# Restek GCxGC Columns

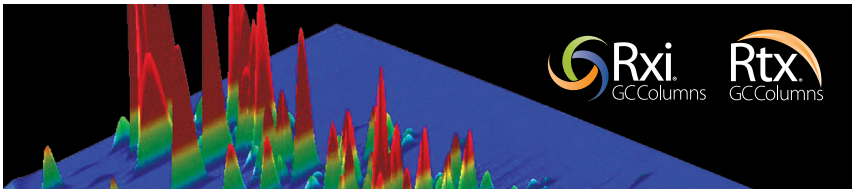
## Your One Source for 2D Gas Chromatography

- Wide range of stationary phases offers orthogonal separations.
- High thermal stability increases system ruggedness.
- Unrivaled column inertness for accurate analysis of active compounds.
- 0.15, 0.18, and 0.25 mm ID formats accommodate varying sample capacities, speeds, and detectors.
- Secondary columns come in convenient 2 m lengths for economical method development.

GCxGC is a powerful multidimensional GC technique that combines two independent separations to accurately analyze highly complex samples. GCxGC involves two columns with differing (orthogonal) stationary phases that are press-fitted together in series and separated by a modulator. The first (primary) column performs a separation, and its effluent is continually focused and "injected" by the modulator onto the second (secondary) column, where another separation occurs. By choosing a secondary column that is orthogonal to the primary column, it is possible to identify analytes that cannot be separated by the primary column. And by keeping the secondary column short, it is possible to maintain the separation produced by the primary column. Results generated through a series of high-speed chromatograms are plotted as a retention plane, or contour plot (column 1 time x column 2 time).

Restek has been performing comprehensive two-dimensional gas chromatography since its commercial inception. Our innovations lab boasts multiple instruments dedicated to GCxGC applications, and we are continually exploring new application areas—including environmental, food safety, petroleum, forensics, fragrance, natural products, and dietary supplements.

Restek GCxGC secondary columns can be matched with any Restek Rtx® or Rxi® primary column to create the perfect orthogonal separation for your application. Our technical experts are ready to assist you with column selection and method development, so contact us or your Restek representative today!




**Primary Columns** (In order of increasing polarity):

| Phase | L (m) | ID (mm) | df (µm) | Temp Limit (° C) | Cat.# |
|---|---|---|---|---|---|
| Rxi®-1ms | 30 | 0.25 | 0.25 | 350 | 13323 |
| Rxi®-5Sil MS | 30 | 0.25 | 0.25 | 350 | 13623 |
| Rxi®-XLB | 30 | 0.25 | 0.25 | 360 | 13723 |
| Rxi®-17Sil MS | 30 | 0.25 | 0.25 | 360 | 14123 |
| Rtx®-200 | 30 | 0.25 | 0.25 | 340 | 15023 |
| Stabilwax® | 30 | 0.25 | 0.25 | 260 | 10623 |

**Secondary Columns** (In order of increasing polarity):

| Phase | L (m) | ID (mm) | df (µm) | Temp Limit (° C) | Cat.# |
|---|---|---|---|---|---|
| Rxi®-1ms | 2 | 0.15 | 0.15 | 350 | 15114 |
| | 2 | 0.18 | 0.18 | 350 | 15120 |
| | 2 | 0.25 | 0.25 | 350 | 15127 |
| Rxi®-5Sil MS | 2 | 0.15 | 0.15 | 350 | 15113 |
| | 2 | 0.18 | 0.18 | 350 | 15119 |
| | 2 | 0.25 | 0.25 | 350 | 15126 |
| Rxi®-XLB | 2 | 0.15 | 0.15 | 360 | 15115 |
| | 2 | 0.18 | 0.18 | 360 | 15121 |
| | 2 | 0.25 | 0.25 | 360 | 15128 |
| Rxi®-17Sil MS | 2 | 0.15 | 0.15 | 360 | 15110 |
| | 2 | 0.18 | 0.18 | 360 | 15116 |
| | 2 | 0.25 | 0.25 | 360 | 15123 |
| Rtx®-200 | 2 | 0.15 | 0.15 | 340 | 15111 |
| | 2 | 0.18 | 0.18 | 340 | 15117 |
| | 2 | 0.25 | 0.25 | 340 | 15124 |
| Stabilwax® | 2 | 0.15 | 0.15 | 260 | 15112 |
| | 2 | 0.18 | 0.18 | 260 | 15118 |
| | 2 | 0.25 | 0.25 | 260 | 15125 |

For help pairing columns,
visit **www.restek.com/gcxgc-combo**

**Accessories:**

| Description | For more information |
|---|---|
| Press-Tight® Connectors | www.restek.com/press-tight |
| Restek Electronic Leak Detector | www.restek.com/leakdetector |
| Sky™ Inlet Liners | www.restek.com/sky |


Patent pending

Browse our full selection of GCxGC columns, accessories,
and technical resources at **www.restek.com/gcxgc**

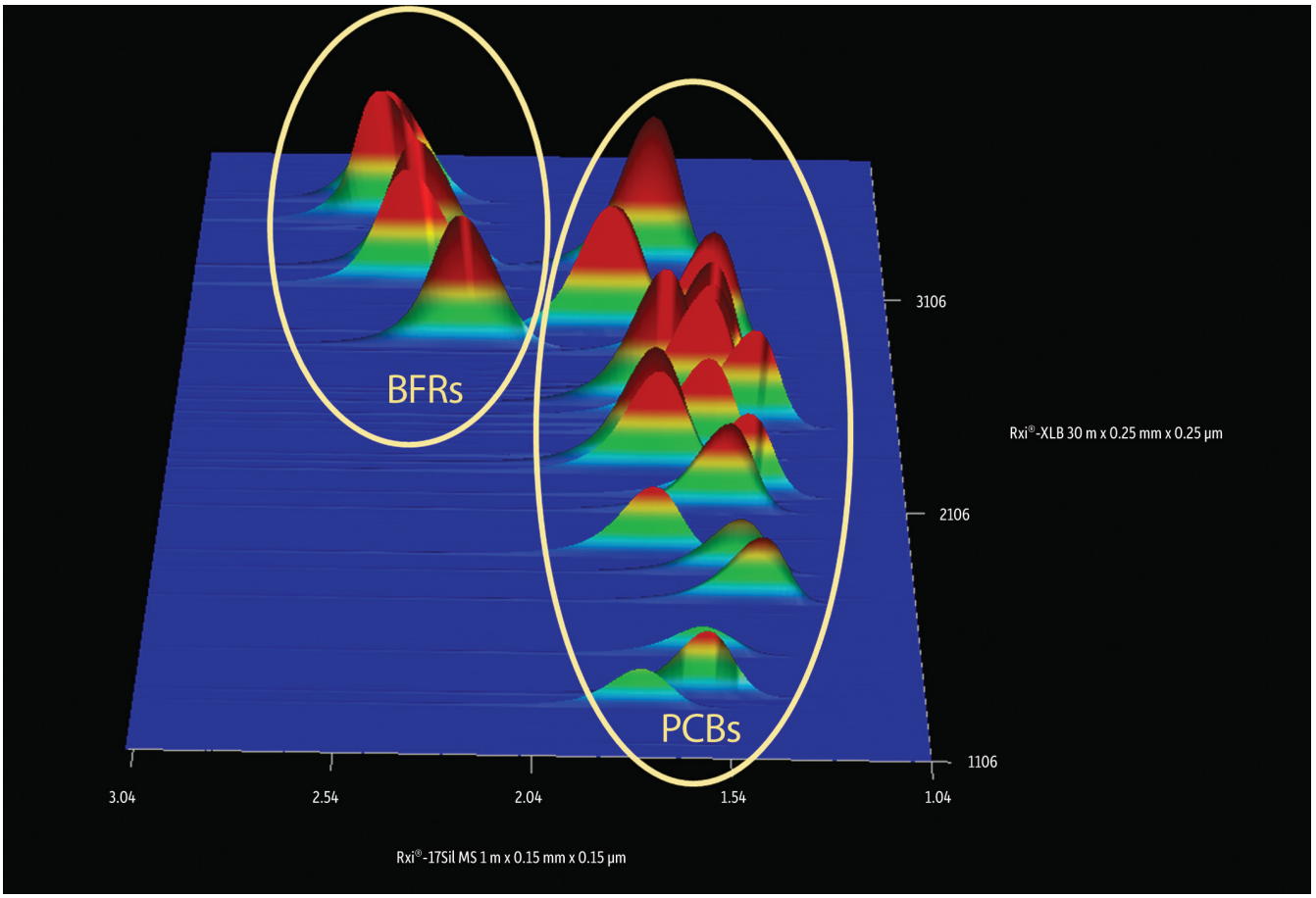
# Why use GCxGC?

Because comprehensive two-dimensional gas chromatography allows you to perform separations that are simply not possible using standard one-dimensional chromatography!

For example, polychlorinated biphenyls (PCBs) and brominated flame retardants (BFRs) coelute in one-dimensional GC analyses. If a non-specific electron capture detector (ECD) is used, accurate quantification for all important congeners is impossible. Not even offline solid phase extraction cleanup methods like silica are helpful because PCBs and BFRs elute in the same solvent fraction. With the proper Restek primary and secondary columns, GCxGC-ECD allows you to separate PCBs and BFRs, resulting in accurate qualitative and quantitative data (Figure 1).

And that's only the beginning! Restek offers a full line of primary and secondary columns for GCxGC, as well as accessories and technical assistance, to help you easily perform analyses that were never before possible. Visit **www.restek.com/gcxgc** for full product and application information.

**Figure 1** PCBs and BFRs are easily separated using GCxGC-ECD with Rxi®-XLB and Rxi®-17Sil MS columns.




* For full analysis conditions, visit www.restek.com and search for GC_EV1237

## Contact your Restek representative and order yours today!

Visit **www.restek.com/Contact-Us** to find a distributor or representative near you.



RESTEK

Lit. Cat.# EVTS1416-UNV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