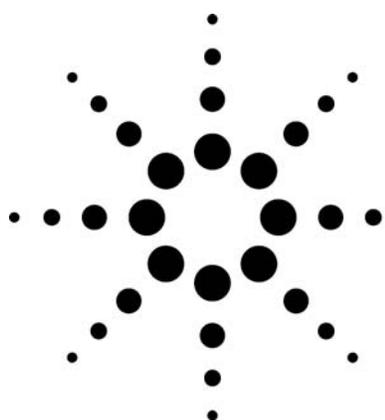


Agilent 355 Sulfur Chemiluminescence Detector (355 SCD): Separation of Carbonyl Sulfide and Hydrogen Sulfide



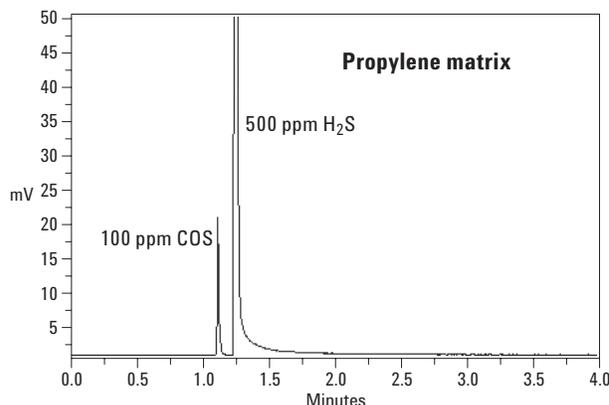
Technical Overview

Introduction

The Agilent 355 Sulfur Chemiluminescence Detector (SCD), in conjunction with the J&W GasPro silica-PLOT column for separation, can be used to detect trace levels of carbonyl sulfide (COS) in the presence of very high concentrations of hydrogen sulfide (H₂S).

Hydrogen and carbonyl sulfides are common sulfur gases. Their determination in gaseous samples, such as natural gas or various gaseous streams involved in sulfur recovery, is very important. H₂S and COS are readily separated on thick-film methyl silicone capillary columns, when present at nominal concentration levels. It is difficult, however, to separate and detect trace levels of COS in appreciably higher levels of H₂S because COS is eluted on the tail of H₂S (in the order of their boiling points). In some cases, cryogenic cooling of the column may help improve the separation, but when the level of H₂S is more than 100 to 500 times higher than COS, cryogenic cooling provides no benefit.

A solution to this difficult separation problem is to use a J&W GasPro silica-PLOT column. COS is eluted prior to H₂S without the use of cryogenics. The following chromatogram illustrates the successful separation and detection of trace COS and a high level of H₂S in a propylene matrix using a J&W GasPro column in conjunction with an Agilent 355 SCD.



Chromatographic Conditions

Injector temperature:	120 °C
Initial temperature:	50 °C (isothermal)
Injection type:	Splitless
Injection volume:	1 mL
Column type:	J&W GasPro
Column length:	15 m
Internal diameter:	0.32 mm
Head pressure:	5 psig

For More Information

For more information on our products and services, visit our Web site at www.agilent.com/chem.



Agilent shall not be liable for errors contained herein or for incidental or consequential damages in connection with the furnishing, performance, or use of this material.

Information, descriptions, and specifications in this publication are subject to change without notice.

© Agilent Technologies, Inc. 2007

Printed in the USA
June 5, 2007
5989-6784EN