Low ppm Level Sulfur Dioxide Analysis in Air Using the Agilent 490 Micro GC

Application Note

Micro Gas Chromatography, Environmental Analysis, Sulfur Analysis

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Introduction

Sulfur dioxide is a toxic gas with a pungent, irritating, and rotten smell. It is a naturally occuring compound, and is found in the atmosphere in low ppb levels. However, sulfur dioxide is a major air pollutant, and has significant impacts upon human health. Sulfur dioxide is primarily produced from the combustion of elemental sulfur for the manufacturing of other chemicals such as sulfite salts, sulfuryl halides, and sulfuric acid. It could also be used as a preservative for dried fruits and as a reducing agent.

This application note demonstrates the low ppm-level analysis of sulfur dioxide (SO_2) in ambient air using the Agilent 490 Micro GC. Using a CP-Sil 19 CB column type, SO_2 is separated from the air matrix, which consists mainly of oxygen, nitrogen, carbon dioxide, and moisture.

The 490 Micro GC delivers lab-quality separations in an ultra-compact, portable instrument. The use of micro-machined parts (MEMS-based) results in fast analysis. The total analysis is done in 40 seconds. The 490 Micro GC generates more data in less time for faster and better business decisions.

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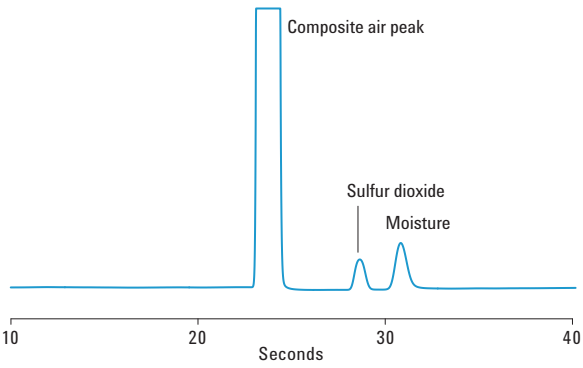
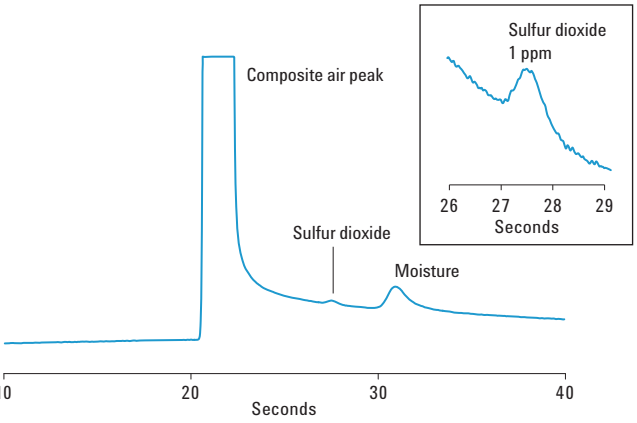
Instrumentation

Instrument	Agilent 490 Micro GC (G3581A)
Column channel	CP-Sil 19 CB, 6 meter
Column temperature	40 °C
Carrier gas	Helium, 100 kPa
Injection time	200 msec

Chromatogram – 150 ppm



Chromatogram – 1 ppm



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