Sulfur compounds

Analysis of thiophene in benzene

Application Note

Energy & Fuels

Authors

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Introduction

Thiophene is often present in light hydrocarbon fractions, which are distilled from coal tar. The majority of thiophene is removed from the benzene fraction by washing with sulfuric acid, but traces will remain. The analysis of low concentrations thiophene in benzene is necessary as it is a building block for many other aromatic chemicals. By using selective detection with SCD it is possible to detect only the sulfur compounds. For the best results any quenching (coelution of sulfur compound with hydrocarbon) must be prevented. This is done by choosing the right selectivity analytical column. An Agilent CP-Wax 52 CB column provides the required selectivity and elutes thiophene down to ppb levels.

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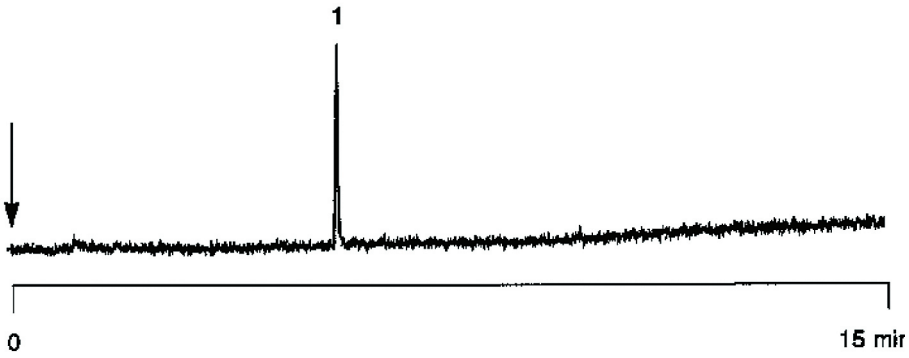
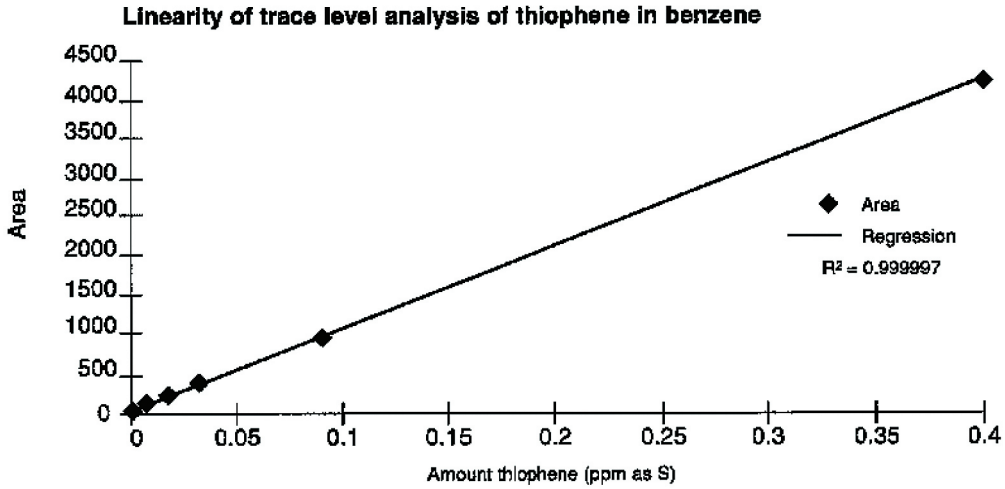
Conditions

Technique	:	GC-capillary
Column	:	Agilent CP-Wax 52 CB, 0.32 mm x 25 m fused silica WCOT CP-Wax 52 CB (df = 1.2 µm) (Part no. CP7763)
Temperature	:	30 °C (2 min) → 125 °C, 10 °C/min
Carrier Gas	:	He, 2 mL/min constant flow
Injector	:	Split, 1:10, T = 250 °C
Detector	:	SCD 355, Sievers
Sample Size	:	1.0 µL
Concentration Range	:	11 ppb
Solvent Sample	:	benzene
Courtesy	:	P.C.Loran, Sievers, Colorado, USA

Peak identification

1. thiophene





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