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Application Data Sheet

No.67

System Gas Chromatograph

Wide Range of Gaseous Hydrocarbons Mixture Obtained from Refining Processes

Nexis GC-2030RGA1
GC-2014RGA1

This instrument 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 4 valves and 6 columns are applied in this GC system. 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 C3through to C5to be separated individually through by Shimalite-Q and Sebaconitrile columns and to be detected by TCD-3. Using an MS-13X column, O2, N2, CH4, CO are separated while CO2 and the C2 compounds are separated by Porapak-Q column and detected by TCD-1. H2 will be separated by a MS-5A column and detected by TCD-2 using N2as carrier gas. The final analysis time is approximately 30 minutes. The system includes LabSolutions workstation software and BTU and Specific Gravity calculation software.

Analyzer Information

System Configuration:
Four valves / nine packed columns with three TCD detectors

Sample Information:
H_2, O_2, N_2, Ar, CO, CO_2, C_1-C_5 , C_{6+}

Methods met:
ASTM-D2163

Concentration Range:

No.	Name of Compound	Concentration Range		Detector
		Low Conc.	High Conc.	
1	H2	0.05%	100%	TCD-2
2	Ar+O2	0.05%	100%	TCD-1
3	N2	0.05%	100%	TCD-1
4	CH4	0.05%	50%	TCD-1
5	CO	0.05%	20%	TCD-1
6	CO2	0.05%	60%	TCD-1
7	C2H6	0.05%	15%	TCD-1
8	C2H4	0.05%	20%	TCD-1
9	C3H8	0.05%	50%	TCD-3
10	C3H6	0.05%	100%	TCD-3
11	C3H8	0.05%	5%	TCD-3
12	i-C4H10	0.05%	30%	TCD-3
13	n-C4H10	0.05%	30%	TCD-3
14	trans-2-C4H8	0.05%	10%	TCD-3
15	cis-2-C4H8	0.05%	10%	TCD-3
16	1-C4H8	0.05%	10%	TCD-3
17	i-C4H8	0.05%	10%	TCD-3
18	i-C5H12	0.05%	2%	TCD-3
19	n-C5H12	0.05%	2%	TCD-3
20	1,3-C4H6	0.05%	2%	TCD-3
21	C6 plus	0.05%	10%	TCD-3

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

System Features

- Calorific value software is available
- 30 minutes analysis for natural gases analysis can be carried out
- Three TCD channels
- Good repeatability

Typical Chromatograms

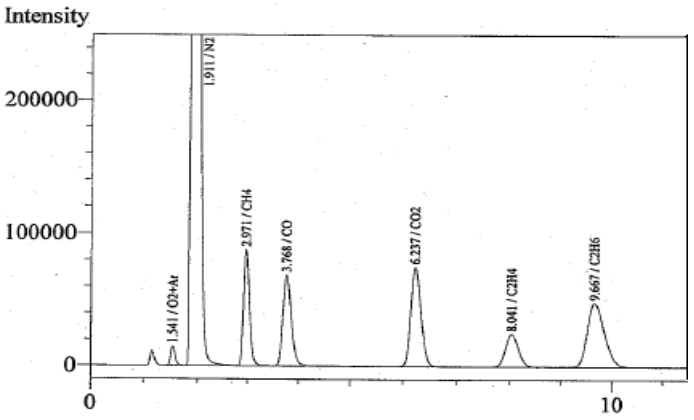

Fig. 1 Chromatogram of TCD-1

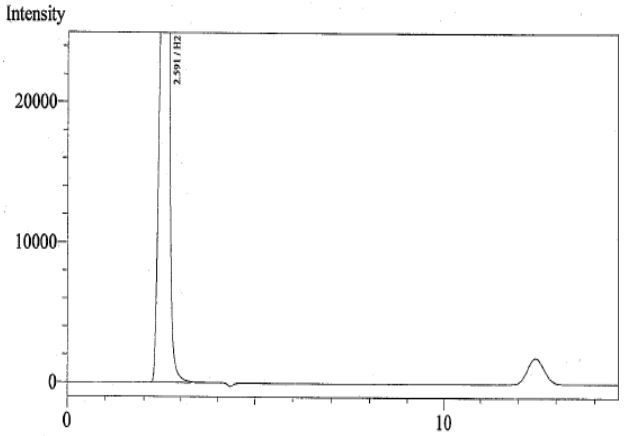

Fig. 2 Chromatogram of TCD-2

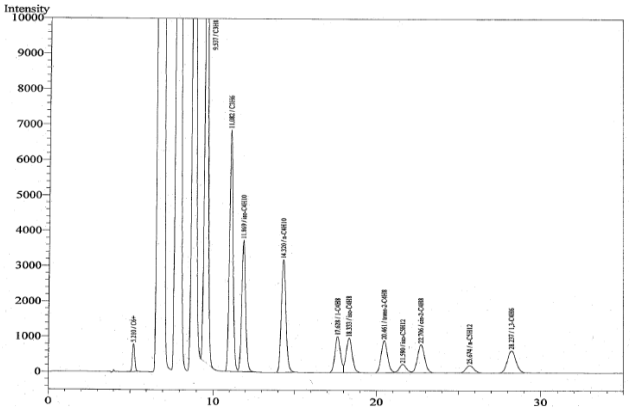

Fig. 3 Chromatogram of FID

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