

# Application Data Sheet

## No. 11

## System Gas Chromatograph

### Sulfur Analyzer Nexis GC-2030PFPD3 GC-2014PFPD3

This method is for determining the sulfide compounds in LPG or LNG using a pulsed flame photometric detector (PFPD) and capillary column. The GS-Pro column is popular for sulfurs analysis. Non-polar columns, such as the Rtx-1, can be also used for sulfurs analysis. When using a Gas-Pro column, absorption of a trace amount of H<sub>2</sub>S is observed. On the other hand, when using a non-polar column, C<sub>3</sub>H<sub>6</sub> and COS elute together. To solve these problems, this system uses two different columns simultaneously for separation of the sulfide compounds. A vaporized gas sample is divided into two sample loops to be injected into both columns. These two columns are combined before PFPD detection. Standard sulfur gas or a permeation source can be used to create a calibration curve. The standard gas and LPG/LNG sample are switched by an automatic sulfinert 6-port valve. LPG/LNG is vaporized by a vaporizer device, and the generated gas moves to the sulfinert sample loops (100 ul) to be injected into the two different columns. The system includes Lab Solutions GC workstation software. This system is applicable for the ASTM-D6228 method.

#### Analyzer Information

##### System Configuration:

Capillary Inlet / Capillary column /  
PFPD detector

##### Sample Information:

Sulfur compounds in light petroleum liquids ,  
such as H<sub>2</sub>S, COS, SO<sub>2</sub>, mercaptans, aromatic  
sulfur compounds and sulfides.

##### Detection Limits:

50 ppb

##### Methods met:

ASTM-D6228

##### Concentration Range:

No.	Name of Compound	Concentration Range	
		Low Conc.	High Conc.
1	H <sub>2</sub> S	0.05ppmV	100ppmV
2	COS	0.05ppmV	100ppmV
3	MeSH	0.05ppmV	100ppmV
4	EtSH	0.05ppmV	100ppmV
5	DMS	0.05ppmV	100ppmV
6	CS <sub>2</sub>	0.05ppmV	100ppmV
7	PrSH	0.05ppmV	100ppmV
8	BuSH	0.05ppmV	100ppmV

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

#### System Features

- Sulfur analysis in light petroleum liquids and gasoline
- Sample lines including injection port inert in order to avoid absorption
- Simultaneously use Rtx-1 and Gas-Pro capillary column for separation of the sulfide compounds
- Vaporized gas sample is divided into two sample loops to be injected to two capillary column
- High selectivity for sulfur
- Equimolar simplifies quantification of unknowns

### Typical Chromatograms

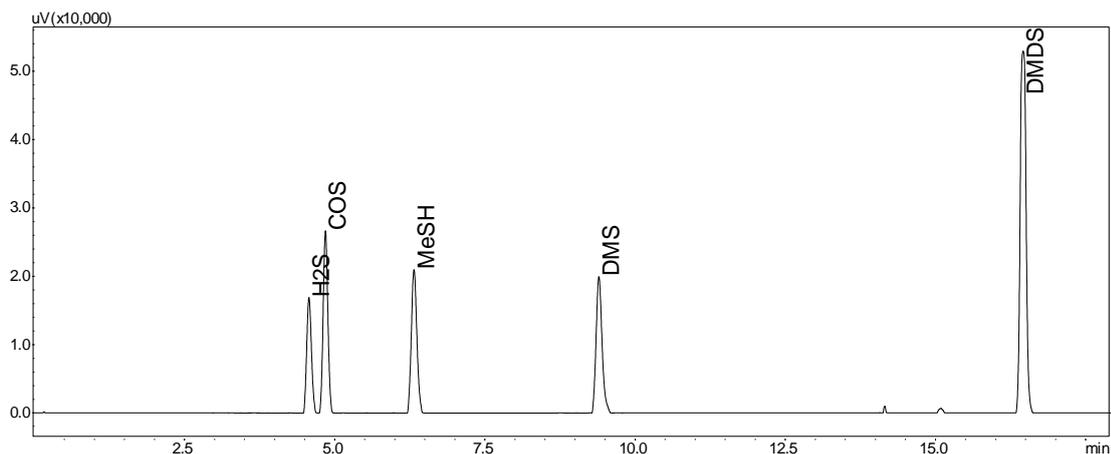


Fig. 1 Chromatogram of Gas-Pro Column

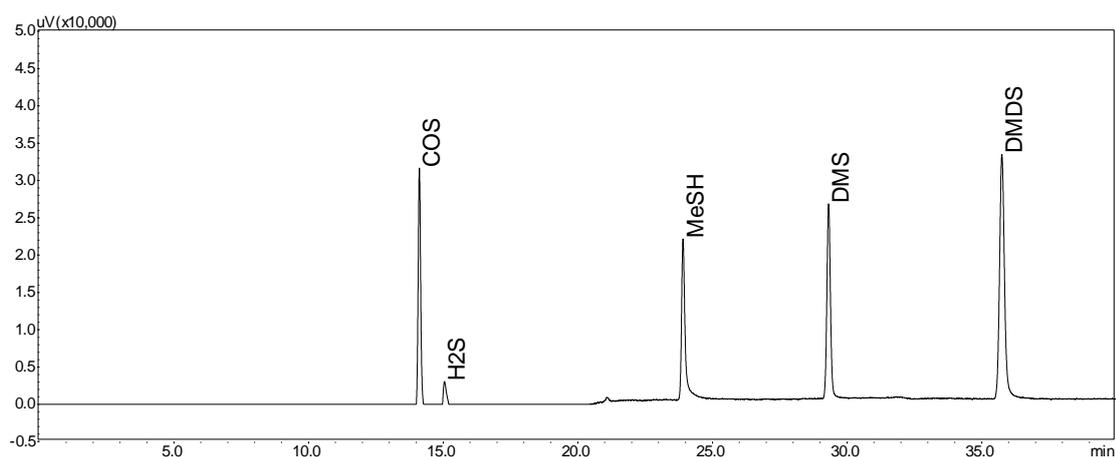


Fig. 2 Chromatogram of Rtx-1 Column