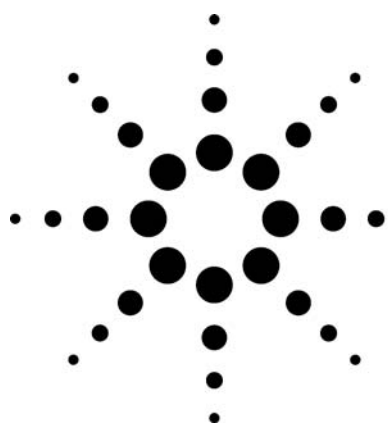


# Agilent 355 Sulfur Chemiluminescence Detector (355 SCD): Separation of Carbonyl Sulfide and Hydrogen Sulfide



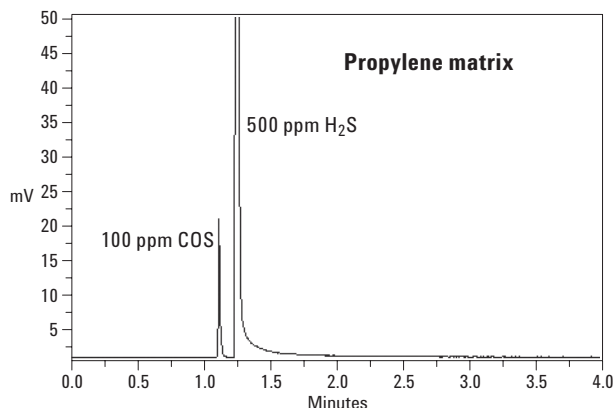
## Technical Overview

### 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 (H<sub>2</sub>S).

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. H<sub>2</sub>S 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 H<sub>2</sub>S because COS is eluted on the tail of H<sub>2</sub>S (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 H<sub>2</sub>S 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 H<sub>2</sub>S without the use of cryogenics. The following chromatogram illustrates the successful separation and detection of trace COS and a high level of H<sub>2</sub>S 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

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