

CHROMA-S APPLICATIONS

1. BEB APPLICATION : Sulphur compounds analysis in natural gas

Analytical conditions:

Carrier gas : Nitrogen (5.5) at 15 ml/min

FPD detector : Air $\approx$ 66 ml/min - Hydrogen $\approx$ 13 + 54 ml/min - Temperature = 130°C

Oven : Carbopack B ; 40 cm ; id=1.6 mm - Type S ; 50 cm ; id=1.6 mm

Temperature: 45 °C

Loop : 500 μ l

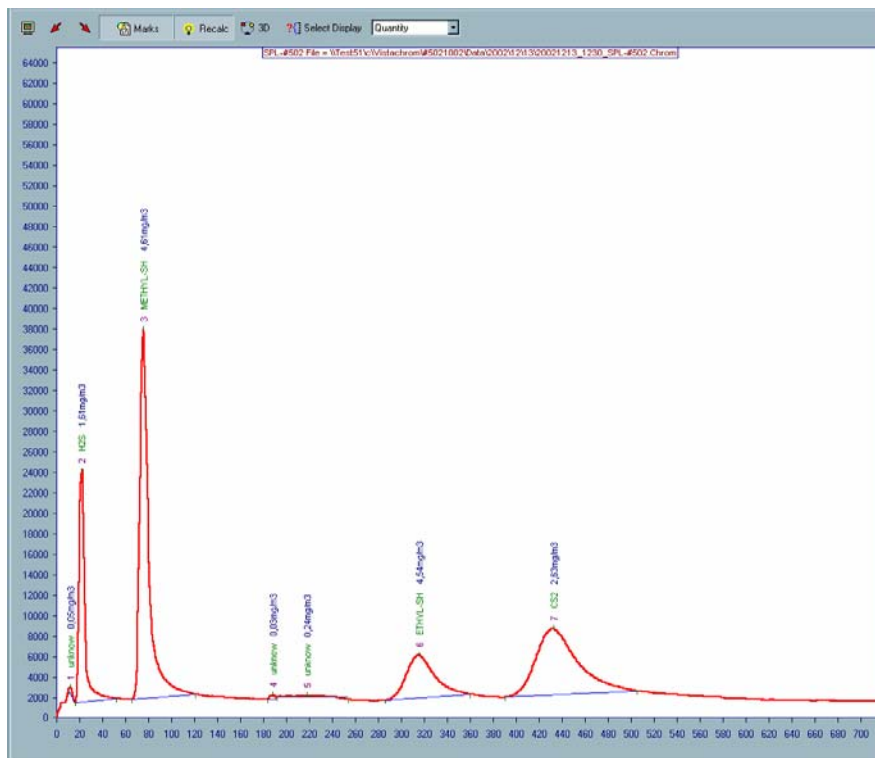
Sampling rate = 10 pts/s - Base Sensitivity = 71734 (on Me-SH)

Program :

- Cycle time : 900 seconds - Acquisition time : 720 seconds
- Sampling time : 0 s - Amplification level : low (1)
- Integration parameters : slope=15; min area=1000 ; drift=25

Sample : H₂S at 1.6 mg/m³, Me-SH at 4.7 mg/m³, Et-SH at 4.7 mg/m³ and CS₂ at 2.6 mg/m³ (+/- 20 %)

Chromatogram :



Ref: Application – 001US- Chroma S/BEB -050107

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Integration report :

	Compound	Retention time	Area	Concentration
1	H2S	22.20 s	136106	1.61 mg/m3
2	Methyl-SH	76.00 s	330559	4.61 mg/m3
3	Ethyl-SH	316.00 s	119377	4.54 mg/m3
4	CS2	433.00 s	273466	2.53 mg/m3

2. GDF APPLICATION : Sulphur compounds analysis in natural gas**Analytical conditions :**

Carrier gas : Nitrogen (5.5) at 25 ml/min

Flame : Air : 85 ml/min

Hydrogen : H₂ (1) = 13 ml/minH₂ (2) = 54 ml/min

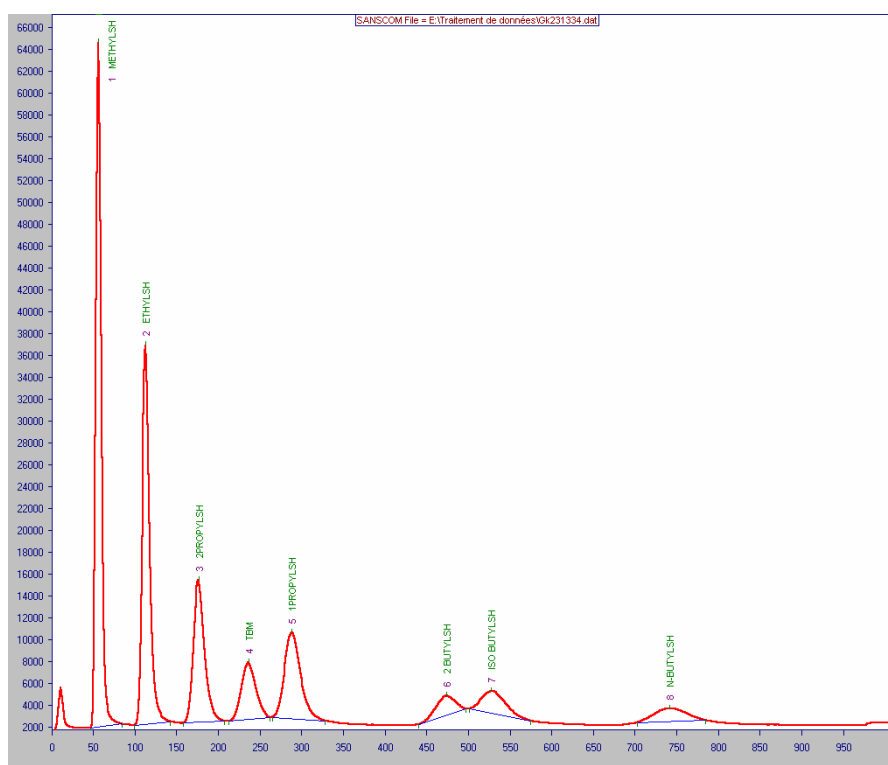
Oven : Columns Type S - temperature 50 °C

Loop : 250 µl

Detector temperature: 120 °C

Acquisition time : 12 min

Cycle time: 15 min & Amplification : middle

Chromatogram :

Ref: Application – 001E- Chroma S/BEB -050107

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Integration report :

	Compound	Retention time (s)	Area	Concentration (mg/m3)
1	Methyl-SH	56040	466756	5.4
2	Ethyl-SH	113.00	360082	5.4
3	2-Propyl-SH	176.40	203221	5.3
4	TBM	236.40	105790	5.1
5	1-Propyl-SH	288.40	176622	5.3
6	2-Butyl-SH	474.40	47002	5.0
7	Iso-Butyl-SH	527.40	67797	5.1
8	N-Butyl-SH	742.00	52727	5.0

3. AIR LIQUIDE APPLICATION : Sulphur compounds analysis in CO2**Analytical conditions:**

Automatic injection of a standard (+/- 10 %) in CO2.

Carrier gas (Nitrogen 5.5) at 20 ml/min.

Oven : Teflon Column, 1/8", Chromosil 310

Column Temperature : 40 °C

FPD supply (air) : 80 ml/min.

FPD supply (H2)1 : 13 ml/min, FPD supply (H2)2:54.2 ml/min.

FPD Temperature : 125 °C, sensitivity : 10-12 A/mV.

Sample flow : 10 ml/min

Loop volume : 250 µl

File name : CO2-2111.CH3 User : DATA

Current date : 22-Sep-97 16:42:00

Acquisition date : 5-Sep-96 8:51:30.

Integration report :

	Name	Retention time (min)	Area	Quantity (ppm)
1	CO2	0.99	67429.5	
2	COS	1.33	3418281.5	23
3	H2S	1.54	2420816	23
4	CS2	3.17	8174677.25	23

Total area of peaks = 14081204.25

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4. INERIS APPLICATION : Sulphur compounds analysis in air

Analytical conditions :

Carrier gas : Nitrogen at 20.5 ml/min (1.2 bar on the head of the column)

Oven : Analytical column : Carbopack B, 60/80 mesh ; 2 m ; 1,6 mm ID -

Temperature : 60 °C

Loop = 2 ml

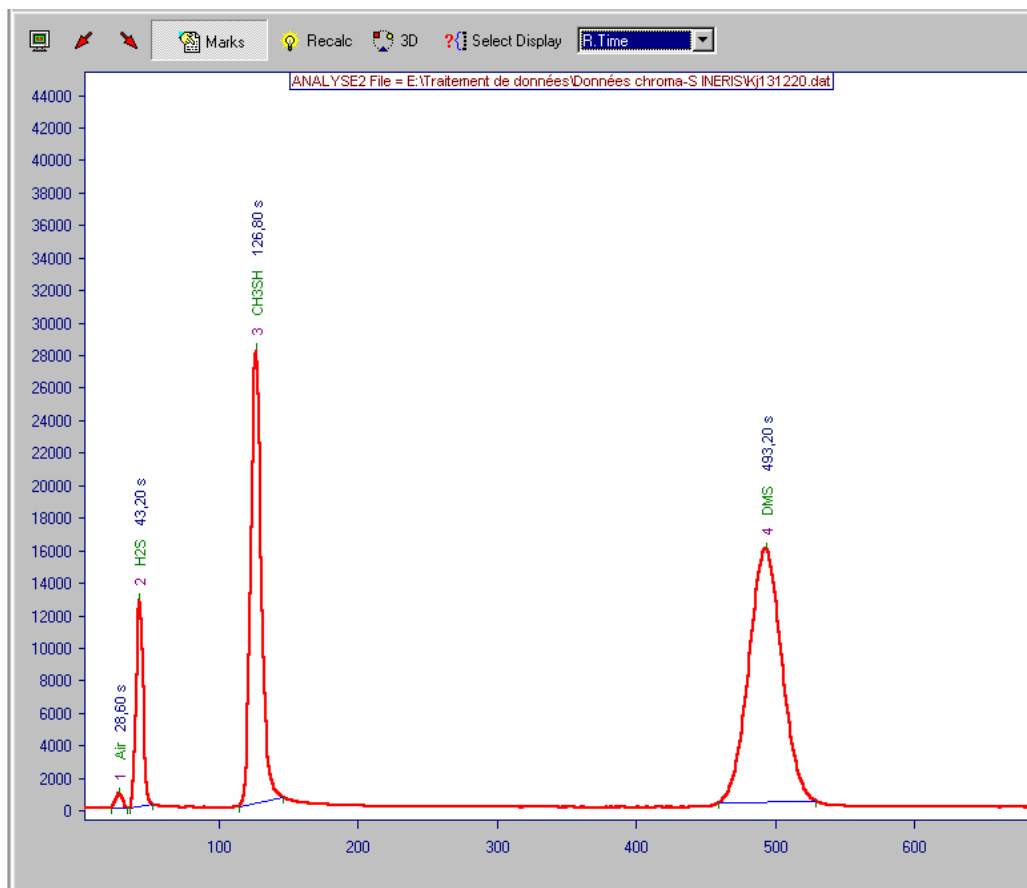
Detector : Air FPD $\approx$ 65 ml/min with 3 bars – Hydrogen (1) FPD $\approx$ 13 ml/min with 2 bars -

Hydrogen (2) FPD $\approx$ 53 ml/min with 2 bars - Temperature = 165°C

SamplingRate=5 - Integration parameters : slope=100 – drift = 50 – Minimum area = 5000

Examples of chromatograms :

- Amplification 1, H2S 190 ppb, MeSH 573 ppb and DMS 890 ppb



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