

Sulfur compounds in light petroleum liquids by GC-SCD according to ASTM D5623

Test method ASTM D5623 covers the determination of volatile sulfur-containing compounds in light petroleum liquids, using gas chromatography and sulfur selective detection. The test method is applicable to the determination of individual sulfur species at levels of 0.1 to 100 mg/kg (as sulfur).

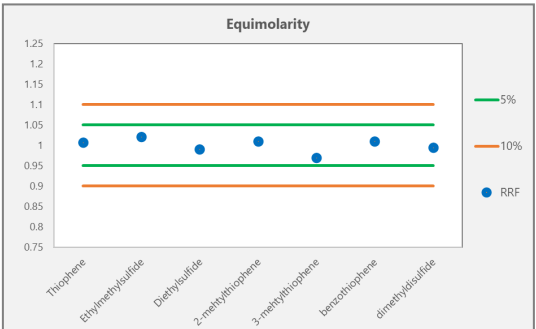
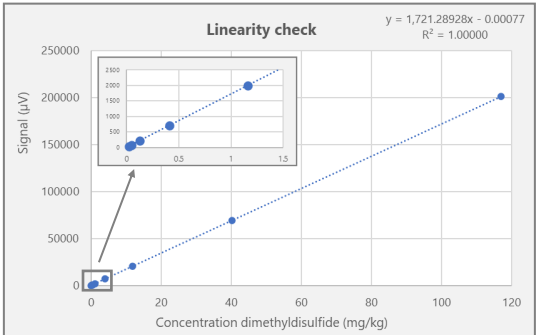
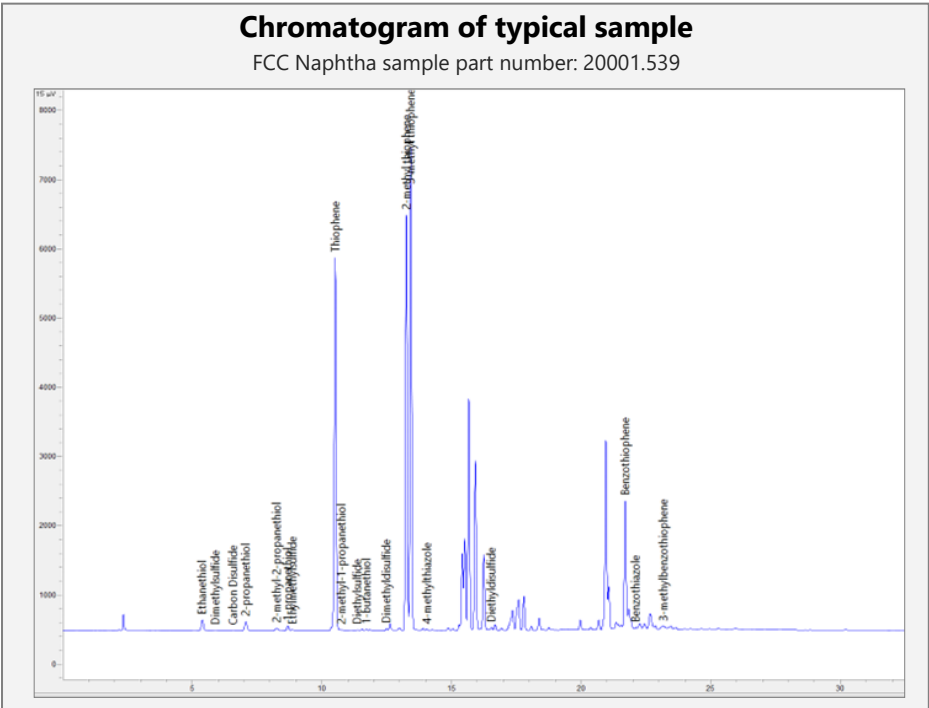
This application highlight shows the performance of the “**AC ASTM D5623 application**” using the SeNSE², and based on external standard quantification.

The analyzer is configured with a S/SL inlet and a 60m methylsilicone capillary column to provide adequate separation of the components of interest without initial cryogenic column cooling.

Below quantitative results are obtained by the use of an external standard calibration technique.



Chromatogram of typical sample
FCC Naphtha sample part number: 20001.539



Repeatability (Thiophene in FCC Naphtha sample)		
run #	peak area (µV)	concentration (mg/kg)
1	26827	22.83
2	26629	22.55
3	26629	22.62
4	26674	22.70
5	26721	22.74
6	26748	22.76
7	26222	22.32
8	26863	22.86
9	26684	22.71
10	26583	22.62
Average		22.67
STDEV		0.15
RSD		0.67%

Conclusion:

This analyzer has been thoroughly tested for compliance to ASTM D5623, and meets and exceeds the method requirements, as shown in the table below:

ASTM D5623		
	method specification	analyzer specification
Range (mg/kg)	0.1 - 100	<0.1 - >100
Detectability (of detector)	5 pg S / sec	< 0.3 pg S / sec (with air as oxidizer)
Equimolar response	< ± 10%	< ± 10%
Linearity	10 ⁴	≥ 10 ⁴

The SeNSE² chemiluminescence detector has an excellent sensitivity, long-term stability and equimolarity. Its great performance, and as part of AC by PAC's factory-tested and performance-guaranteed analyzers, makes it a highly reliable detector for identifying and quantifying individual sulfur components in various light petroleum liquids. This is useful when checking finished products and is often more important than just knowing the total sulfur content.