

Freone – immer wieder aktuell

Freone wurden auf einer unpolaren Dickfilmsäule oder auch auf Resteks speziell deaktivierter Rt-Alumina BOND/CFC (http://www.restek.com/pdfs/PIN11_APRIL_CFC-ALUMINA.pdf) analysiert. Eine neue interessante Möglichkeit mit sehr guter Peakform und Selektivität eröffnet sich mit der Rt-Silica BOND - die wasserunempfindliche, stabil gecoatete und inerte BOND Säule mit einer Tmax von 260°C und ebenso einsetzbar für die Analyse aktiver ungesättigter Kohlenwasserstoffe und CO₂.

NEW! Rt[®]-Silica BOND Columns

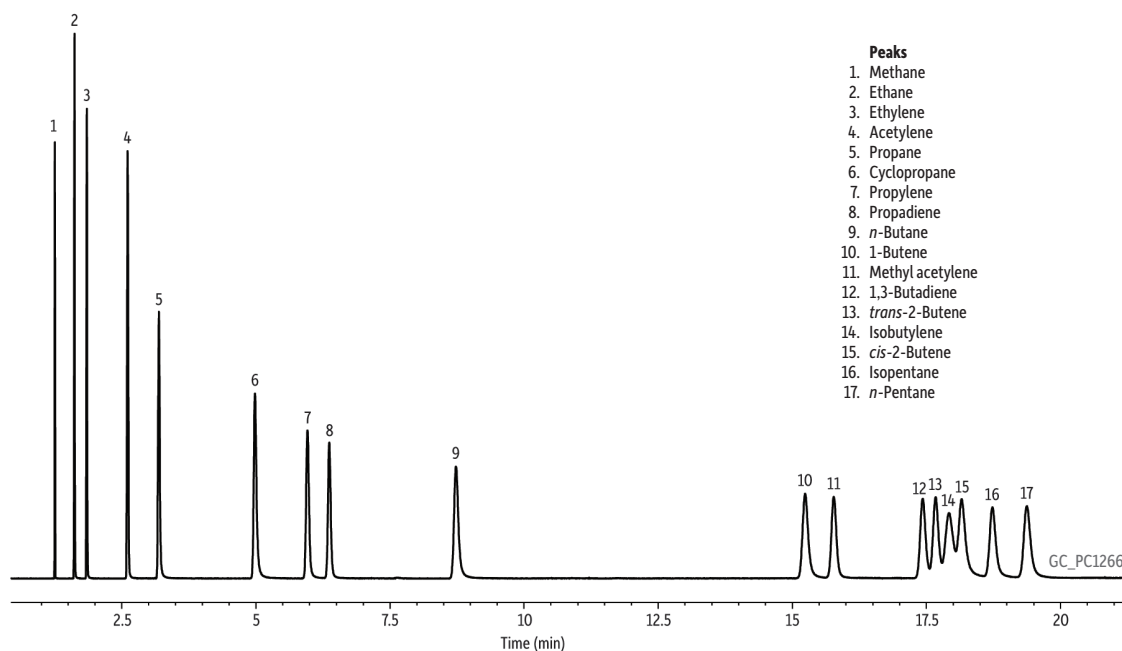


- Versatile column ideal for analysis of light hydrocarbons, sulfur gases, halocarbons, and carbon dioxide.
- Individually QC tested with sensitive C4 probes to ensure consistent selectivity.
- Proprietary manufacturing process practically eliminates particle release, reducing downtime due to obstructed FID jets.
- Bonded silica stationary phase minimizes impact of water, resulting in reproducible retention times for water-containing samples.

Restek's Rt[®]-Silica BOND columns are robust, versatile, selective PLOT columns that offer excellent performance for the analysis of light hydrocarbons, sulfur gases, and halocarbons. Light hydrocarbon isomers can be reliably resolved above ambient temperature (Figure 1) and, in addition, carbon dioxide and other gases can be retained at ambient temperature on this silica-based column. The selectivity of this column also provides excellent separations of halocarbons, such as the chlorofluorocarbons shown in Figure 2. High loadability, inertness, and consistent selectivity, as well as unmatched robustness at a maximum temperature of 260 °C, make the Rt[®]-Silica BOND column ideal for the analysis of active unsaturated hydrocarbons.

Using Rt[®]-Silica BOND columns minimizes downtime because Restek's unique QC testing protocols ensure consistent column-to-column performance. Only Restek measures the selectivity of every column with methyl acetylene and 1,3-butadiene,

Figure 1: Light hydrocarbons can be reliably separated on an Rt[®]-Silica BOND PLOT column.



unsaturated C4 hydrocarbons that are more sensitive selectivity probes than the unsaturated C3 hydrocarbon probes that are used by other manufacturers. When only the C3 hydrocarbons are used for QC testing, columns with large shifts in selectivity for the C4 hydrocarbons can be inadvertently released to market because the C3-only testing procedures do not reveal shifts for the C4 compounds. In addition to more rigorous selectivity testing, Rt®-Silica BOND columns are also tested to confirm efficiency and inertness in order to provide optimal peak shape and response for active analytes.

As with all Restek PLOT columns, our proprietary manufacturing process minimizes particle generation, which reduces the problems commonly associated with released particles, such as signal spikes, valve damage, and obstructed FID jets. Even among Restek's highly robust PLOT columns, this column is exceptionally stable. Also, compared to other PLOT columns, the Rt®-Silica BOND column displays outstanding stability in the presence of water due to its unique bonded silica stationary phase. The combination of rugged manufacturing and rigorous QC testing ensures every Rt®-Silica BOND column will provide optimal performance and reliable results for active unsaturated hydrocarbons.

Rt®-Silica BOND Columns

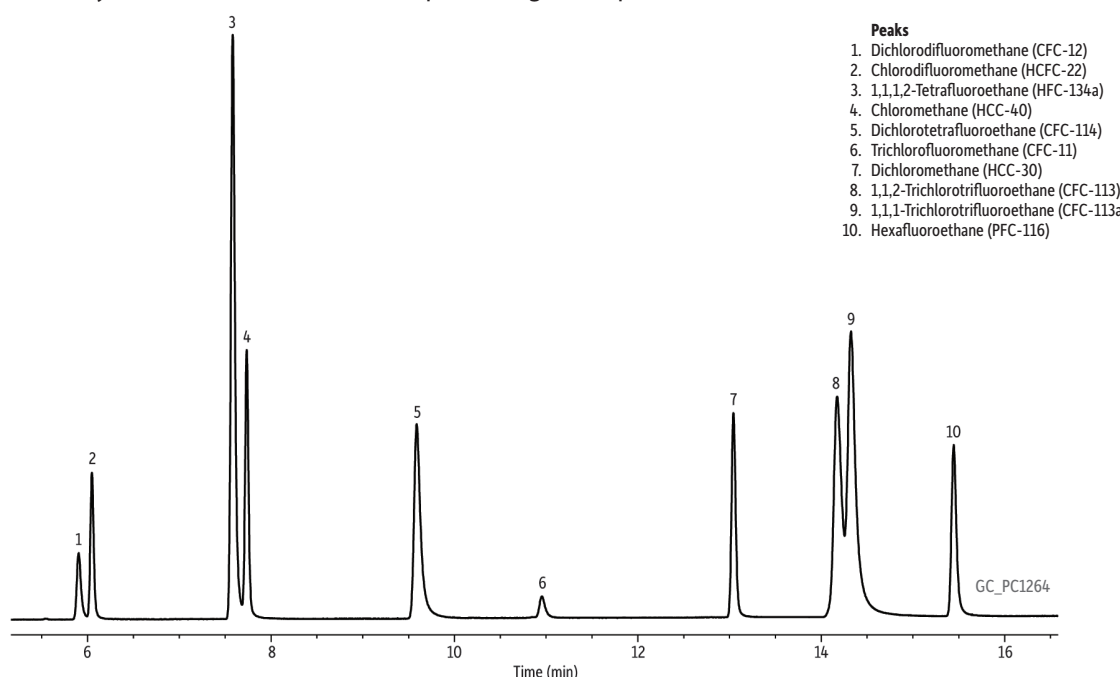
(fused silica PLOT)

Description	temp. limits	qty.	cat.#
15 m, 0.32 mm ID,	-80 to 260 °C	ea.	19784
30 m, 0.32 mm ID,	-80 to 260 °C	ea.	19785
60 m, 0.32 mm ID,	-80 to 260 °C	ea.	19786

similar phases

GS-GasPro, CP-SilicaPLOT

Figure 2: The selectivity of Rt®-Silica BOND columns provides good separation of most chlorofluorocarbons.



- Peaks**
1. Dichlorodifluoromethane (CFC-12)
 2. Chlorodifluoromethane (HCFC-22)
 3. 1,1,1,2-Tetrafluoroethane (HFC-134a)
 4. Chloromethane (HCC-40)
 5. Dichlorotetrafluoroethane (CFC-114)
 6. Trichlorofluoromethane (CFC-11)
 7. Dichloromethane (HCC-30)
 8. 1,1,2-Trichlorotrifluoroethane (CFC-113)
 9. 1,1,1-Trichlorotrifluoroethane (CFC-113a)
 10. Hexafluoroethane (PFC-116)

Column: Rt®-Silica BOND, 30 m, 0.32 mm ID (cat.# 19785); **Sample:** Custom Air Liquide gas standard; Conc.: 1,000 ppmv balance nitrogen; **Injection:** Inj. Vol.: 50 µL split (split ratio 10:1); Liner: 2 mm straight Sky® inlet liner (cat.# 23313.1); Inj. Temp.: 250 °C; **Oven:** Oven Temp.: 120 °C (hold 25 min); **Carrier Gas:** He, constant flow; Flow Rate: 2.6 mL/min; **Detector:** FID @ 260 °C; Make-up Gas Flow Rate: 50 mL/min; Make-up Gas Type: N₂; Hydrogen flow: 40 mL/min; Air flow: 400 mL/min; Data Rate: 10 Hz; **Instrument:** Agilent 7890A GC

Haben Sie Fragen zu dieser Problematik oder benötigen Sie weitere Informationen dazu?

Kontaktieren Sie uns!

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Retention time [min]	Peak Identification
4.08	R13B1
4.61	R290
4.77	R32
5.02	R218
6.37	R115
7.24	R125
7.47	R143 + R12
7.92	R22
9.29	R600a
9.54	R134a
9.74	R600
10.64	R152a
10.95	R114
10.95	R124
11.19	R142b
11.22	R11
11.81	R141b
13.66	

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