Rxi GC Columns

Leverage the outstanding inertness, low bleed, and high reproducibility of Rxi 3-in-1 technology to gain:

- *Accurate Data*
- *The Right Results Fast*
- *Maximized Instrument Uptime*

www.restek.com/rxi

RESTEK
Pure Chromatography

Rxi GCColumns

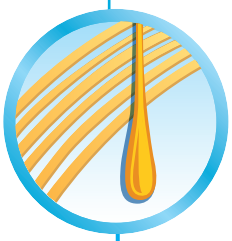
People rely on you for fast, accurate data. Rely on Restek Rxi columns to deliver it.

Let's be honest. Before you even put your lab coat on, you have more work waiting for you than you can handle. Your instrument needs to run, and it needs to run now. But it is not enough to simply go fast—you need to get the right results the first time and save money in the process. Samples don't stop coming in: top-quality data and products can't stop going out. In short, it is imperative you have a gas chromatography column that produces the data you need, when you need it.

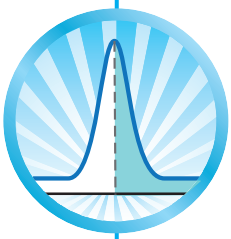
We understand what you're going through. In fact, many of our in-house chromatography experts were once on the front lines like you, and that's ultimately why we do what we do. Restek developed the Rxi family of fused silica columns to help you solve the challenges you face in your lab on a daily basis. Let us worry about column inertness, stability and reproducibility, bleed, and peak shape. Take advantage of Restek Rxi columns to get your work done right and get it done quickly.

Rxi Columns: Built for Your Continued Success

We know that as a customer, it is incredibly important to you that your suppliers are honest when they make a claim. As fellow scientists, it is also very important to us that we are honest in order to maintain our credibility and adhere to our principles. That is why Restek has complete control of our Rxi column production stream—to ensure that you will receive a top-quality product that performs the way we promised it would, every time. As a result, Rxi columns come with an unbeatable guarantee: Restek Pure Satisfaction.



Fused Silica: It is absolutely critical that we ensure adequate supply and utmost quality of our raw materials, and for most Rxi columns, that starts with the foundation of this exemplary product line: fused silica. We draw our own fused silica tubing to exacting specifications, and during the drawing process, we apply our own polyimide resin. By applying multiple layers of resin, we improve stability at higher temperatures and widen the application range of the fused silica tubing.



Deactivation: Once a batch of fused silica tubing is drawn, it must then be deactivated before it is worthy of becoming an Rxi column. Our surface deactivation technology and proprietary processes effectively shield silanols to ensure comprehensive inertness for polar compounds as well as acids and bases, providing symmetric peaks for higher sensitivity.

Phase Chemistry: In addition to producing our own raw materials, we also develop our own proprietary stationary phases. Our R&D chemists are charged with focusing on capillary column phases and deactivations. It is this skilled and dedicated team that creates the optimized polymers with the enhanced selectivities you need for the most challenging separations. Each Rxi phase is cross-linked to the deactivated fused silica tubing, creating a layer with strong mechanical characteristics, and resulting in a long-lasting and rugged final product. This unique bonding technology ensures low bleed for higher sensitivity and reproducible retention times. From the widely used Rxi-5Sil MS to the specialty Rxi-PAH, our Rxi phases are developed and applied to your finished product in our own facility to better control quality and address your specific needs.

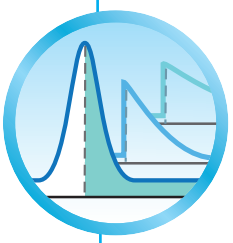
Quality Control: All Rxi columns are guaranteed to exhibit reliable column-to-column reproducibility and low bleed because we *individually test every column for inertness, selectivity, film thickness, efficiency, and bleed*—measuring the results against strict QC specifications. Rxi columns are never batch tested. The critical performance values, including bleed, that we obtain with our tests are listed on the chromatographic test report included with your Rxi column. Every Rxi column that leaves our facility has been proven to meet or exceed the most stringent requirements.

Why Should You Switch to Rxi Columns?

Simply put, Rxi columns are built to be the best. But what does "best" mean? For the overworked analyst with an ever-shrinking budget, the best GC column is the one that provides accurate data, the right results fast, and maximized instrument uptime.

ACCURATE DATA

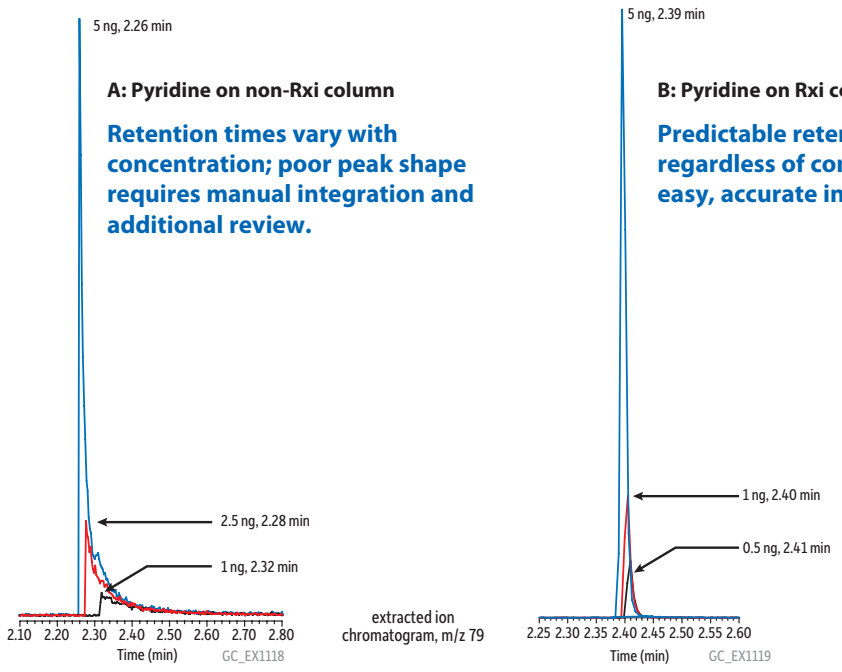
Without accurate data, nothing else matters. Groundbreaking Rxi 3-in-1 technology unifies outstanding inertness, low bleed, and high reproducibility into a single high-performance column line that gives you the foundational low-level accuracy you need.



Outstanding Inertness

Our 3-in-1 technology produces such inert columns that we named them **R**estek e**X**treme **I**nertness (Rxi). This extreme inertness improves signal-to-noise ratios and, therefore, your ability to consistently identify and quantify compounds in real-world samples. Inertness is especially important for the ever-lower detection limits required by testing regulations because many acidic, basic, and polar compounds tail significantly if your column has active sites (Figure 1). The remarkable inertness of Rxi technology solves this problem and allows a wide range of compounds to be analyzed with high sensitivity, often on a single column!

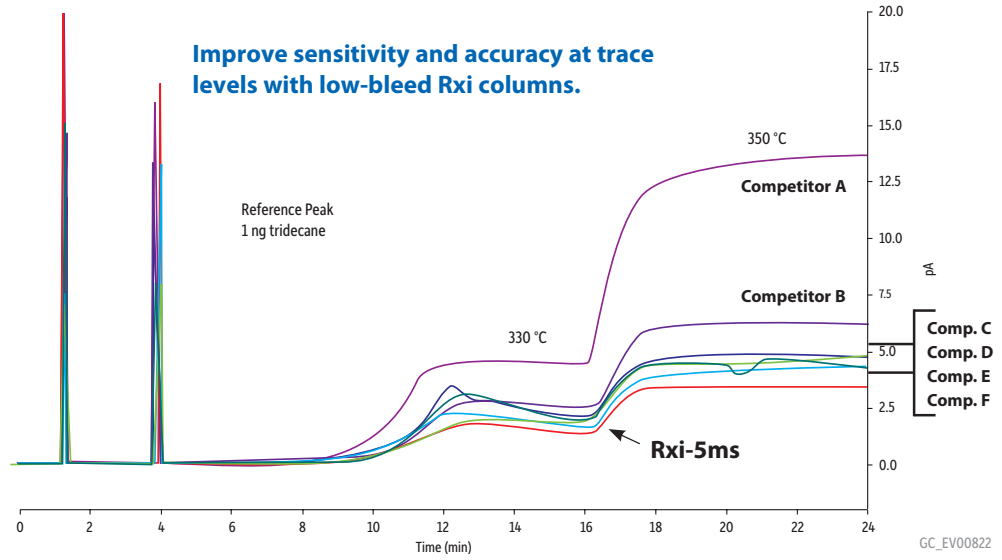
Figure 1: Compared to conventional GC columns, Rxi columns show excellent inertness and produce good peak shapes for challenging compounds.



Low Bleed

Rxi columns are more stable than other manufacturers' columns, so they generate less bleed (Figure 2) and reduce background to further improve signal-to-noise ratios, enhance sensitivity, and lower detection limits. These qualities make low-bleed Rxi columns the perfect choice for trace-level analyses. In addition, decreased contamination from bleed makes them ideal for sensitive detection systems like mass spectrometry (MS), where you will also benefit from better matches to mass spectral libraries.

Figure 2: Rxi columns have the lowest bleed among major brands of columns.

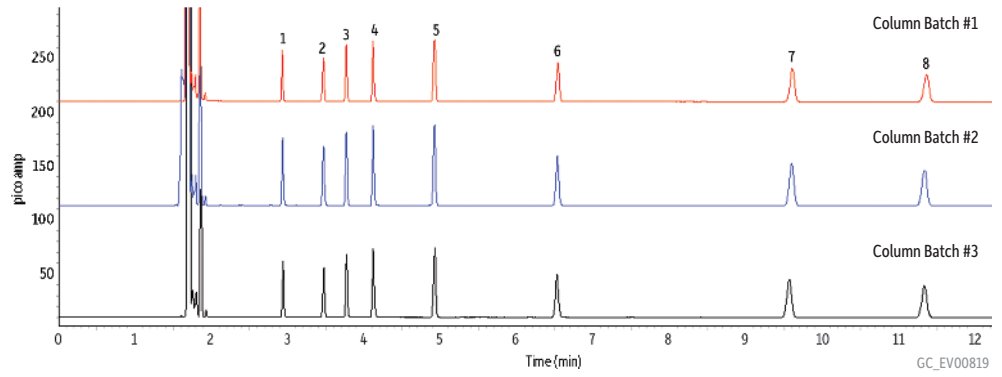


Comparison of 30 m x 0.25 mm ID, 0.25 µm 5%-diphenyl columns at 330 °C through 350 °C; hydrogen carrier gas; flame ionization detection.

High Reproducibility

Unpredictable retention times and shifting peaks can be frustrating at best and bring your work to a dead stop at worst. Unmatched manufacturing precision and stringent quality control mean that every Rxi column performs the same way as the column it replaces, every time you run it. We consistently exceed industry standards as measured by efficiency, retention, bleed, and inertness (Figure 3).

Figure 3: Rxi columns are engineered and QC tested to ensure column-to-column and lot-to-lot reproducibility.



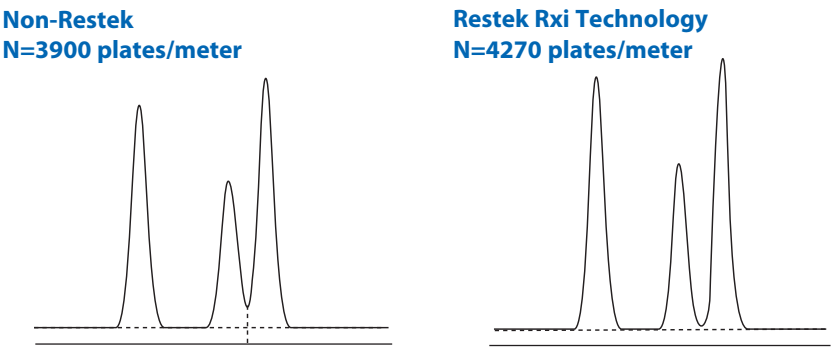
1. 1,6-Hexanediol
2. 4-Chlorophenol
3. Methyl nonanoate
4. 1-Decylamine
5. Tridecane
6. 1-Undecanol
7. Acenaphthylene
8. Pentadecane

Column: Rxi-5ms, 30 m, 0.25 mm ID, 0.25 µm (cat.# 13423); Sample: 500 µg/mL isothermal column test mix in toluene; Inj.: 1.0 µL, split injection (split ratio 1:100), 4 mm single gooseneck inlet liner with wool (cat.# 22405); Inj. temp.: 250 °C; Carrier gas: hydrogen; Linear velocity: 38 cm/sec. @ 135 °C; Oven temp.: 135 °C; Det.: FID @ 330 °C

THE RIGHT RESULTS FAST

Rxi columns don't just give you the right results; they give you the right results fast. Outstanding inertness generates consistent peak shapes and retention times, allowing you to accurately quantitate target analytes—even at low concentrations. High reproducibility helps you generate method-compliant data, so your clients get the same fast, accurate results you do. Thermal stability with low column bleed lets you run your instrument at higher oven temperatures, reducing analysis times and increasing sample throughput. And the efficiency of an Rxi column generates sharp, narrow peaks, so target analytes are still separated at high temperatures. With these combined features, you can reduce analysis times without sacrificing data quality. Use Rxi columns to increase sample throughput and laboratory productivity with fast, accurate analyses.

Figure 4: Higher efficiency (i.e., more plates per meter) means better separations on an Rxi column.



MAXIMIZED INSTRUMENT UPTIME

We developed Rxi columns with robustness in mind. Restek's rugged polymers are cross-bonded and anchored to an extremely inert deactivation surface, resulting in a column that can take whatever abuse you throw at it. This rugged, inert design helps to reduce column maintenance, column replacement, instrument recalibration, and the potential need for method revalidation compared to other columns. Rxi columns are manufactured for low column bleed—even at high GC oven temperatures—to shorten post-installation conditioning time and get your instrument up and running faster. All of these characteristics help minimize the need for maintenance, reduce your downtime, and raise the productivity of your instrument. Produce better-quality data, spend less, and run more samples with Rxi columns.

The Best Column for Your Next Method is an Rxi Column

Choosing the right stationary phase can make all the difference for the success of your analysis. We have developed a wide selection of stationary phases that span the polarity range, so you can easily select a perfectly matched Rxi column that helps you run faster and produce unbeatable results.

Need help choosing the right Rxi phase?

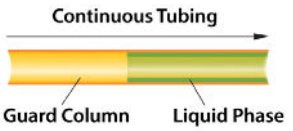
Go to **www.restek.com/posters** and download our column selection poster and guide. You can also visit **www.restek.com/ezgc** to enter your compound list into the industry's only chromatogram modeler—the Pro *EZ*GC app—to get a custom recommendation for thousands of compounds across hundreds of applications!

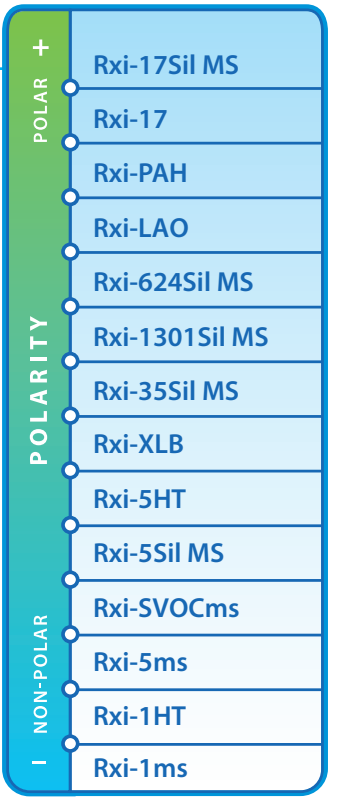
Protect your analytical columns with Rxi guards.

Restek offers a line of highly inert Rxi guard/retention gap columns that employ the same groundbreaking 3-in-1 technology, so they are an ideal supplement to Rxi analytical columns.

Going a step further, Integra-Guard columns incorporate a guard column and analytical column in one to eliminate the problems associated with this connection altogether. Integra-Guard columns are available for Rxi-5Sil MS columns as well as a variety of Rtx columns. Protecting your analytical column has never been easier.

Integra-Guard Built-In Guard Column





What are Rxi "Sil" columns?

By combining arylene chemistry with Rxi technology, Restek has developed a subgroup of phases containing silarylene copolymers that offer even more exceptional thermal stability. These "Sil" columns—Rxi-5Sil MS, Rxi-1301Sil MS, Rxi-624Sil MS, Rxi-35Sil MS, and Rxi-17Sil MS—have similar polarity as their conventional counterparts but differ in selectivity. Higher thermal stability results in lower bleed, making Rxi "Sil" columns perfect for MS or highly sensitive applications.

Put Rxi Columns to Work in Your Lab Today

Your work helps ensure the safety of our food and environment, the quality of our fuel and medicine, the justice of our legal system... With so much riding on what you do, you owe it to yourself to put the best GC column into your instrument. Order yours today!

Great Results Don't Stop at the Column

Rxi columns are a great choice for getting unbeatable results from your analyses, but Restek does not stop there—and neither should you. We offer an integrated solution to help you run faster with more accuracy and maximized uptime!

Products

From collection to detection, if you need it for your analysis, you'll find it in Restek's comprehensive product line.

GC Columns | **www.restek.com/GC**

GC Accessories | **www.restek.com/GCacc**

Reference Standards | **www.restek.com/standards**

Air Sampling | **www.restek.com/air**

Sample Preparation | **www.restek.com/sample-handling**

LC Columns | **www.restek.com/LC**

LC Accessories | **www.restek.com/LCacc**

Technical Service

Restek's Technical Service team is staffed by individuals with extensive experience in chemistry, chromatography, engineering, and related fields covering the environmental, food safety, petro, chemical, forensic, and pharmaceutical industries. This highly skilled group collectively represents hundreds of years of hands-on chromatography experience and specializes in providing information about Restek products, applications, instrument troubleshooting, method development, and more. For fast, personalized, and thorough answers to your most challenging technical questions, just send us an email!

Customers Inside the U.S. | **support@restek.com**
Customers Outside the U.S. | Contact your local representative or email **support@restek.com**

Technical Resources

***EZ*GC Online Tools** | **www.restek.com/ezgc**
Our free EZGC online tools help you create model chromatograms, get column recommendations, translate methods, and calculate flows!

***EZ*LC Online Tools** | **www.restek.com/ezlc**
Our free and powerful LC tools make it easy to develop and optimize new LC methods or translate existing ones quickly and accurately.

ChromaBLOGraphy | **blog.restek.com**
Restek's blog is where we share our thoughts on current trends, best practices, and troubleshooting tips. Best of all, you can weigh in yourself.

Literature Library | **www.restek.com/library**
Read product brochures, guest editorials, application notes from Restek chemists, and much more.

Chromatogram Database | **www.restek.com/chromatograms**
Thousands of GC and LC chromatograms are at your fingertips—search and filter to find the exact application you are running.

Web Search Tools | **www.restek.com**
From any page on our website, you can easily find documentation, resources, products, and chromatograms.

RESTEK
Pure Chromatography

Questions? Contact us or your local Restek representative (www.restek.com/contact-us).

www.restek.com

Lit. Cat.# GNBR1843B-UNV