

# Application Data Sheet

## No. 118

## System Gas Chromatograph

### Fast NGA System with He/H<sub>2</sub> Analysis Nexis GC-2030 FNGA-II1 GC-2014 FNGA-II1

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 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, C<sub>6</sub>+ components are back-flushed as a single peak. The valve timing then allows the hydrocarbons C<sub>3</sub> through to C<sub>5</sub> to be separated individually by a Rtx-1 capillary column and to be detected by FID with Split/splitless injector. Using pre-column P-N, C<sub>3</sub>+ components are vented out as a single peak. Using as main column P-N, Air+CO+CH<sub>4</sub> are eluted as a mixed peak to a packed column MS-5A, and then separated. Switching the valve, CO<sub>2</sub>, C<sub>2</sub>, H<sub>2</sub>S are eluted to a P-Q column and then separated and detected by a TCD. He/H<sub>2</sub> will be separated by an MS-5A. The other components are vented and detected by another TCD using N<sub>2</sub> as carrier gas. The final analysis time is approximately 10 minutes. If He and H<sub>2</sub> do not need to be measured, another Fast NGA system without He/H<sub>2</sub> is also available. The system includes LabSolutions GC workstation software and BTU and Specific Gravity calculation software.

#### Analyzer Information

##### System Configuration:

Five valves / seven packed column and one capillary with two TCD detectors and one FID detector

##### Sample Information:

Permanent gas ,C<sub>1</sub>-C<sub>6</sub>

##### Methods met:

ASTM-D1945, D3588, GPA-2261

##### Concentration Range:

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

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

### System Features

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

### Typical Chromatograms

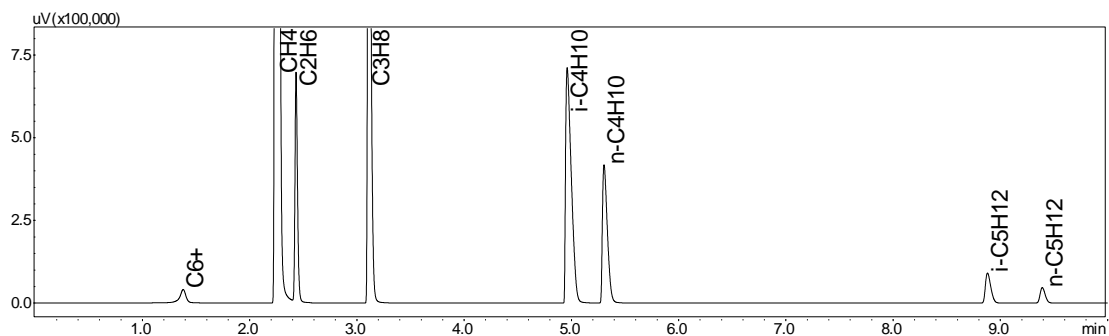


Fig.1 Chromatogram of FID

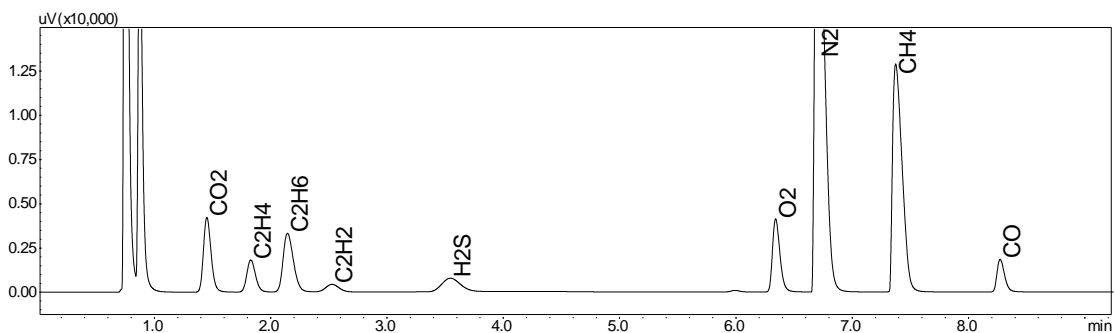


Fig.2 Chromatogram of TCD-1

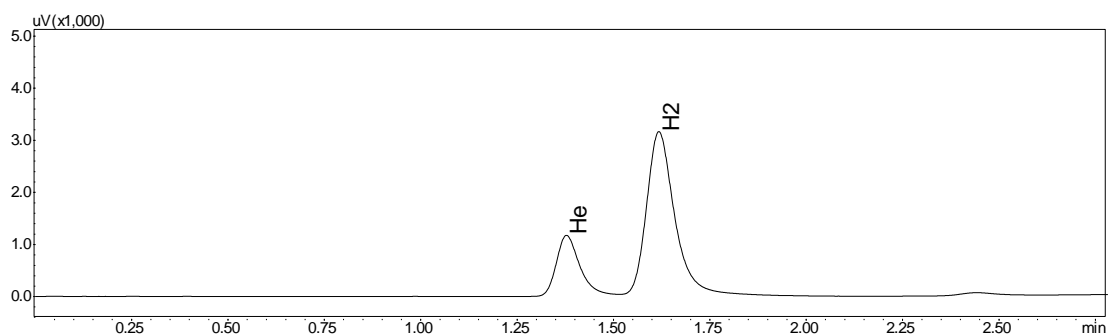


Fig.3 Chromatogram of TCD-2