Restek GC

Rt-XLSulfur Packed Column

Specialized packed and micropacked columns for e**X**tra-**L**ow **S**ulfur analysis

- Optimized columns for low ppbv sulfur analyses.
- Eliminate the need for PTFE tubing.
- Columns are Sulfinert treated for maximum inertness.
- Maximum temperature of 290 °C.

RESTEK Pure Chromatography www.restek.com

Rt-XLSulfur Packed Column

Restek's Rt-XLSulfur column is the second generation of packing material for the analysis of sulfur compounds. The packing material in the original Rt-Sulfur column had inertness characteristics for low ppmv levels of sulfur compounds. Now, with the second generation, our innovative Rt-XLSulfur column, it is possible to achieve low ppbv detection of sulfur compounds.

What is the Rt-XLSulfur column?

Rt-XLSulfur packed and micropacked columns are designed for ppb-level sulfur analysis. Every component of the sample pathway is treated to provide the highest degree of inertness for reactive, low-level sulfur compounds. The porous polymer phase features a unique surface modification, which results in excellent peak symmetry and thermal stability to 290 °C.

What are the benefits to using Restek's Rt-XLSulfur column?

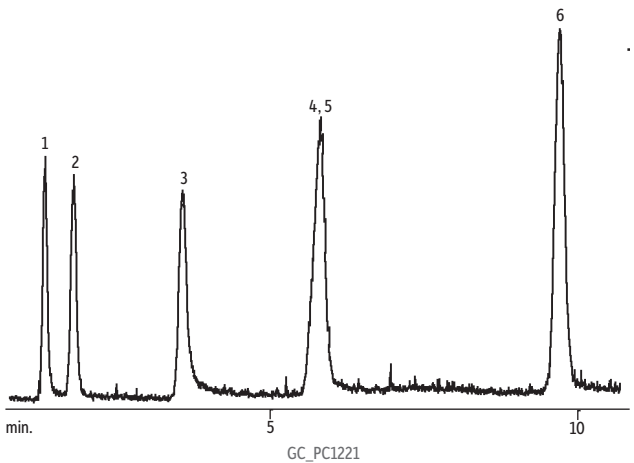
The Rt-XLSulfur column combines a packing material surface deactivation with Sulfinert tubing to yield unsurpassed inertness and high thermal stability for highly reactive sulfur compounds. The Rt-XLSulfur column offers the most reliable, reproducible analyses for low ppb level sulfur samples.

For which applications should I use an Rt-XLSulfur column?

The high performance and reproducibility of the Rt-XLSulfur column enables resolution and quantitation of COS, H_2S, SO_2, CH_3SH, and $(CH_3)_2S_2$ at low ppb concentrations. These sulfur compounds typically are found in pulp mill byproducts, natural gas, and petroleum products.

Figure 1: The Rt-XLSulfur column analyzes 50 ppb levels of sulfur compounds, providing low bleed and good symmetry.

Peaks
1. Hydrogen sulfide
2. Carbonyl sulfide
3. Methyl mercaptan
4. Ethyl mercaptan
5. Dimethyl sulfide
6. Dimethyl disulfide



GC_PC1221

Column	Rt-XLSulfur, 1 m, 0.75 mm ID (cat.# 19806)
Sample	
Conc.:	1 mL of 50 ppbv each sulfur compound
Injection	sample valve
Oven	
Oven Temp:	60 °C to 230 °C at 15 °C/min.
Carrier Gas	He, constant flow
Flow Rate:	9 mL/min.
Detector	SCD

Features & Benefits

Feature	Benefit
Sulfinert tubing	Unsurpassed inertness towards sulfur compounds. Lowest level of detection for sulfur compounds. Rugged metal column.
Improved packing	Minimal adsorption of sulfur compounds. Excellent response for sulfur compounds.
290 °C thermal stability	Minimal column bleed, short conditioning times. Improved detector sensitivity with SCDs and FPDs.
Guaranteed	Column-to-column reproducibility.

Commonly Asked Questions

- **What is Sulfinert treatment?**

  Sulfinert treatment is a metals passivation coating for low-level sulfur storage and transfer. The Sulfinert coating is rugged, durable, and thermally stable to 360 °C. Like Silcosteel treatment, Sulfinert coating is incorporated into the framework of atoms on the surface of stainless steel. Holding studies have proven Sulfinert coating to be non-adsorptive and unreactive to low ppb levels of sulfur compounds.

- **What is the Rt-XLSulfur column made of?**

  The Rt-XLSulfur column is made with Sulfinert tubing and is packed with a porous polymer having a unique surface modification that results in excellent inertness to ppb levels and thermal stability to 290 °C.

- **What other areas should be addressed to improve the response of sulfur compounds?**

  To achieve the highest degree of inertness for ppb-level sulfur analysis, each part of the sample pathway must be optimized. In addition to the Rt-XLSulfur analytical column, we also recommend deactivation of the inlet system. The use of Sulfinert sample cylinders, sample loops, and transfer line tubing will provide ultra-high sensitivity and reproducibility for low-level sulfur analysis.

For More Information on Sulfur Analysis:

Visit **www.restek.com** and download these free application notes.

Rt-XLSulfur Packed GC Column for Analysis of Low-Level Sulfur Compounds in C1-C6 Hydrocarbon Streams
(lit. cat.# PCAN1498-UNV)

Analyze Sulfur Compounds at ppb Levels, Using an Rt-XLSulfur Micropacked GC Column or an Rtx-1 Thick Film Capillary GC Column
(lit. cat.# PCAN1499-UNV)

Rt-XLSulfur Columns (packed & micropacked)

- Optimized columns for low ppbv sulfur analyses.
- Eliminate the need for PTFE tubing.
- Columns are Sulfinert treated for maximum inertness. Sulfinert-treated end fittings are sold separately.
- Maximum temperature of 290 °C.

19805

Sulfur analyses are traditionally performed using PTFE tubing to improve column inertness. Unfortunately, PTFE tubing is gas permeable, difficult to pack with high efficiency, prone to shrinkage, and has poor thermal stability. The Rt-XLSulfur packed or micropacked column eliminates these problems. The packing material for Rt-XLSulfur columns is extensively deactivated for analysis of low ppbv levels of hydrogen sulfide and methyl mercaptan. It is then treated to achieve effective separation of hydrocarbons from sulfur compounds. The interior wall and the end fittings of the Rt-XLSulfur column are Sulfinert treated, making the column as inert as PTFE. The extra care taken to manufacture this column ensures more accurate analyses of sulfur compounds.

Description	Mesh	ID	OD	Length	Column Config	qty.	cat.#
Rt-XLSulfur Micropacked Column	100/120	1.00 mm	1/16"	1 m		ea.	19804
	100/120	1.00 mm	1/16"	2 m		ea.	19805
	100/120	0.75 mm	0.95 mm	1 m		ea.	19806
	100/120	0.53 mm	0.74 mm	2 m		ea.	19044
	100/120	0.75 mm	0.95 mm	2 m		ea.	19807
Rt-XLSulfur Packed Column	100/120	2.0 mm	1/8"	1 m	General	ea.	80484-800
	100/120	2.0 mm	1/8"	1 m	Agilent	ea.	80484-810
	100/120	2.0 mm	1/8"	2 m	General	ea.	80485-800
	100/120	2.0 mm	1/8"	2 m	Agilent	ea.	80485-810

Note: Columns do not include column nuts and ferrules. Optional installation kits can be ordered separately.

Column Configuration Key:
-800 General—General Configuration
-810 Agilent—(HP) 5880, 5890, 5987, 6890, 7980
-820 Scion (Bruker 430, 450) (Varian 3700, Vista Series, FID)
-830 PE/Sigma—PE 900-3920, Sigma 1, 2, 3
-840 PE Auto Sys—PE Auto System 8300/8400/8700, Clarus 500
-850 Shimadzu 14A—Shimadzu 14A, 2014
Other column configurations available.

Custom packed and micropacked columns also available by request.
Note: Initial 2" of column will be empty to accommodate a needle. For a completely filled column add suffix -901.
Agilent configuration also includes 1 1/2" void on detector side.

Learn more at **www.restek.com**

RESTEK
Pure Chromatography

Questions? Contact us or your local Restek representative (www.restek.com/contact-us).

www.restek.com

Lit. Cat.# PCSS1500B-UNV