



Sulfur compounds

Analysis of sulfur compounds in hydrocarbons by selective detection

Application Note

Energy & Fuels

Authors

Agilent Technologies, Inc.

Introduction

The analysis of a wide range of sulfur compounds can be done by using a 0.32 mm x 50 m id fused silica capillary, coated with 5 μm of Agilent CP-Sil 5 CB. The CP-Sil 5 CB phase generates an optimal selectivity for sulfur compounds. This results in a base line resolution between 14 important sulfur compounds which have to be determined in an hydrocarbon matrix. The use of the SCD makes this application possible by direct introduction of the hydrocarbon sample. The hexane solvent peak "elutes" at the same time as propyl mercaptan.



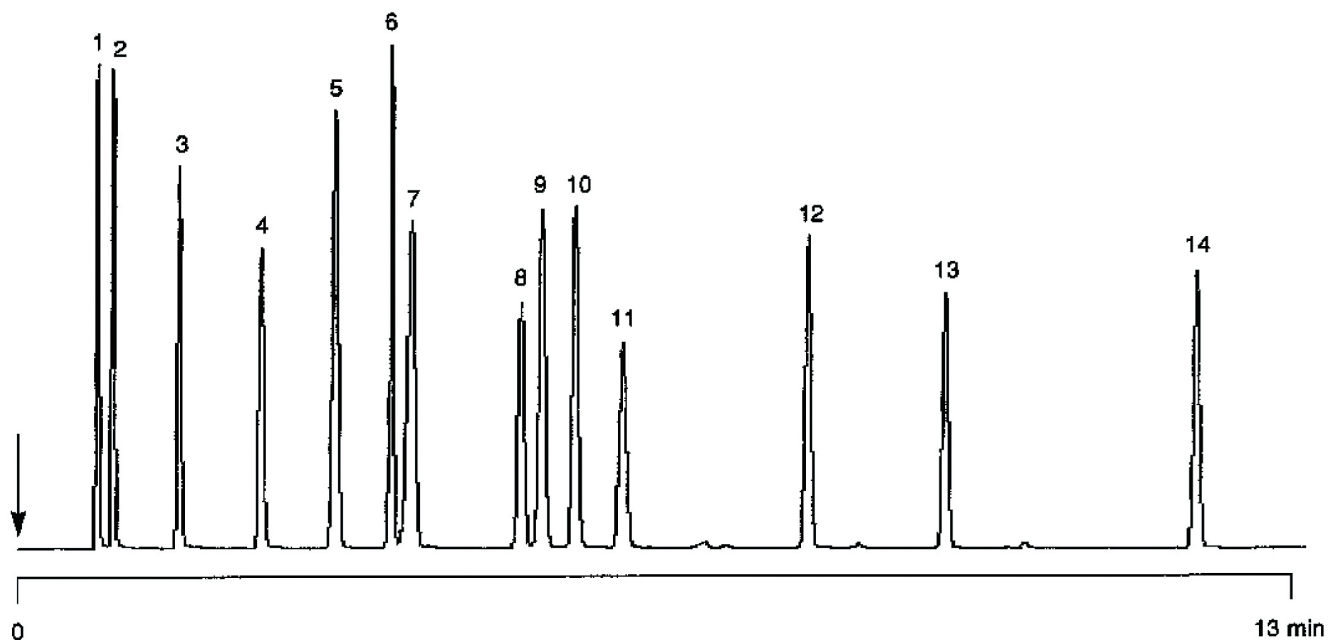
Agilent Technologies

Conditions

Technique : GC-capillary
Column : Agilent CP-Sil 5 CB, 0.32 mm x 50 m fused silica
WCOT CP-Sil 5 CB (df = 5 µm) (Part no. CP7690)
Temperature : 100 °C (2 min) → 270 °C, 15 °C/min
Carrier Gas : He, 70 kPa (0.7 bar, 10 psi)
Injector : Valve into split 1:10
T = 250 °C
Detector : SCD Sievers
Sample Size : 1 µL
Concentration Range : 50 ppm
Solvent Sample : hexane

Peak identification

1. hydrogen sulfide
2. carbonyl sulfide
3. methanethiol (methyl mercaptan)
4. ethanethiol (ethyl mercaptan)
5. 2-propanethiol (isopropyl mercaptan)
6. 2-methyl-2-propanethiol (tert-butyl mercaptan)
7. propanethiol (propyl mercaptan) (+ hexane)
8. 1-methyl-1-propanethiol (sec-butyl mercaptan)
9. 2-methyl-1-propanethiol (isobutyl mercaptan)
10. ethyl sulfide
11. 2-methyl-2-butanethiol (tert-pentyl mercaptan)
12. pentanethiol (pentyl mercaptan)
13. propyl sulfide
14. heptanethiol (heptyl mercaptan)



www.agilent.com/chem

This information is subject to change without notice.

© Agilent Technologies, Inc. 2011

Printed in the USA

31 October, 2011

First published prior to 11 May, 2010

A01349



Agilent Technologies