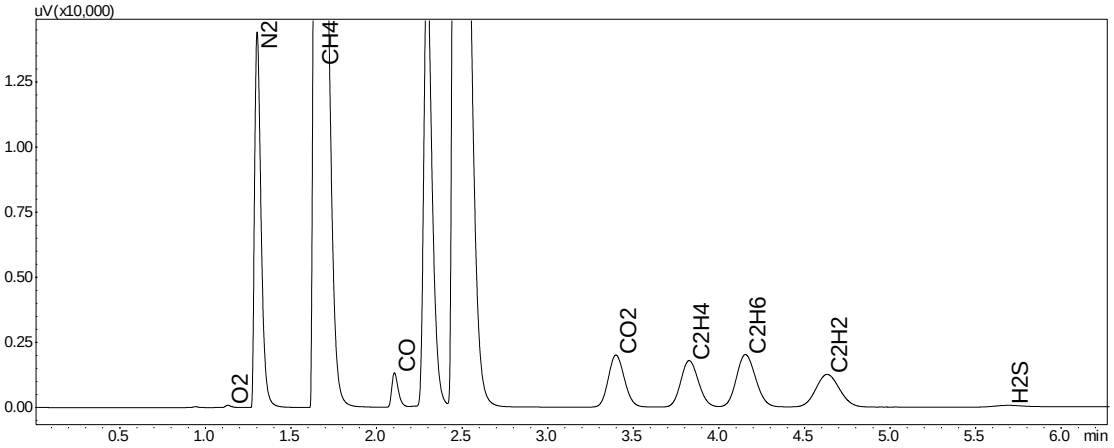

Fig. 2 Chromatogram of TCD

First Edition: November, 2017

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