

# Above-Ambient GSC Analysis of Permanent Gases and Light Hydrocarbons

## Using ShinCarbon ST Micropacked Columns

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- Rapid separations, including CO/CO<sub>2</sub>, without cryogenics.
- Minimal baseline rise with GC/GSC detectors.
- Fast stabilization - ready to use in 30 minutes.

ShinCarbon ST, a high surface area carbon molecular sieve (~1500 m<sup>2</sup>/g), is the GSC medium of choice for gases and highly volatile compounds. A 2-meter, 1mm ID ShinCarbon ST micropacked column separates the permanent gases in about 10 minutes, without cryogenic cooling (Figure 1), and separates permanent gas / light hydrocarbon mixtures quickly and effectively (Figure 1). Additional applications for ShinCarbon ST include natural gas (Figure 2), sulfur dioxide, and Freon® fluorocarbons (Figure 3).\*

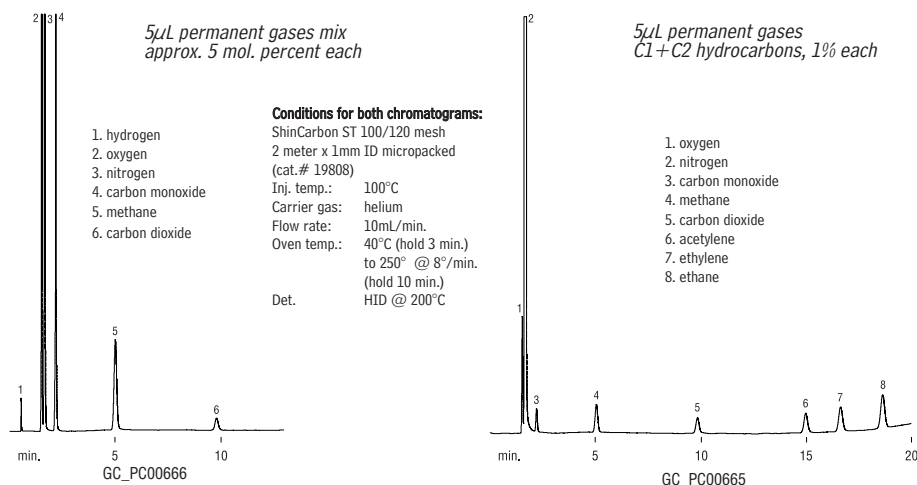
ShinCarbon ST is highly stable. A 330°C upper temperature limit ensures minimal bleed and baseline rise during temperature programming and makes the material compatible with most

detection systems used for gas analysis, including TCDs and HIDs. ShinCarbon ST columns are conditioned in an oxygen/moisture free environment to minimize stabilization time (less than 30 minutes) when installing a new column.

ShinCarbon ST columns eliminate the temperature and bleed problems that can complicate analyses of permanent gases, light hydrocarbons, and other highly volatile compounds, and provide excellent resolution and analysis times for these applications. Micropacked columns and 2-meter, 2mm ID packed columns are available from stock; custom columns are available on request.

**Figure 1**

Rapidly separate permanent gases or permanent gas / light hydrocarbon mixtures, without cryogenic cooling, on a ShinCarbon ST micropacked column.



### ShinCarbon ST 100/120 Micropacked Columns (Silcosteel®-treated stainless steel)

| OD     | ID     | 1-Meter | 2-Meter |
|--------|--------|---------|---------|
| 1/8"   | 1.0mm  | 19809   | 19808   |
| 0.95mm | 0.75mm | 19810   | —       |

### ShinCarbon ST 80/100 Packed Columns (Silcosteel®-treated stainless steel)

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

### Installation Kits for Micropacked Columns

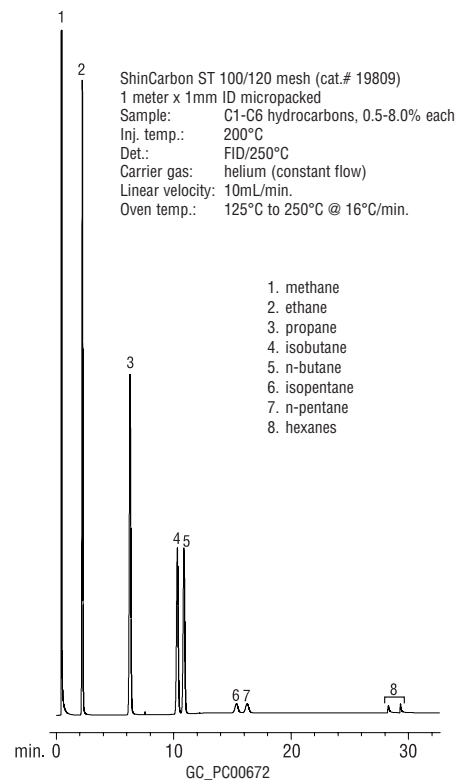
|                        | for 0.75mm ID col. | for 1mm ID col. |
|------------------------|--------------------|-----------------|
| For valve applications | 21062              | 21065           |
| For split applications | 21063              | —               |
| For all Agilent GCs    | 21064              | —               |
| For direct injections  | —                  | 21066           |



Refer to our catalog or website for Scotty gas standards for permanent gases and light hydrocarbons

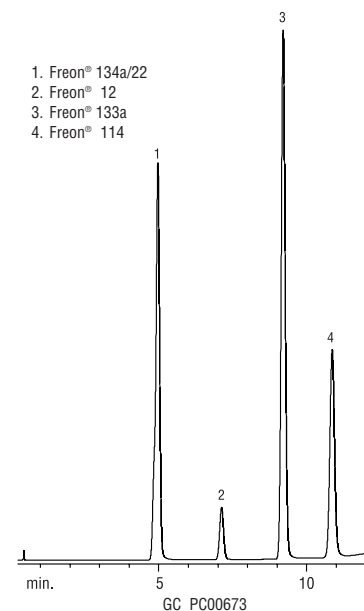
**Figure 2**

Monitor components of natural gas on a ShinCarbon ST micropacked column.



**Figure 3**

Fluorocarbons separated in 11 minutes on a ShinCarbon ST column.



ShinCarbon ST 100/120 mesh (cat.# 19809)  
 1 meter x 1mm ID micropacked  
 Sample: 5µL, ~1-3% each  
 Inj. temp.: 200°C  
 Det.: FID/250°C  
 Carrier gas: helium  
 Linear velocity: 10mL/min.  
 Oven temp.: 125°C to 320°C @ 16°C/min.

\*For a chromatogram of a sulfur dioxide analysis, visit our website or request publication 59519A.

\*\* Refer to our catalog or website for available configurations.