

Permanent Gases & Hydrocarbon Analysis

it's a fact

ShinCarbon ST is an ideal packing material for permanent gases, low molecular weight hydrocarbons, sulfur dioxide, and Freon® gases.

also available

For adapter kits for installing packed/micropacked columns, see [page 119](#).

a plus 1 story

"Being one of the first labs to utilize the ShinCarbon column in a real working environment, I was pleased to find that I was able to do all my permanent gas analysis on one column instead of the customary two. The peaks were sharper than I had experienced in the past and run time was significantly reduced. We are extremely pleased with the performance of the ShinCarbon column and will continue to find even more applications for it."

Bruce Nasser,
Quality Control Chemist,
Oxygen Service Spec Lab

ShinCarbon ST Packed/Micropacked Columns

- Separate permanent gases, including CO/CO₂, without cryogenic cooling.
- Rapid separations of permanent gas/light hydrocarbon mixtures.
- Excellent compatibility with most GC detectors—minimal bleed, minimal baseline rise.
- Preconditioned, less than 30 minutes to stabilize.

Analyze oxygen, nitrogen, methane, carbon monoxide, and carbon dioxide with one column and at room temperature. ShinCarbon ST material, a high surface area carbon molecular sieve (~1500 m²/g), is the ideal medium for separating gases and highly volatile compounds by GSC. The rapid, above-ambient analyses these columns provide will be a great convenience. Excellent thermal stability of the high surface area carbon, combined with careful conditioning during column manufacturing, ensures low-bleed operation and rapid stabilization when installing a new column. Custom-made ShinCarbon ST columns are available on request.

ShinCarbon ST is a highly stable material. Its 330°C upper temperature limit minimizes bleed and baseline rise during temperature programming, making the material compatible with most detection systems used for gas analysis, including TCD or HID. All ShinCarbon ST columns are fully conditioned in an oxygen/moisture free environment to prevent contamination. This minimizes stabilization time (less than 30 minutes) when installing a new column which, in turn, minimizes downtime.

ShinCarbon ST 80/100 Packed Columns (SilcoSmooth™ Stainless Steel)

OD	ID	2-Meter*
1/8" Silcosmooth™	2.0mm	80486-

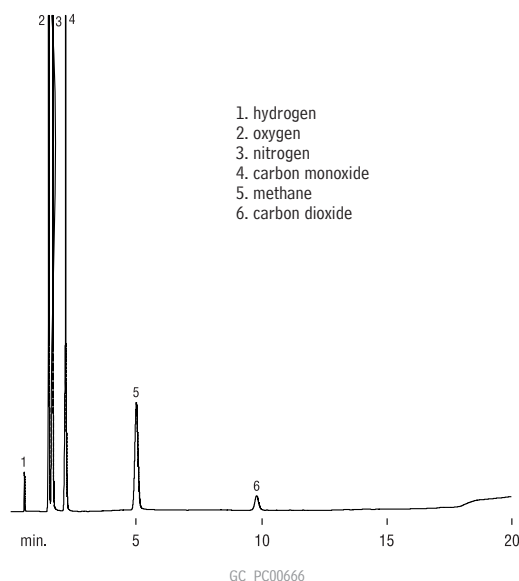
ShinCarbon ST 100/120 Micropacked Columns**

OD	ID	1-Meter	2-Meter
1/16"	1.0mm	19809	19808
0.95mm	0.75mm	19810	—

*Please add column instrument configuration suffix number to cat.# when ordering. See chart on the next page.

**Order installation kit separately. See page 119.

Separate permanent gases in 10 minutes, without cryogenics.



1. hydrogen
2. oxygen
3. nitrogen
4. carbon monoxide
5. methane
6. carbon dioxide

ShinCarbon ST 100/120 mesh
2 meter x 1mm ID micropacked (cat.# 19808)
Sample: 5µL permanent gases mix, approx.
5 mol. percent each
Inj. temp.: 100°C
Carrier gas: helium
Flow rate: 10mL/min.
Oven temp.: 40°C (hold 3 min.) to 250°C
@ 8°/min. (hold 10 min.)
Det. HID @ 200°C

please note

For additional example applications for ShinCarbon ST columns, see [pages 682, 684, and 686](#) in the Applications section.

Rt™-XLSulfur Packed/Micropacked Columns

- Optimized columns for low ppbv sulfur analyses.
- Eliminate the need for Teflon® tubing.
- Column and end-fittings are Siltek® treated for maximum inertness.

Sulfur analyses are traditionally performed using Teflon® tubing to improve column inertness. Unfortunately, Teflon® tubing is gas permeable, difficult to pack with high efficiency, prone to shrinkage, and has poor thermal stability. Analyses of ppbv levels of sulfur compounds are possible with the Rt™-XLSulfur column. 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 Siltek® treated, making the column as inert as Teflon®. The extra care taken with this column ensures more accurate analyses of sulfur compounds.

Rt™-XLSulfur Packed Columns

OD	ID	1-Meter*	2-Meter*
1/8"	2.0mm	80484-	80485-
3/16"	3.1mm	80482-	80483-

Rt™-XLSulfur Micropacked Columns**

OD	ID	1-Meter	2-Meter
1/16"	1.0mm	19804	19805
0.95mm	0.75mm	19806	19807

*Please add column instrument configuration suffix number to cat.# when ordering. See chart on this page.

**Order installation kit separately. See page 119.

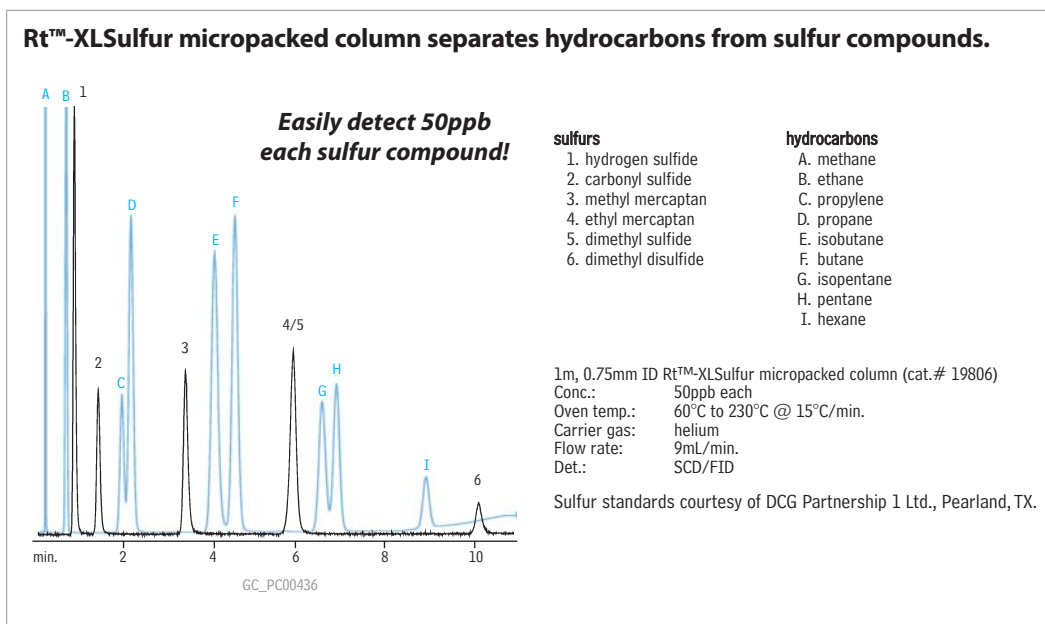
Excellent for
Sulfur Analysis

did you **know**?

Rt™-XLSulfur columns are optimized for low ppb-level sulfur analysis!

also **available**

For adapter kits for installing packed/micropacked columns, see **page 119**.




Column Instrument Configurations

 General Configuration
Suffix -800

 Agilent 5880, 5890, 5987, 6890:
Suffix -810

 Varian 3700, Vista Series, FID:
Suffix -820

 PE 900-3920
8 3/4" Sigma 1,2,3:
Suffix -830

 PE Auto System 8300, 8400, 8700 (Not On-Column):
Suffix -840

See page 129 for custom configurations

Note: Initial 2" of column will be empty, to accommodate a needle. For a completely filled column (not on-column) add suffix -901.

Micropacked Columns

Micropacked Columns

- Increased efficiency over traditional packed columns.
- Higher capacity than PLOT columns.
- Made from inert, flexible Siltek®-treated stainless steel tubing.
- Siltek®-treated, braided-wire end plug keeps packing intact, even under intense pressure surges during valve switching.
- Wide range of packings available.
- 100/120 mesh particles (molecular sieves are 80/100 mesh).

also available

For adapter kits for installing micropacked columns, see page 119.

Efficient, inert, and flexible

Micropacked columns are highly efficient and provide good sample capacity. With our inert Siltek® treatment, micropacked columns are a powerful tool for solving many difficult application problems. Because the Siltek® treatment permeates the stainless steel surface, the column can be flexed and coiled without any fear of chipping or cracking the inert surface.

Easy to install—multiple internal diameters

Our micropacked columns are designed to fit packed and capillary injection systems. 1mm ID, standard wall (1/16-inch OD) micropacked columns offer improved efficiency in packed column instruments, without the expense of converting to capillary injection systems. 0.75mm ID, thin wall (0.95mm OD) micropacked columns install easily into a capillary injector, using slightly larger ferrules. Micropacked columns operate at flows exceeding 10cc/min., for trouble-free operation.

did you know?

All micropacked columns are made with inert SilcoSmooth™ tubing, see page 111.

Braided wire end plugs

Glass wool end plugs can be dislodged easily by carrier gas pressure surges. Restek's chemists insert braided wire into the column and secure it by making a small crimp near the column outlet. End plugs are Siltek® treated—the sample contacts only inert surfaces.

Micropacked Columns

		ID	OD	Temp. Range	0.56-Meter	
20% TCEP on 80/100 Chromosorb® PAW						
		0.75mm	1/16"	0–120°C	19040	
	Mesh	ID	OD	Temp. Range	1-Meter	2-Meter
HayeSep® R	100/120	0.75mm	0.95mm	up to 250°C	19014	19015
HayeSep® R	100/120	1.00mm	1/16"	up to 250°C	19012	19013
HayeSep® Q	100/120	0.75mm	0.95mm	up to 275°C	19018	19019
HayeSep® Q	100/120	1.00mm	1/16"	up to 275°C	19016	19017
HayeSep® N	100/120	0.75mm	0.95mm	up to 165°C	19022	19023
HayeSep® N	100/120	1.00mm	1/16"	up to 165°C	19020	19021
HayeSep® S	100/120	0.75mm	0.95mm	up to 250°C	19010	19011
HayeSep® S	100/120	1.00mm	1/16"	up to 250°C	19008	19009
Molesieve 5A	80/100	0.75mm	0.95mm	up to 300°C	19002	19003
Molesieve 5A	80/100	1.00mm	1/16"	up to 300°C	19000	19001
Molesieve 13X	80/100	0.75mm	0.95mm	up to 350°C	19006	19007
Molesieve 13X	80/100	1.00mm	1/16"	up to 350°C	19004	19005

also available

0.53mm ID micropacked columns. Please contact Technical Service for more information.

Searching for a product?

Don't see the column you need?

Contact our Technical Service team at 800-356-1688 or 814-353-1300, ext. 4, or contact your Restek representative, to obtain the column needed for your application.