



Fast, Accurate Semivolatiles Analysis!

Using **New** Rxi[®]-5Sil MS GC Columns

By Robert Freeman, Environmental Innovations Chemist

- Ultra-low bleed column saves you time and money with faster baseline stabilization.
- Highly inert for more accurate low-level analysis of active compounds.
- Guaranteed column-to-column reproducibility.

Semivolatiles methods, such as EPA Method 8270, place stringent demands on the analytical system, especially the GC column. 5% diphenyl/95% dimethyl polysiloxane (“5” phase) columns often are used for this GC/MS test method; however, silarylene columns generally perform better with the sensitivity of mass spectrometers. Silarylene phases are lower bleed and produce improved peak efficiencies for difficult compounds while maintaining selectivity that is similar to a conventional “5” phase column. Restek recently improved its silarylene column (Rtx[®]-5Sil MS) using Rxi[®] technology. The result is the new Rxi[®]-5Sil MS column, a more inert, low-bleed column with improved peak shape and resolution for the active compounds found in semivolatiles analysis. *Continued on page 4.*

HROMalytic Chromatography
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Rxi®-5Sil MS columns are ideal for the analysis of semivolatile analytes such as those found in EPA Method 8270. Low bleed profiles assure accurate quantification of late eluting compounds, such as polycyclic (polynuclear) aromatic hydrocarbons (PAHs), including the challenging separation of benzo(b)fluoranthene and benzo(k)fluoranthene (Figures 1 and 2). The inertness of the Rxi®-5Sil MS column is demonstrated through the peak shapes and responses of active analytes, such as pyridine (basic) and 2,4-dinitrophenol (acidic), at low levels. Peak symmetry is good and analyte responses exceed method requirements even at single ng on-column levels (Figure 3). Chromatography, and thus quantification, of many active semivolatile compounds is improved by the inertness of Rxi®-5Sil MS columns.

The Rxi®-5Sil MS columns most commonly used for semivolatiles analysis are the 30m x 0.25mm ID columns with either 0.25µm or 0.5µm film thicknesses. These dimensions generally offer the best balance of sample capacity, analysis time, and column lifetime. However, if sample throughput is paramount, shorter narrow bore columns, such as the 20m x 0.18mm ID with either 0.18µm or 0.36µm film thicknesses, are preferred. Due to increased peak efficiencies, temperature programs can be accelerated without compromising key separations. Regardless of which dimension you choose, the new Rxi®-5Sil MS columns are ideal for analyzing semivolatile compounds.

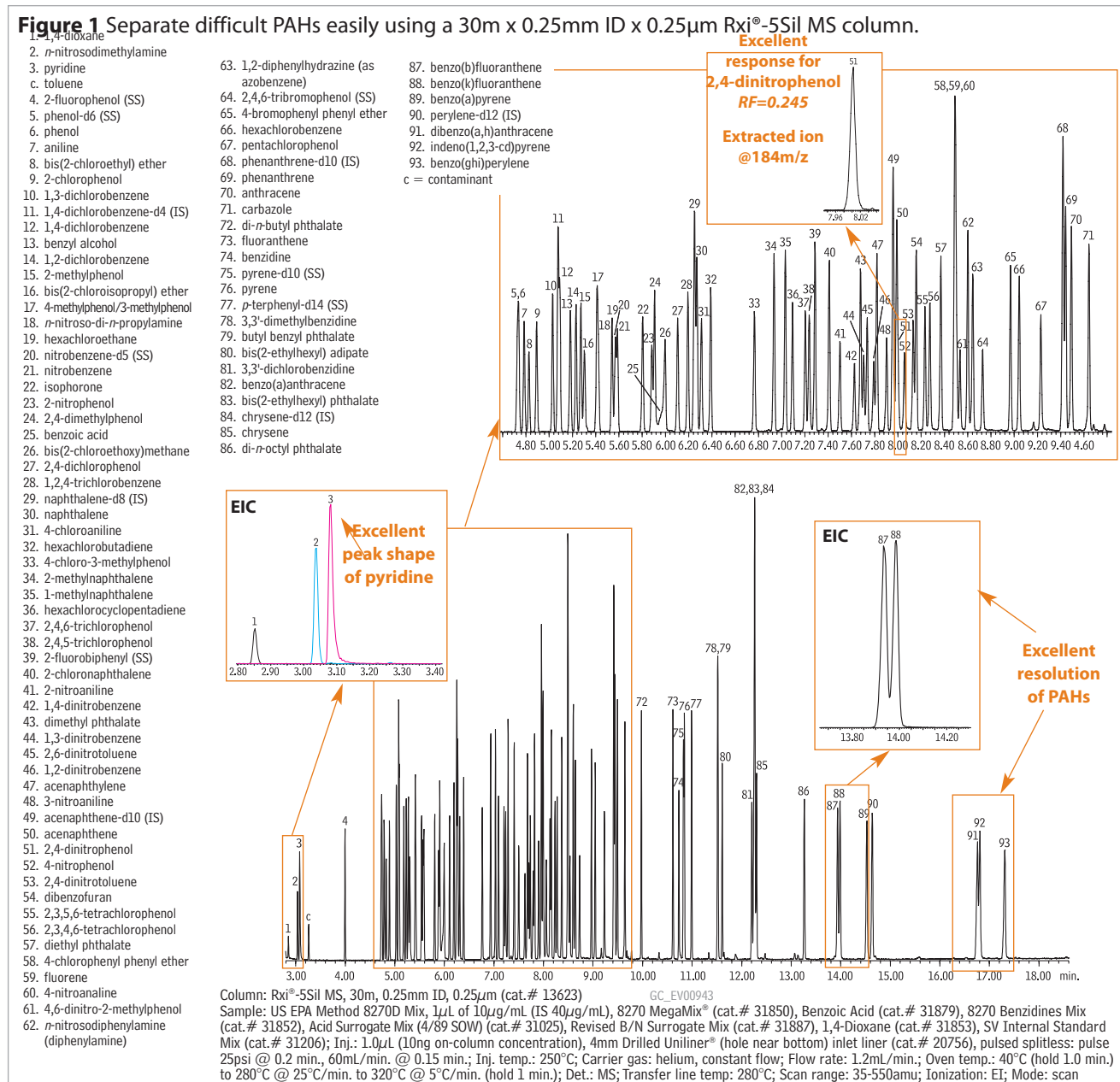


Figure 2 Semivolatile compounds resolved on a 20m x 0.18mm ID x 0.18µm Rxi®-5Sil MS column.

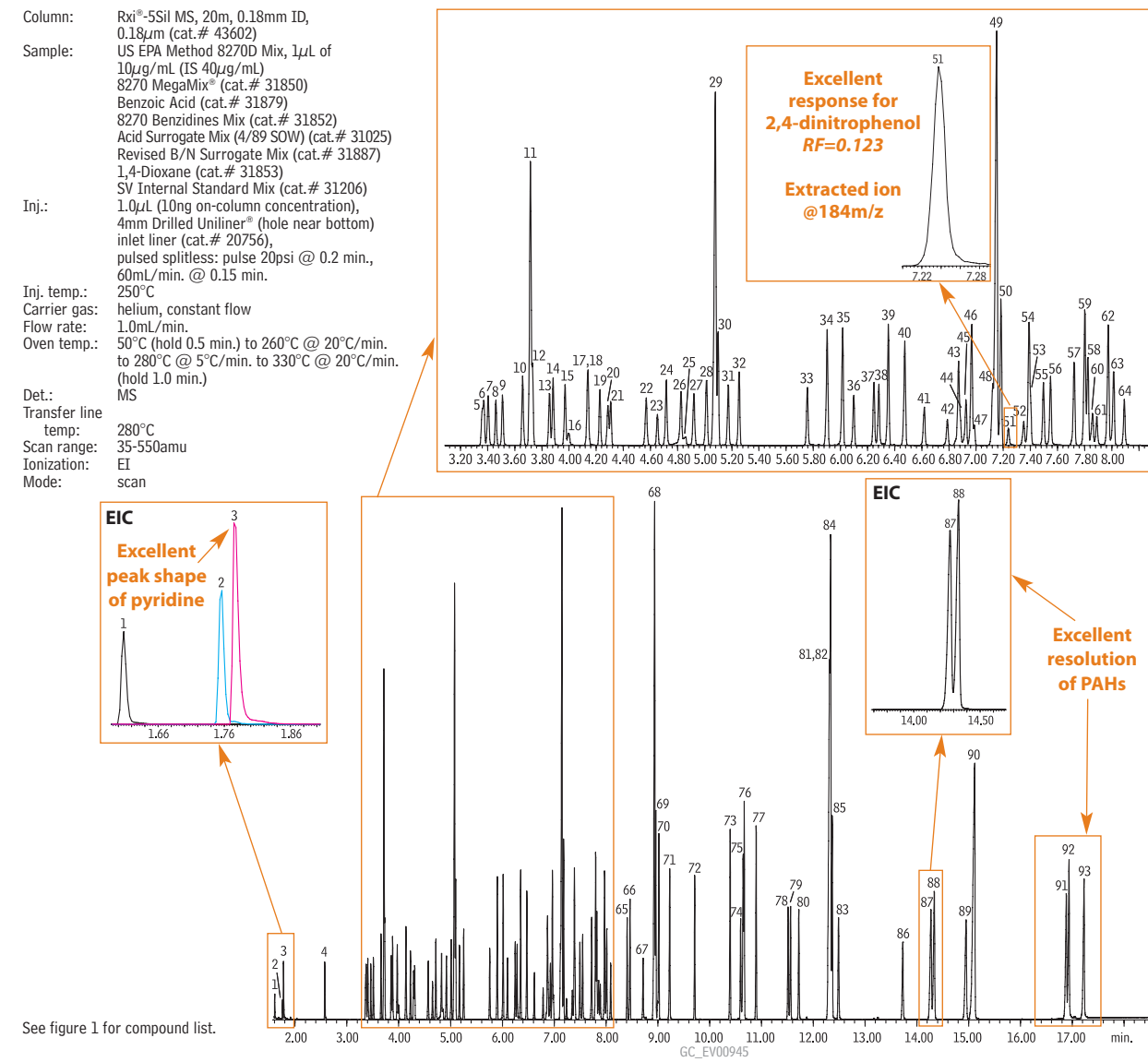
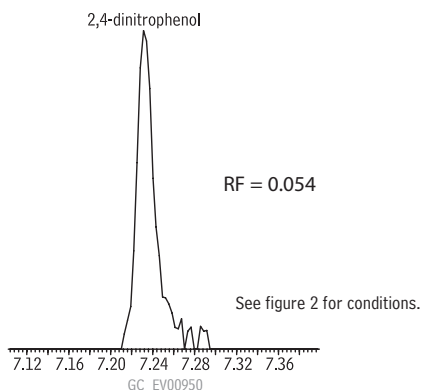


Figure 3 Excellent peak symmetry and response at 1ng on-column.



Rxi®-5Sil MS Columns (fused silica)

(Crossbond®, selectivity close to 5% diphenyl/95% dimethyl polysiloxane)

ID	df (µm)	temp. limits	length	cat. #
0.18mm	0.18	-60 to 330/350°C	20-Meter	43602
0.18mm	0.36	-60 to 330/350°C	20-Meter	43604
0.25mm	0.25	-60 to 330/350°C	30-Meter	13623
0.25mm	0.50	-60 to 330/350°C	30-Meter	13638

8270 MegaMix® (76 components)

1,000µg/mL each in methylene chloride, 1mL/ampul*
cat. # 31850

*3-methylphenol and 4-methylphenol concentration is 500µg/mL.

For a complete list of components, visit us at www.restek.com/standards

Direct Injection Liners for Agilent GCs

ID* x OD & Length (mm)	qty.	cat.#
Drilled Uniliner® (hole near bottom)		
4.0 ID x 6.3 OD x 78.5	ea.	20756
	5-pk.	20771