

# Application Data Sheet

## No. 127

## System Gas Chromatograph

### Extend RGA System with BID Analysis Nexis GC-2030 BIDERGA-S

This GC system is designed 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 4 valves and 7 columns are used in this GC system. The sample is loaded 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 C1 through to C5 to be separated by an Alumina capillary column and detected by FID-1. The extended C6 through C13 hydrocarbons are separated by an Rtx-1 capillary column then detected by an FID-2. Finally, a MS-5A separates H<sub>2</sub>, O<sub>2</sub>, N<sub>2</sub>, CH<sub>4</sub>, CO while CO<sub>2</sub>, C<sub>2</sub>H<sub>4</sub>, C<sub>2</sub>H<sub>6</sub>, C<sub>2</sub>H<sub>2</sub>, H<sub>2</sub>S are separated by Rtx-Q plot column. Each is detected by a BID. The final analysis time is approximately 10 minutes. The system includes LabSolutions GC workstation software and BTU and Specific Gravity calculation software.

#### Analyzer Information

##### System Configuration:

Four valves / three packed columns and four capillary columns with one BID detector and two FID detectors

##### Concentration Range:

##### Sample Information:

Permanent gas, C<sub>1</sub>-C<sub>13</sub>, H<sub>2</sub>S

No.	Name of Compound	Concentration Range		Remarks
		Low Conc.	High Conc.	
1	H <sub>2</sub>	0.01%	80.0%	BID
2	O <sub>2</sub>	0.01%	50.0%	BID
3	N <sub>2</sub>	0.01%	50.0%	BID
4	CO	0.01%	10.0%	BID
5	CO <sub>2</sub>	0.01%	30.0%	BID
6	C <sub>2</sub> H <sub>4</sub>	0.01%	10.0%	BID
7	C <sub>2</sub> H <sub>6</sub>	0.01%	10.0%	BID
8	C <sub>2</sub> H <sub>2</sub>	0.01%	10.0%	BID
9	H <sub>2</sub> S	0.01%	30.0%	BID
10	CH <sub>4</sub>	0.001%	80.0%	FID-1
11	C <sub>3</sub> H <sub>8</sub>	0.001%	5.0%	FID-1
13	C <sub>3</sub> H <sub>6</sub>	0.001%	5.0%	FID-1
14	i-C <sub>4</sub> H <sub>10</sub>	0.001%	1.0%	FID-1
15	n-C <sub>4</sub> H <sub>10</sub>	0.001%	1.0%	FID-1
16	C <sub>3</sub> H <sub>4</sub>	0.001%	1.0%	FID-1
17	C <sub>2</sub> H <sub>2</sub>	0.001%	1.0%	FID-1
18	trans-C <sub>4</sub> H <sub>8</sub>	0.001%	0.5%	FID-1
19	1-C <sub>4</sub> H <sub>8</sub>	0.001%	0.5%	FID-1
20	i-C <sub>4</sub> H <sub>8</sub>	0.001%	0.5%	FID-1
21	cis-C <sub>4</sub> H <sub>8</sub>	0.001%	0.5%	FID-1
22	i-C <sub>5</sub> H <sub>12</sub>	0.001%	0.5%	FID-1
23	n-C <sub>5</sub> H <sub>12</sub>	0.001%	0.5%	FID-1
24	1,3-C <sub>4</sub> H <sub>6</sub>	0.001%	0.5%	FID-1
25	C <sub>3</sub> H <sub>4</sub>	0.001%	0.5%	FID-1
26	C <sub>6</sub> plus	0.001%	0.5%	FID-1
27	C <sub>6</sub> – C <sub>13</sub>	0.001%	0.5%	FID-2

Concentration range may vary depending on the sample. Please contact us for more consultation.

#### System Features

- Versatile software easy GC system operation
- Enables higher boiling-point hydrocarbons analysis
- Linear response, simplifies calibration

Typical Chromatograms

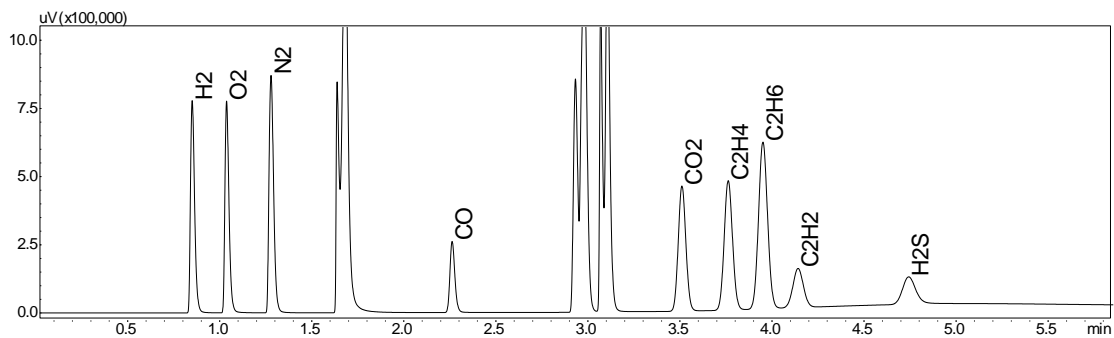


Fig. 1 Chromatogram of BID

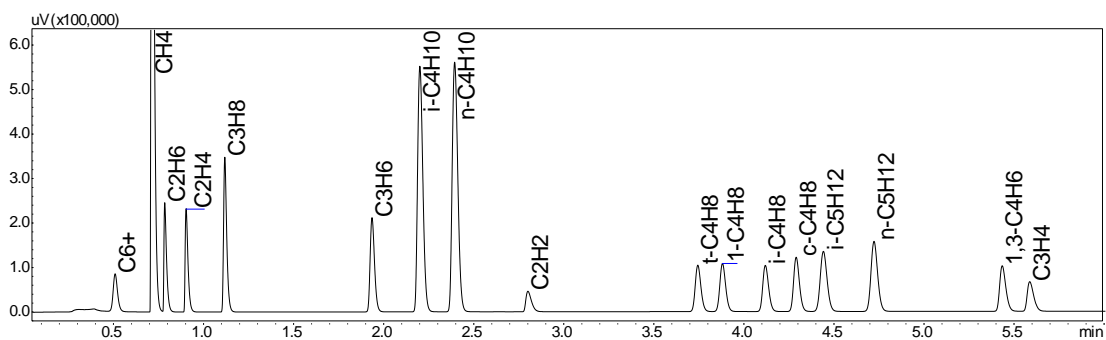


Fig. 2 Chromatogram of FID-1

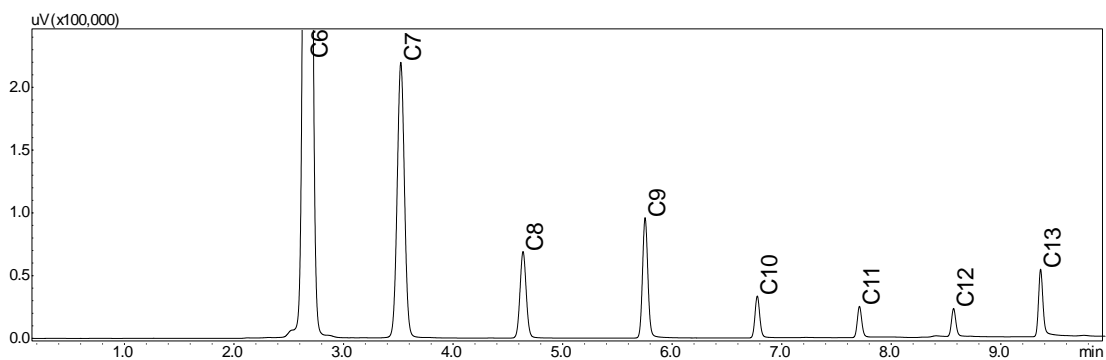


Fig. 3 Chromatogram of FID-2