

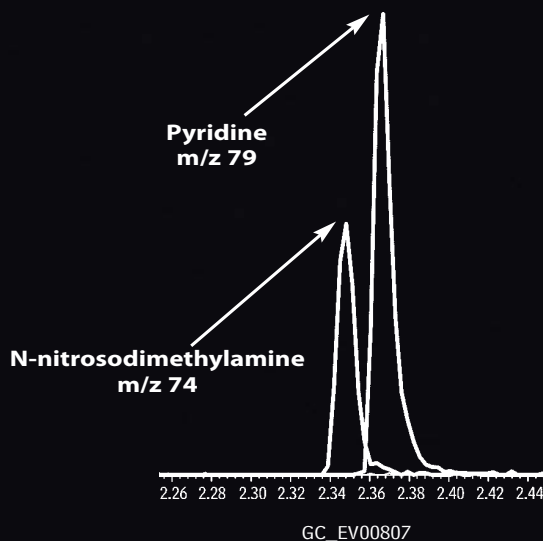
PITTCON 2006

# NEW Rxi<sup>®</sup>-5ms

The Ultimate High Performance Fused Silica Capillary Column

- Unsurpassed inertness  
lower detection limits for active compounds
- Ultra low bleed  
ideal for sensitive GC/MS applications
- Guaranteed column to column reproducibility

Sharp, symmetric peak  
for 0.5ng of pyridine!



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# New Rxi™-5ms Fused Silica Columns

Restek's Exceptionally Inert (Rxi™) Fused Silica Capillary Columns

- Unsurpassed inertness for low level basic and acidic compounds.
- Ultra-low bleed
- Reliable performance, guaranteed column to column reproducibility
- Guaranteed to work perfectly with retention time locking software.

## Introducing...



### Restek's exceptionally inert (Rxi™) fused silica capillary columns:

The processes we use to make new Rxi™ columns enable us to **guarantee** highly uniform performance, column to column and lot to lot, including perfect match-up with retention time-locking software. It is our promise and commitment to you that every Rxi™ column you receive will be **exactly** as good as the one it replaces.

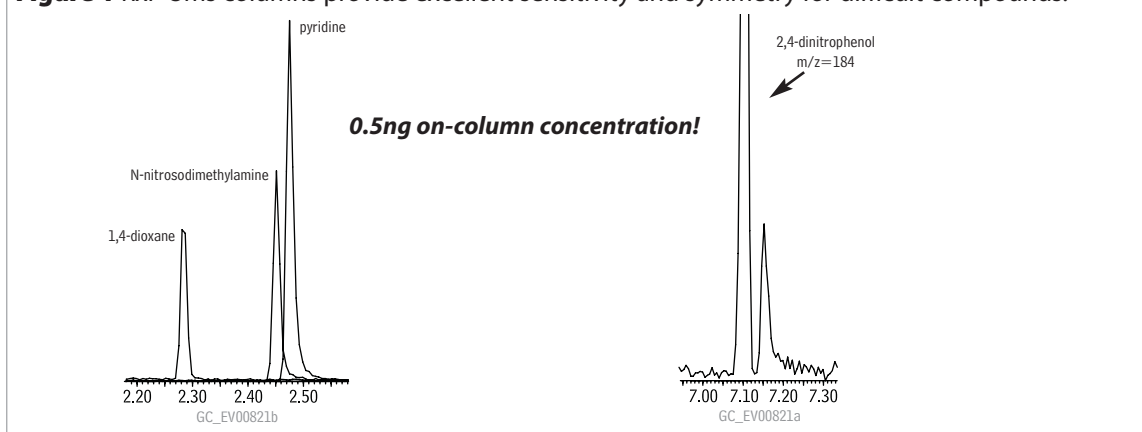
### The Ultimate High Performance Fused Silica Capillary Column

The Restek research chemists have developed new technology for making GC capillary columns, including new deactivation chemistry, new polymer synthesis routes, and a totally new manufacturing process. The overall results of these efforts are columns that define excellent inertness, ultra-low bleed, and totally reliable column to column performance.

### Excellent Inertness

Many acidic and basic compounds require the inertness of Rxi™-5ms columns. We use 2,4-dinitrophenol (acidic) and pyridine (basic) to evaluate the inertness of our columns. Surface activity in the column is revealed by the peak shapes for these analytes, and sub-nanogram test quantities make for a stringent test. The data below show the peak response for 0.5ng of pyridine and 0.5ng of 2,4-dinitrophenol on an Rxi™-5ms, 30m x 0.25mm, 0.25µm film column. Rxi™-5ms columns' excellent inertness allows acidic or basic compounds to be analyzed under the same conditions.

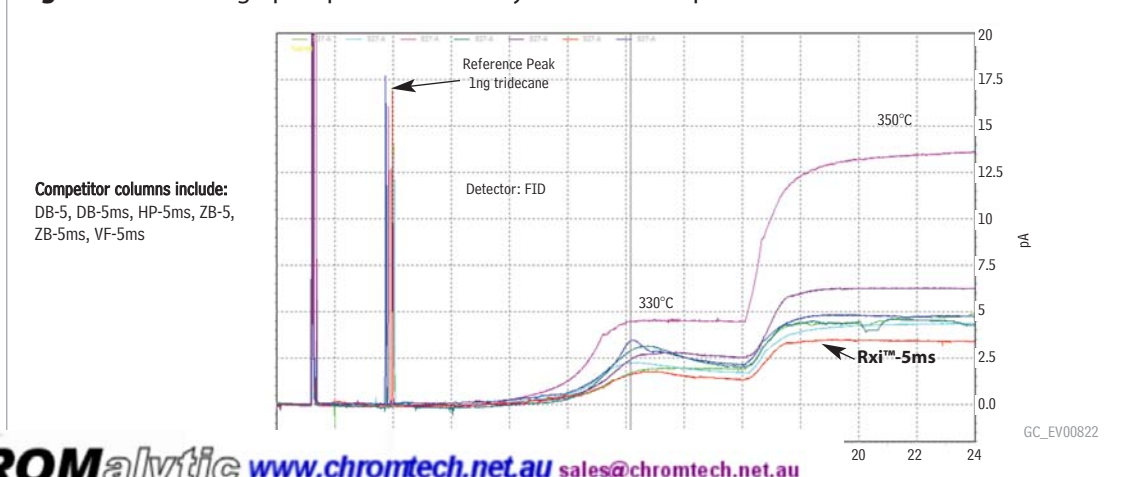
**Figure 1** Rxi™-5ms columns provide excellent sensitivity and symmetry for difficult compounds.



### Ultra Low Bleed

Bleed from Rxi™-5ms columns is negligible, simplifying trace-level GC/MS analysis or detection by electron capture (ECD), nitrogen-phosphorus (NPD), or other sensitive methods. The graph below shows the bleed from 30m x 0.25mm, 0.25µm film columns. Compared to the other columns, including silarylene type phases, the Rxi™-5ms column exhibits the lowest bleed.

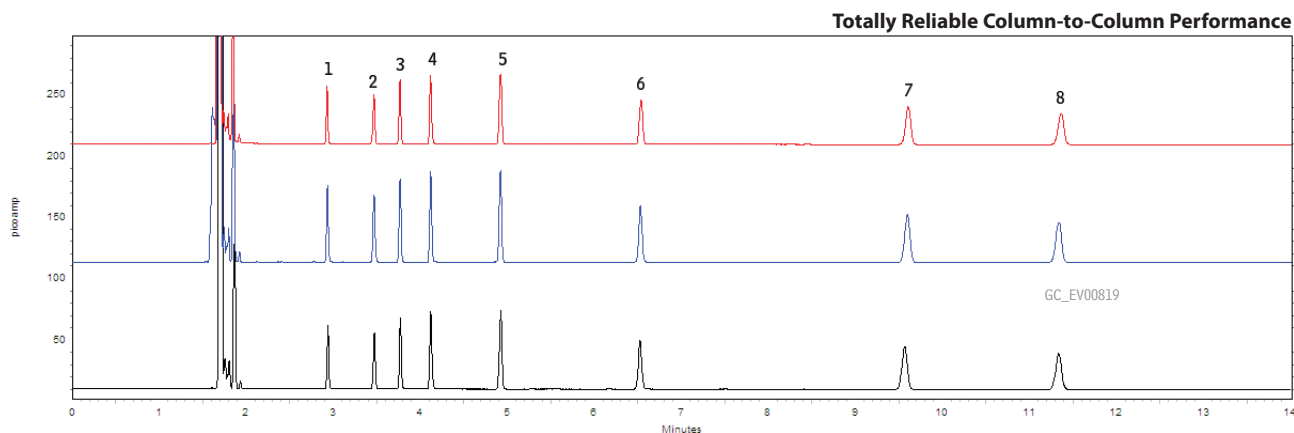
**Figure 2** Chromatographic profiles for widely used columns prove Rxi™-5ms has the lowest bleed!



## Totally Reliable Column-to-Column Performance

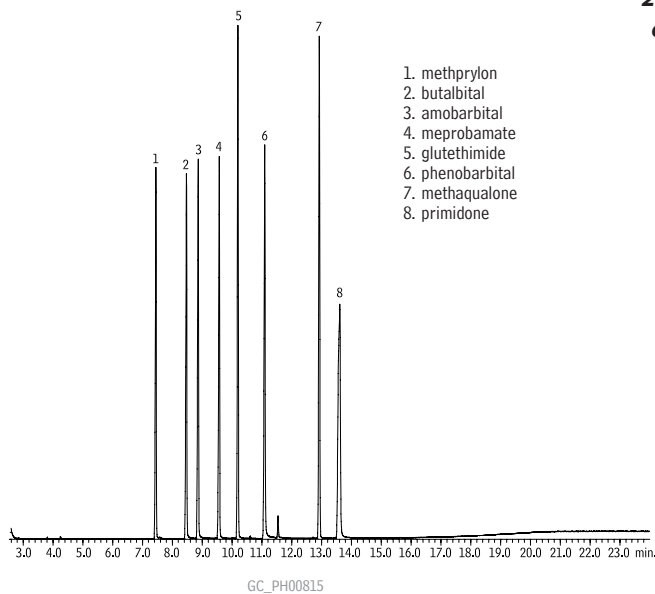
Chromatographers need to know every column they receive is going to perform in the same way as the column it replaces. Rxi™-5ms column technology has enabled us to tighten our quality control standards for passing columns, and guarantees column reproducibility. Columns from three manufacturing batches show the excellent reproducibility of retention times and peak shape assured by the new manufacturing process.

**Figure 3** Three manufacturing batches of Rxi™ columns show excellent reproducibility (isothermal test mix).



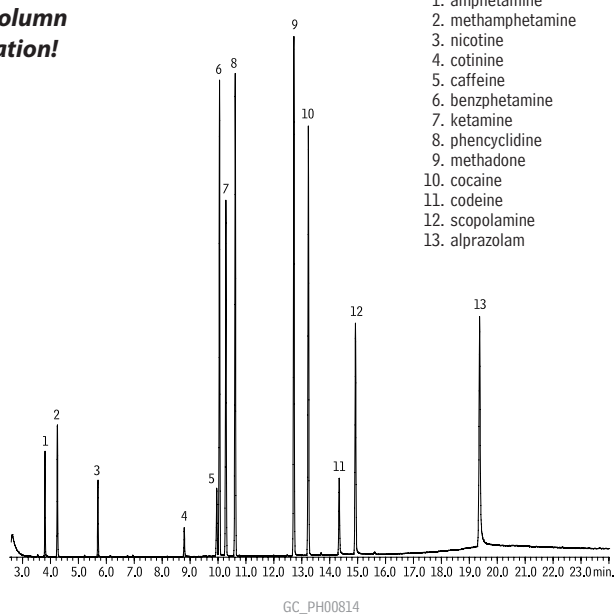
**Figure 4** Rxi™-5ms columns' excellent inertness allows acidic or basic compounds to be analyzed under the same conditions.

### Acidic/Neutral Drugs



1. methprylon
2. butalbital
3. amobarbital
4. meprobamate
5. glutethimide
6. phenobarbital
7. methaqualone
8. primidone

### Basic Drugs



1. amphetamine
2. methamphetamine
3. nicotine
4. cotinine
5. caffeine
6. benzphetamine
7. ketamine
8. phencyclidine
9. methadone
10. cocaine
11. codeine
12. scopolamine
13. alprazolam

**20ng on-column concentration!**

Column: Rxi™-5ms 30m, 0.25mm ID, 0.25µm (cat.# 13423)  
 Sample: 1000µg/mL each in methanol  
 Inj.: 1.0µL split (50:1), 20ng each compound on column; Siltek® treated 4mm gooseneck splitless inlet liner (cat # 20799-241.5)  
 Inj. temp.: 250°C  
 Carrier gas: helium  
 Linear velocity: 30cm/sec., constant pressure  
 Oven temp.: 100°C to 220°C @ 15°C/min., to 330°C @ 10°C/min. (hold 5 min.)  
 Det.: Agilent 5973 MSD  
 Transfer line temp.: 300°C  
 Scan range: 35-550  
 Tune: PFTBA  
 Ionization: EI

## Guaranteed Quality and Reliability

Restek is committed to supplying the most reliable GC columns in the industry. Every Rxi™-5ms column is individually challenged to pass our stringent requirements for film thickness, selectivity, inertness, coating efficiency, and bleed. We believe Rxi™-5ms column technology produces the most reliable columns available, anywhere, and it is our promise and commitment to you that every Rxi™-5ms column you receive will be as good as the one it replaces.

### Rxi™-5ms Fused Silica Columns

- Nonpolar 5% dimethyl 95% dimethylpolysiloxane phase (Equivalent to USP Phase G27)
- Most widely used general purpose column
- Temperature range: -60°C to 330/350°C (330° = bleed tested temperature/350° = maximum operating temperature).



**Typical Applications:** alcohols, amines, aromatic hydrocarbons, bile acids, drugs, US EPA methods, esters, fatty acid methyl esters (FAMEs), flavors and aromas, glycerides, halogenated hydrocarbons, herbicides, hydrocarbons, organic acids, oxygenates, polynuclear aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), pesticides, phenols, polymers, solvents, steroids, sugars, sulfur compounds.

**Replaces these phases:** DB-5, DB-5ms, HP-5, HP-5ms, SPB-5, Equity-5, SLB-5, Ultra-5, BPX-5, 007-5, AT-5, Optima-5, ZB-5, ZB-5ms, VF-5ms, CP-Sil 8 CB, Rtx-5, Rtx-5MS, Xti-5

Note: Selectivity of Rxi-5ms is exactly the same as HP-5 and HP-5ms

### Rxi™-5ms Columns

(Crossbond® 5% diphenyl / 95% dimethyl polysiloxane)

ID	df (µm)	temp. limits	15-Meter		30-Meter		60-Meter			
0.25mm	0.25	-60 to 330/350°C	13420	\$260	13423	\$435	13426	\$780		
	0.50	-60 to 330/350°C	13435	\$260	13438	\$435				
	1.00	-60 to 330/350°C	13450	\$260	13453	\$435	13456	\$780		
0.32mm	0.25	-60 to 330/350°C	13421	\$280	13424	\$460				
	0.50	-60 to 330/350°C	13436	\$280	13439	\$460				
	1.00	-60 to 330/350°C	13451	\$280	13454	\$460	13457	\$820		
0.53mm	0.25	-60 to 330/350°C	13422	\$310	13425	\$515				
	0.50	-60 to 330/350°C	13437	\$310	13440	\$515				
	1.00	-60 to 330/350°C	13452	\$310	13455	\$515				
	1.50	-60 to 330/350°C	13467	\$310	13470	\$515				
ID	df (µm)	temp. limits	12-Meter		20-Meter		25-Meter		50-Meter	
0.18mm	0.18	-60 to 330/350°C			13402	\$370				
	0.36	-60 to 330/350°C			13411	\$370				
0.20mm	0.33	-60 to 330/350°C	13497	\$230			13498	\$365	13499	\$630

### Rxi Test Mix (Rev. A) (8 components)

acenaphthylene	methyl nonanoate
4-chlorophenol	<i>n</i> -pentadecane
<i>n</i> -decylamine	<i>n</i> -tridecane
1,6-hexanediol	1-undecanol

1,000µg/mL each in toluene, 1mL/ampul

cat. # 35241 (ea.) \$31

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