

# Analyze Chlorinated Pesticides, PCBs, and Chlorinated Herbicides

Using **Rtx<sup>®</sup>-CLPesticides** and **Rtx<sup>®</sup>-CLPesticides2 Fused Silica Columns**

- Reduce down time by running multiple methods on a single column set.
- Simultaneously detect and confirm 20 chlorinated pesticides.
- Speed up analysis times—less than 7 minutes on 0.32mm columns.



**Chromatography Products**

[www.restek.com](http://www.restek.com)

## Dual Column Analysis for Chlorinated Pesticides, PCBs, and Herbicides Using an Rtx®-CLPesticides Column Pair

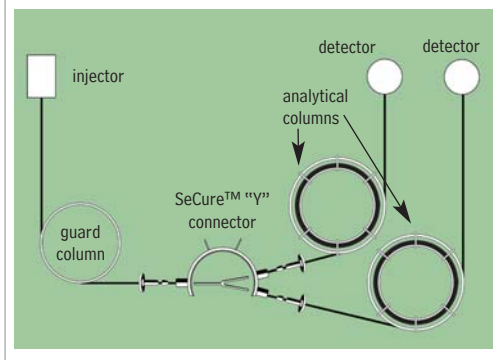
Rtx®-CLPesticides and Rtx®-CLPesticides2 columns are engineered for faster analyses and reduced downtime. New phase film thicknesses and optimized run conditions allow rapid analysis without sacrificing column capacity—meaning much faster sample throughput for your laboratory. These columns are designed for dual column analysis, which reduces injection port maintenance and allows primary and confirmation analyses from a single injection.

Dual column analysis cuts injection port maintenance time in half by coupling two analytical columns to a single guard column and injection port using a “Y” connector (Figure 1). This instrument set-up offers many advantages including:

- Method compliant results in half the time. Provides simultaneous quantification and confirmation using columns with different selectivity.
- Reduced contamination; guard column traps high molecular weight compounds, protecting the analytical columns.
- Resolution and retention times are unaffected by maintenance. Guard column can be trimmed instead of the analytical columns.
- Consistent vaporization and split for enhanced reproducibility.

In addition to compatibility with a dual column set-up, the Rtx®-CLPesticides and Rtx®-CLPesticides2 columns are ideal for multiple environmental ECD methods. Here we demonstrate the effectiveness of this column pair for chlorinated pesticides, PCBs as Aroclors, and chlorinated herbicides. Speed up your analyses and reduce downtime using the versatile Rtx®-CLPesticides/Rtx®-CLPesticides2 column pair in a dual column configuration.

**Figure 1** Perform dual column analysis using a single injector and guard column with split flow onto two analytical columns.



## Save Time and Money—Use One Column Pair for Multiple Methods

### Chlorinated Pesticide Analysis

Four different internal diameters (0.18, 0.25, 0.32, and 0.53mm ID) are suitable for chlorinated pesticides analysis, and all offer excellent chromatographic results (Figures 2 and 3). Baseline resolution is achieved for all primary EPA Method 8081B target compounds. Analysis times reflect simultaneous quantification and confirmation and range from 7 to 9 minutes, depending on column dimensions and instrument conditions.

### PCBs as Aroclors Analysis

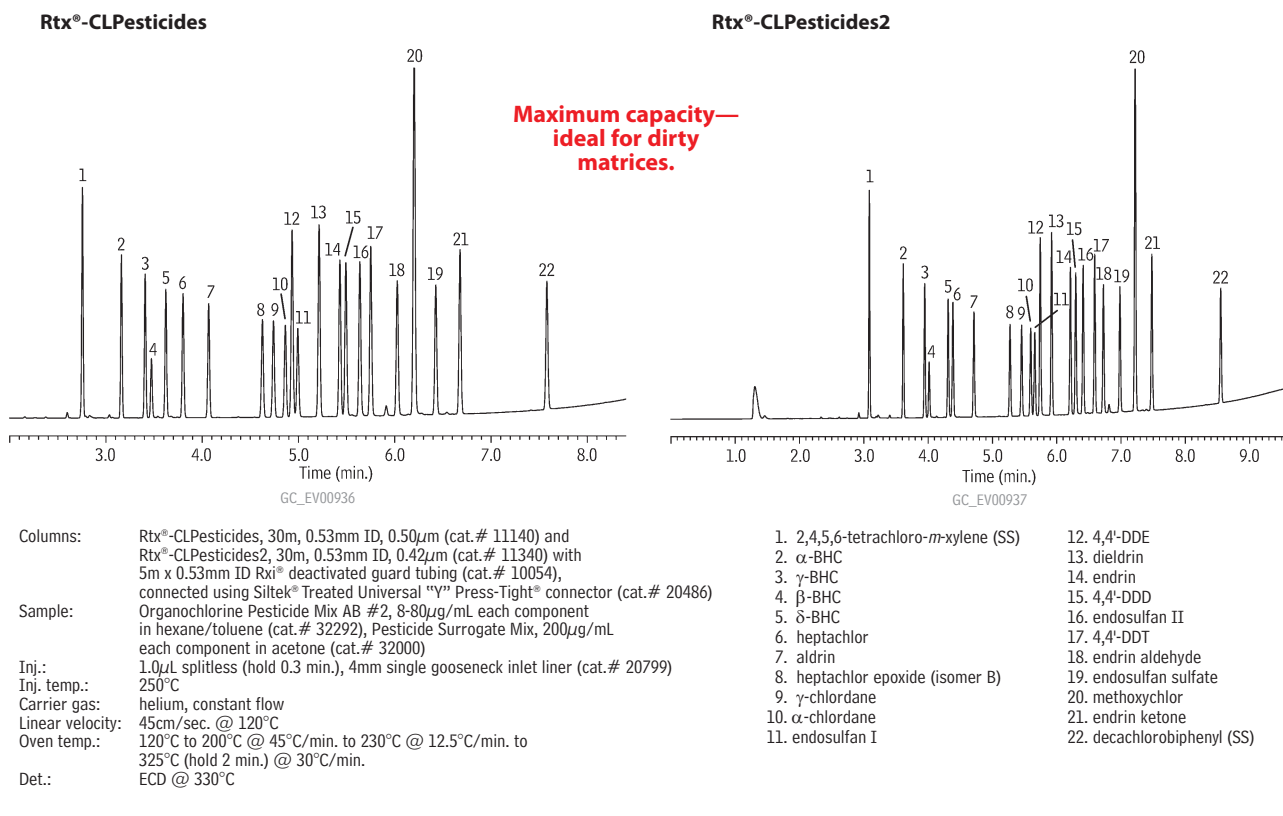
Aroclors can be identified and quantified on Rtx®-CLPesticides and Rtx®-CLPesticides2 columns using the same instrument set-up and run conditions used for chlorinated pesticides analysis. Aroclor patterns are easily distinguishable and the resolution obtained allows the analyst to select 5 peaks from each standard for quantification according to EPA Method 8082A. Figures 4 and 5 show the individual Aroclor mixes and the differences among them.

### Chlorinated Herbicides Analysis

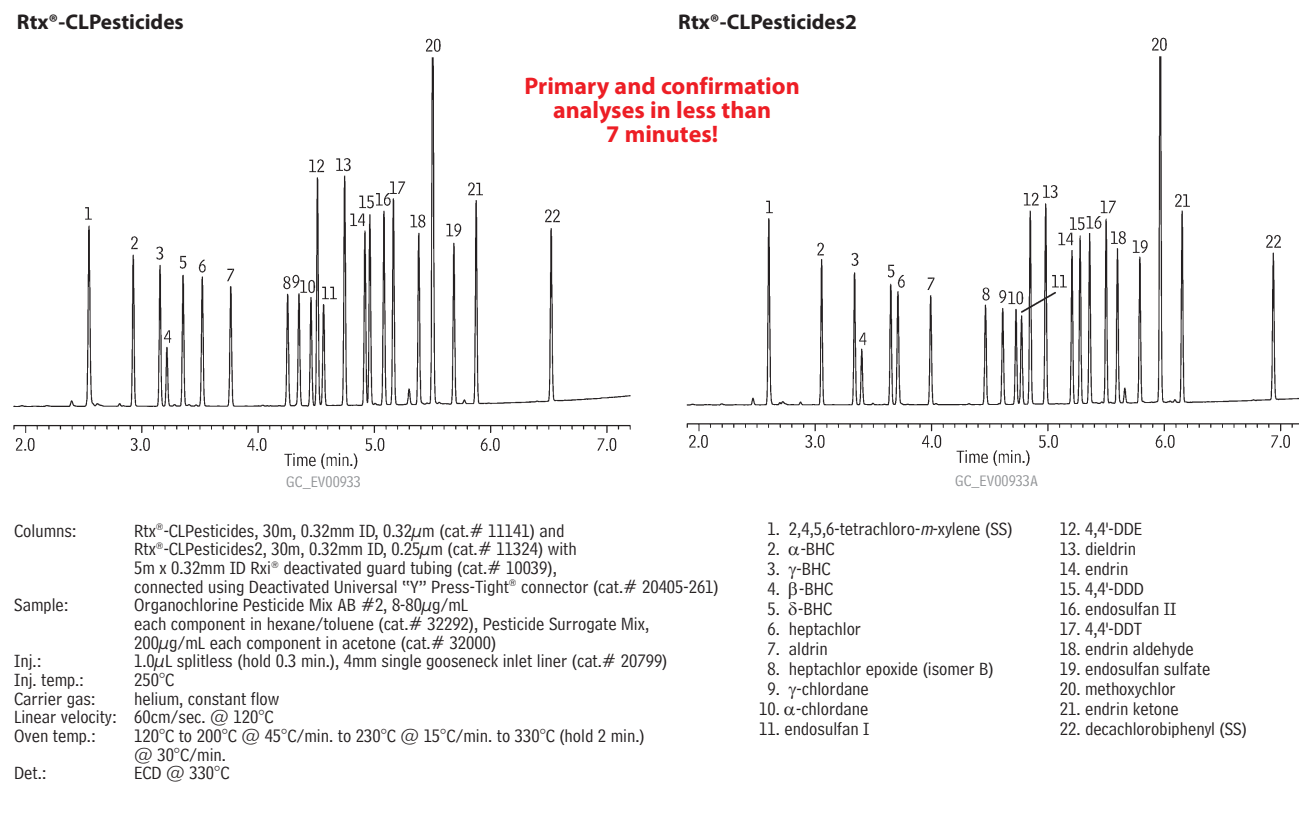
Chlorinated herbicide analysis can be accomplished in 13 minutes on the Rtx®-CLPesticides and Rtx®-CLPesticides2 column pair for all 17 target compounds in EPA Method 8151A. One pair of compounds (bentazon and picloram methyl esters) coelutes on the Rtx®-CLPesticides column, but these compounds are fully resolved on the Rtx®-CLPesticides2 column (Figure 6). Many laboratories acquire chlorinated herbicides on the same instrument set-up used for chlorinated pesticide and PCB analyses. However, regardless of the system you use, contamination from the sample preparation procedure for chlorinated herbicides can occur. Therefore, maintenance should be performed to clean the injection port and guard column after analyzing chlorinated herbicide samples.



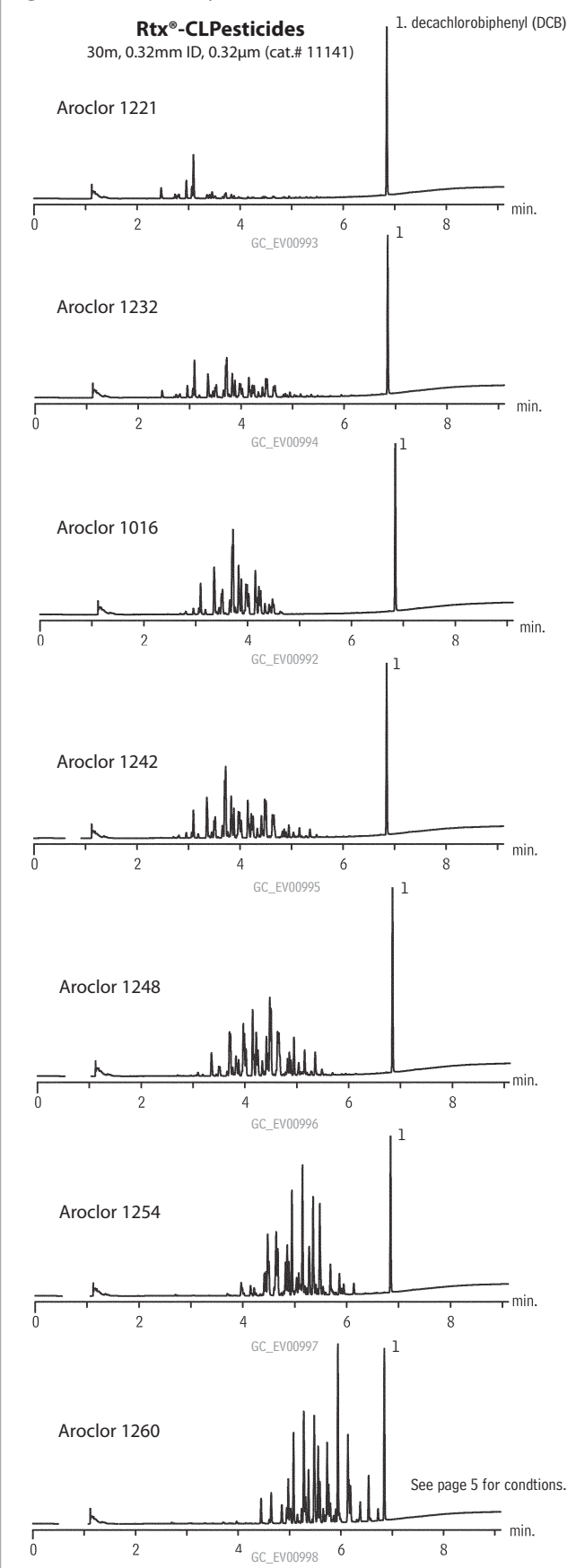
**Figure 2** Chlorinated pesticides resolved on the **0.53mm ID Rtx®-CLPesticides/ Rtx®-CLPesticides2** column pair.



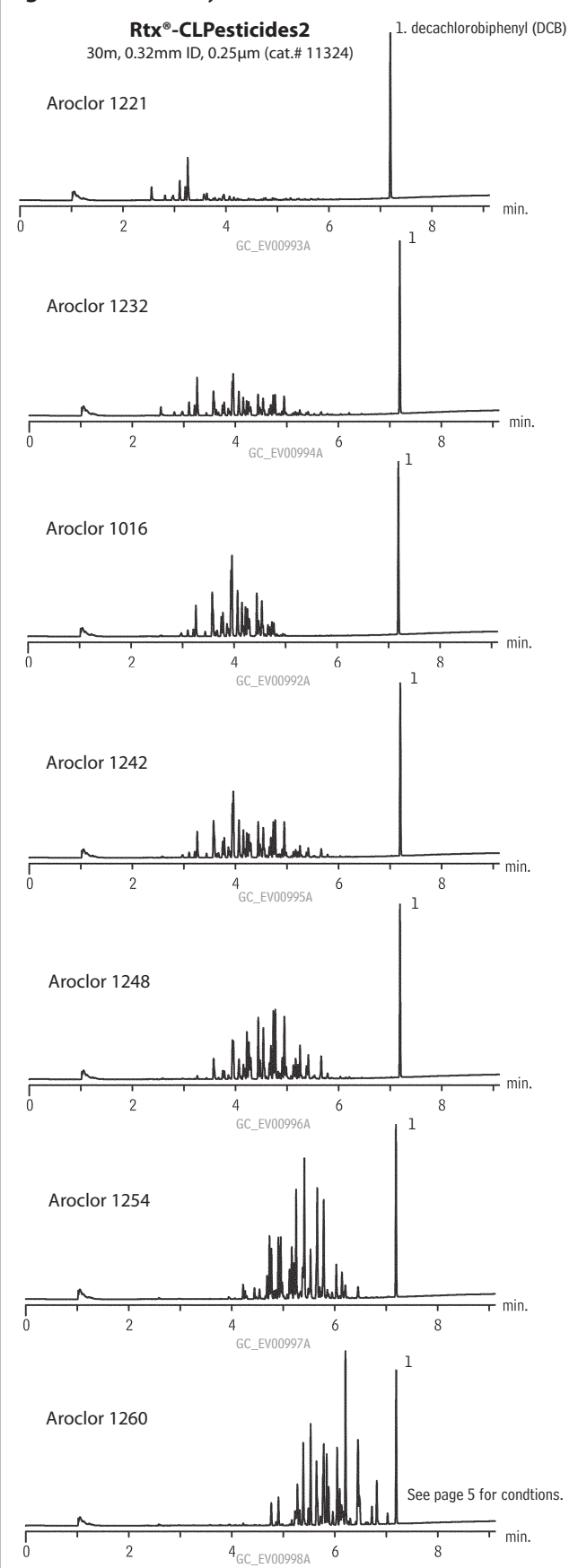
**Figure 3** Chlorinated pesticides resolved on the **0.32mm ID Rtx®-CLPesticides/ Rtx®-CLPesticides2** column pair.



**Figure 4** Aroclor analysis on the Rtx®-CLPesticides column.

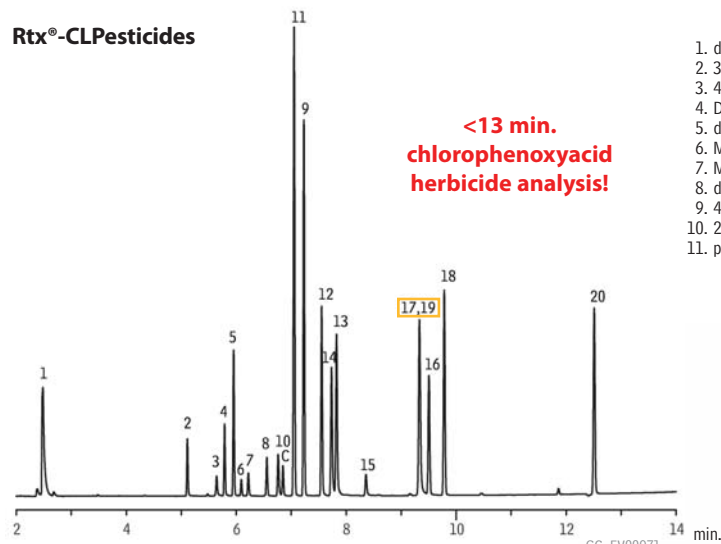


**Figure 5** Aroclor analysis on the Rtx®-CLPesticides2 column.



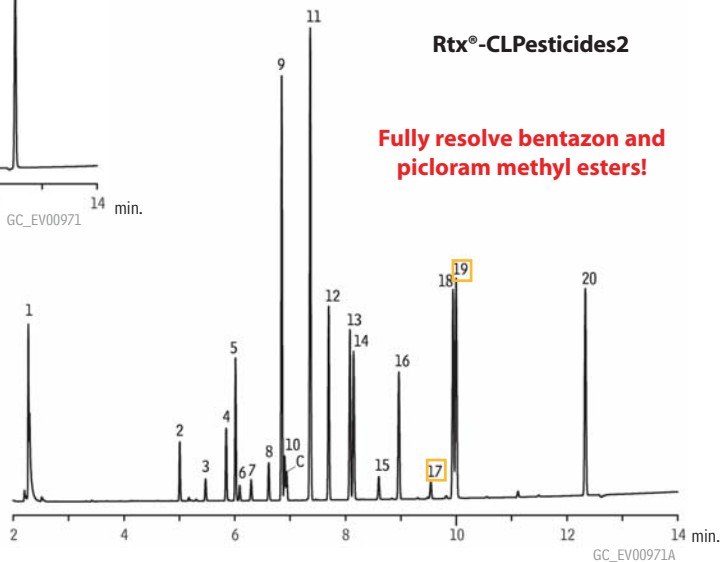
**Figure 6** Excellent resolution of chlorinated herbicides on the Rtx®-CLPesticides/ Rtx®-CLPesticides2 column pair.

**Rtx®-CLPesticides**



1. dalapon methyl ester
2. 3,5-dichlorobenzoic acid methyl ester (SS)
3. 4-nitroanisole
4. DCAA methyl ester (SS)
5. dicamba methyl ester
6. MCPP methyl ester
7. MCPA methyl ester
8. dichlorprop methyl ester
9. 4,4'-DBOB (IS)
10. 2,4-D methyl ester
11. pentachloroanisole
12. 2,4,5-TP methyl ester
13. 2,4,5-T methyl ester
14. chloramben methyl ester
15. 2,4-DB methyl ester
16. dinoseb methyl ester
17. bentazon methyl ester
18. DCPA dimethyl ester
19. picloram methyl ester
20. acifluorfen methyl ester
- C. contaminant

**Rtx®-CLPesticides2**



Column: Rtx®-CLPesticides2, 30m, 0.32mm ID, 0.25µm (cat.# 11324) and Rtx®-CLPesticides, 30m, 0.32mm ID, 0.32µm (cat.# 11141), with 5m x 0.32mm ID Rxi® deactivated guard tubing (cat.# 10039), connected using Deactivated Universal "Y" Press-Tight® Connector (cat.# 20405-261)  
 Sample: 200ng/mL Herbicide Mix #1 (cat.# 32055) in hexane  
 1,000ng/mL Herbicide Mix #2 (cat.# 32057) in hexane  
 20,000ng/mL Herbicide Mix #3 (cat.# 32059) in hexane  
 200ng/mL Herbicide Mix #4 (cat.# 32062) in hexane  
 250ng/mL Herbicide Internal Standard (cat.# 32053) in hexane  
 400ng/mL Herbicide Surrogate (cat.# 32050) in hexane  
 Inj.: 1.0µL splitless (hold 0.75 min.),  
 4mm cyclo double gooseneck inlet liner (cat.# 20895)  
 Inj. temp.: 250°C  
 Carrier gas: helium, constant pressure  
 Flow rate: 36cm/sec. @ 70°C  
 Oven temp.: 70°C (hold 0.5 min.) to 190°C @ 25°C/min. (hold 1 min.) to 300°C @ 11°C/min. (hold 5 min.)  
 Det.: ECD @ 325°C

**Conditions for Figures 4 & 5:** Sample: each Aroclor compound 1,000µg/mL in hexane (cat.# 32006) diluted to 1,000ppb, decachlorobiphenyl (BZ #209) 200µg/mL in acetone (cat.# 32029) diluted to 100ppb; Inj.: 1.0µL pulsed splitless @ 30psi (hold 0.3 min.), 4mm cyclo double gooseneck inlet liner (cat.# 20895); Inj. temp.: 250°C; Carrier gas: helium, constant flow; Linear velocity: 60cm/sec. @ 120°C; Oven temp.: 120°C to 200°C @ 45°C/min. to 230°C @ 15°C/min. to 330°C (hold 2 min.) @ 30°C/min.; Det.: ECD @ 330°C.

## Get Set for Dual Column Analysis!

### Analytical Columns

Improved resolution and faster analysis times, compared to 1701 or phenyl phases, make the Rtx®-CLPesticides/Rtx®-CLPesticides2 column pair ideal for analyzing chlorinated pesticides, PCBs as Aroclors, and chlorinated herbicides. These columns offer alternate selectivity, meeting method requirements for elution order changes and relative retention time shifts. Column bleed is extremely low at 330°C, allowing high boiling point contaminants to be baked off of the column, extending column lifetime.

**save now!**

See column kits on next page.

#### Rtx®-CLPesticides Columns (fused silica)

| ID     | df (µm) | temp. limits     | 10-Meter | 15-Meter | 20-Meter | 30-Meter | 60-Meter |
|--------|---------|------------------|----------|----------|----------|----------|----------|
| 0.10mm | 0.10    | -60 to 310/330°C | 43101    |          |          |          |          |
| 0.18mm | 0.18    | -60 to 310/330°C | 42101    |          | 42102    |          |          |
| 0.25mm | 0.25    | -60 to 320/340°C |          | 11120    |          | 11123    | 11126    |
| 0.32mm | 0.32    | -60 to 320/340°C |          |          |          | 11141    |          |
|        | 0.50    | -60 to 320/340°C |          | 11136    |          | 11139    |          |
| 0.53mm | 0.50    | -60 to 300/320°C |          | 11137    |          | 11140    |          |

#### Rtx®-CLPesticides2 Columns (fused silica)

| ID     | df (µm) | temp. limits     | 10-Meter | 15-Meter | 20-Meter | 30-Meter | 60-Meter |
|--------|---------|------------------|----------|----------|----------|----------|----------|
| 0.10mm | 0.10    | -60 to 310/330°C | 43301    |          | 43302    |          |          |
| 0.18mm | 0.14    | -60 to 310/330°C | 42301    |          | 42302    |          |          |
| 0.25mm | 0.20    | -60 to 320/340°C |          | 11320    |          | 11323    | 11326    |
| 0.32mm | 0.25    | -60 to 320/340°C |          | 11321    |          | 11324    |          |
|        | 0.50    | -60 to 320/340°C |          |          |          | 11325    |          |
| 0.53mm | 0.42    | -60 to 300/320°C |          | 11337    |          | 11340    |          |

**restek  
innovation!**

- Very low bleed
- Faster analysis



## also available

Kits for 0.18 and 0.25mm ID columns are available. Visit [www.restek.com](http://www.restek.com) to inquire.

### Rtx®-CLPesticides Column Kits

0.32mm ID Rtx®-CLPesticides Kit cat.# 11196 (kit),

| Includes:                                       | cat.# |
|---|-------|
| 30m, 0.32mm ID, 0.32µm Rtx-CLPesticides Column  | 11141 |
| 30m, 0.32mm ID, 0.25µm Rtx-CLPesticides2 Column | 11324 |
| Universal Angled "Y" Press-Tight Connector      | 20403 |
| 5m, 0.32mm ID Siltek Guard Column               | 10027 |

0.53mm ID Rtx®-CLPesticides Kit cat.# 11197 (kit),

| Includes:                                       | cat.# |
|---|-------|
| 30m, 0.53mm ID, 0.50µm Rtx-CLPesticides Column  | 11140 |
| 30m, 0.53mm ID, 0.42µm Rtx-CLPesticides2 Column | 11340 |
| Universal Angled "Y" Press-Tight Connector      | 20403 |
| 5m, 0.53mm ID IP Deactivated Guard Column       | 10045 |

## Injection Port Liners

The Rtx®-CLPesticides and Rtx®-CLPesticides2 column pair will work with both split or splitless injection techniques and any liner geometry. Various inlet liners are used for pesticide analysis; the four most common are the single gooseneck, double gooseneck, cyclo double gooseneck, and the Drilled Uniliner®.

The Drilled Uniliner® inlet liner provides the most inert sample pathway and eliminates injection port discrimination because the sample is funneled directly onto the column without contacting the metal injection port. Using a Drilled Uniliner® inlet liner eliminates the need to replace the inlet seal at the bottom of the injection port, substantially reducing maintenance time and expense.

The gooseneck liners are also commonly used for pesticide analysis and work best with pressure pulsing conditions. The best gooseneck liner to use with pressure pulsing is the cyclo double gooseneck liner. This liner has a screw-type sample pathway which collects nonvolatile material at the beginning of the screws and offers more surface area to vaporize the sample prior to reaching the entrance of the column.

## Guard Columns

The quality of guard column used for pesticide analysis is important because some compounds will degrade on columns that are not properly deactivated. The initial quality of the guard column is measured by inertness using endrin and 4,4'-DDT as test probes. There are two types of guard columns recommended for pesticide analysis: Rxi® guards and Siltek® treated guards. Both offer excellent inertness for pesticides; however, the Siltek® treated surface is slightly more inert than standard deactivation processes. Table I shows the excellent inertness offered by both the Rxi® guard and Siltek® treated tubing.

### Rxi® Guard/Retention Gap Columns

| Nominal ID | Nominal OD    | 5-Meter | 5-Meter/6-pk. | 10-Meter | 10-Meter/6-pk. |
|------------|---------------|---------|---------------|----------|----------------|
| 0.25mm     | 0.37 ± 0.04mm | 10029   | 10029-600     | 10059    | 10059-600      |
| 0.32mm     | 0.45 ± 0.04mm | 10039   | 10039-600     | 10064    | 10064-600      |
| 0.53mm     | 0.69 ± 0.05mm | 10054   | 10054-600     | 10073    | 10073-600      |

### Siltek®-Deactivated Guard /Retention Gap Columns/Transfer Lines

| Nominal ID | Nominal OD    | 5-Meter | 10-Meter |
|------------|---------------|---------|----------|
| 0.25mm     | 0.37 ± 0.04mm | 10026   | 10036    |
| 0.32mm     | 0.45 ± 0.04mm | 10027   | 10037    |

### Liners for Agilent GCs

| ID* x OD & Length (mm)           | qty.  | cat.# |
|----------------------------------|-------|-------|
| Gooseneck Splitless (4mm)        |       |       |
| 4.0mm x 6.5mm x 78.5mm           | 5-pk. | 20799 |
| Double Gooseneck Splitless (4mm) |       |       |
| 4.0mm x 6.5mm x 78.5mm           | 5-pk. | 20785 |
| Cyclo Double Gooseneck (4mm)     |       |       |
| 4.0mm x 6.5mm x 78.5mm           | 5-pk. | 20896 |
| Drilled Uniliner (hole near top) |       |       |
| 4.0mm x 6.3mm x 78.5mm           | 5-pk. | 21055 |

### Dual Vespel® Ring Inlet Seals for Agilent GCs



#### 0.8mm ID Dual Vespel® Ring Inlet Seal

|                 |        |       |
|-----------------|--------|-------|
| Stainless Steel | 2-pk.  | 21238 |
| Stainless Steel | 10-pk. | 21239 |
| Gold Plated     | 2-pk.  | 21240 |
| Gold Plated     | 10-pk. | 21241 |
| Siltek Treated  | 2-pk.  | 21242 |
| Siltek Treated  | 10-pk. | 21243 |

\*Cross disks are also available. Visit [www.restek.com](http://www.restek.com).

**Table I** Average percent breakdown of endrin and 4,4'-DDT.

| Guard Type                        | % Breakdown |          |
|-----------------------------------|-------------|----------|
|                                   | Endrin      | 4,4'-DDT |
| Rxi guard column                  | 1.6         | 1.6      |
| Siltek treated guard column       | 2.1         | 0.6      |
| Rtx-CLPesticides column w/o guard | 1.0         | 0.1      |

Analytical column: Rtx®-CLPesticides2 column (cat.# 11324) attached with a Press-Tight® connector. On-column concentration: endrin @ 50pg, 4,4'-DDT @ 100pg; Inlet liner: 4mm cyclo double gooseneck. n=10.

## Essentials for Dual Column Analysis

### Connectors

The best chromatography for dual column analysis is obtained using the Universal “Y” Press-Tight® connector. The internal design of the taper allows the column to seal to the glass surface and minimizes dead volume. To strengthen this connection, Restek developed the SeCure™ “Y” connector, which uses a C-clamp to hold the columns in place, assuring a reliable connection.

The MXT™-Union connectors are an alternative connector system that uses special ferrules designed to eliminate dead volume. The MXT™-Union is made of stainless steel and is deactivated with Siltek® treatment making an inert sample pathway. The special ferrules used to make the connection are designed to eliminate the dead volume when installing the columns.

#### MXT™ “Y”-Union Connector Kits for Fused Silica Columns

Each kit contains the MXT™ union, three 1/32-inch nuts and three one-piece fused silica adaptors.

| Description                        | qty. | cat.# |
|------------------------------------|------|-------|
| For 0.25mm ID Fused Silica Columns | kit  | 21389 |
| For 0.32mm ID Fused Silica Columns | kit  | 21388 |
| For 0.53mm ID Fused Silica Columns | kit  | 21387 |



#### SeCure™ “Y” Connector Kits

Kits include: SeCure™ “Y” connector body, 3 knurled nuts, “Y” Universal Press-Tight® union, 3 ferrules.

| Description              | Ferrules Fit Column ID | qty.  | cat.# |
|--------------------------|------------------------|-------|-------|
| SeCure “Y” Connector Kit | 0.18/0.25/0.28mm       | kit   | 20276 |
| SeCure “Y” Connector Kit | 0.32mm                 | kit   | 20277 |
| SeCure “Y” Connector Kit | 0.45/0.53mm            | kit   | 20278 |
| Knurled nut              |                        | 3-pk. | 20279 |



The SeCure™ “Y” connector’s open design allows visual confirmation of the seal.

#### Graphite Ferrules for SeCure™ “Y” Connectors

Buy extra to keep spares on hand.

| Ferrule ID | Fits Column ID   | Graphite 10-pk. | Graphite 50-pk. |
|------------|------------------|-----------------|-----------------|
| 0.4mm      | 0.18/0.25/0.28mm | 20200           | 20227           |
| 0.5mm      | 0.32mm           | 20201           | 20228           |
| 0.8mm      | 0.45/0.53mm      | 20202           | 20224           |



#### Universal “Y” Press-Tight® Connectors

Great for dual column confirmation!

| Description  | ea.       | 3-pk.     |
|--|-----------|-----------|
| Universal “Y” Press-Tight Connector                | 20405     | 20406     |
| Deactivated Universal “Y” Press-Tight Connector    | 20405-261 | 20406-261 |
| Siltek Treated Universal “Y” Press-Tight Connector | 20485     | 20486     |



### Sample Preparation

#### Resprep™ SPE Cartridges: Normal Phase

Hydrophilic (polar) adsorbents used to extract hydrophilic analytes from nonpolar matrices, such as organic solvents (e.g., polar contaminants from sample extracts).

|  | 3mL/500mg<br>(50-pk.) | 6mL/500mg<br>(30-pk.) | 6mL/1000mg<br>(30-pk.) | 6mL/1000mg<br>(100-pk.) |
|--|-----------------------|-----------------------|------------------------|-------------------------|
| <b>Florisil (EPA SW 846 methods and CLP protocols)</b> | 24031<br>24032*       | —<br>26086**          | 24034<br>26085**       | 26205<br>—              |
| <b>Silica (EPA SW 846 methods)</b>                     | 24035<br>24036*       | —<br>—                | 24038<br>—             | —<br>—                  |

\*Teflon® frits \*\*Glass tubes with Teflon® frits



All cartridges are polypropylene and have polyethylene frits unless otherwise noted.

#### CarboPrep™ SPE Cartridges

| SPE Cartridge | Tube Volume,<br>Bed Weight | qty.   | cat#  |
|---------------|----------------------------|--------|-------|
| CarboPrep 90  | 3mL, 250mg                 | 50-pk. | 26091 |
| CarboPrep 90  | 6mL, 500mg                 | 30-pk. | 26092 |
| CarboPrep 200 | 3mL, 250mg                 | 50-pk. | 26088 |
| CarboPrep 200 | 6mL, 500mg                 | 30-pk. | 26087 |



**Excellent for  
Pesticide Residue  
Cleanup!**



Small, compact unit—  
easy to hold and operate.

### Leak Detector Facts

**Detectable gases:**

helium, nitrogen, argon,  
carbon dioxide

**Battery:**

Rechargeable Ni-MH, 7.2-volt

**Operating Temperature Range:**

32°-120°F (0°-48°C)

**Humidity Range:**

0-97%

**CE Approved**

## Assure a Leak Free System!

### Restek Electronic Leak Detector

Improve your chromatography using a Restek Leak Detector! Gas leaks can cause detector noise, baseline instability, and shorter column lifetimes. Avoid these costly problems by using a Restek Leak Detector to reliably detect minute gas leaks.

| Description   | qty. | cat.#     |
|---|------|-----------|
| Leak Detector with 110Volt Battery Charger          | ea.  | 22451     |
| Leak Detector with 220Volt European Battery Charger | ea.  | 22451-EUR |
| Leak Detector with 220Volt UK Battery Charger       | ea.  | 22451-UK  |

## Analytical Reference Materials

### Organochlorine Pesticide Mix AB #1

(20 components)

|  |                               |
|--|-------------------------------|
| aldrin   | dieldrin                      |
| α-BHC  | endosulfan I                  |
| β-BHC  | endosulfan II                 |
| δ-BHC  | endosulfan sulfate            |
| γ-BHC (lindane)                                  | endrin                        |
| α-chlordane                                      | endrin aldehyde               |
| γ-chlordane                                      | endrin ketone                 |
| 4,4'-DDD   | heptachlor                    |
| 4,4'-DDE   | heptachlor epoxide (isomer B) |
| 4,4'-DDT   | methoxychlor                  |
| 200µg/mL each in hexane:toluene (1:1), 1mL/ampul |                               |
| cat. # 32291                                     |                               |

### Organochlorine Pesticide Mix AB #2

(20 components)

|                                    |        |                               |    |
|------------------------------------|--------|-------------------------------|----|
| aldrin                             | 8µg/mL | endosulfan I                  | 8  |
| α-BHC                              | 8      | endosulfan II                 | 16 |
| β-BHC                              | 8      | endosulfan sulfate            | 16 |
| δ-BHC                              | 8      | endrin                        | 16 |
| γ-BHC (lindane)                    | 8      | endrin aldehyde               | 16 |
| α-chlordane                        | 8      | endrin ketone                 | 16 |
| γ-chlordane                        | 8      | heptachlor                    | 8  |
| 4,4'-DDD                           | 16     | heptachlor epoxide (isomer B) | 8  |
| 4,4'-DDE                           | 16     | methoxychlor                  | 80 |
| 4,4'-DDT                           | 16     |                               |    |
| dieldrin                           | 16     |                               |    |
| In hexane:toluene (1:1), 1mL/ampul |        |                               |    |
| cat. # 32292                       |        |                               |    |

### Organochlorine Pesticide System Evaluation Mix

|   |          |        |          |
|---|----------|--------|----------|
| 4,4'-DDT                                      | 200µg/mL | endrin | 100µg/mL |
| In methyl <i>tert</i> -butyl ether, 1mL/ampul |          |        |          |
| cat. # 32417                                  |          |        |          |

### Pesticide Surrogate Mix

|                                     |                                       |
|-------------------------------------|---------------------------------------|
| decachlorobiphenyl                  | 2,4,5,6-tetrachloro- <i>m</i> -xylene |
| 200µg/mL each in acetone, 1mL/ampul |                                       |
| cat. # 32000                        |                                       |

### Organochlorine Pesticide Resolution Check Mix (with surrogates) (22 components)

|                          |         |   |     |
|--------------------------|---------|---|-----|
| aldrin                   | 10µg/mL | endosulfan I                                | 10  |
| α-BHC                    | 10      | endosulfan II                               | 20  |
| β-BHC                    | 10      | endosulfan sulfate                          | 20  |
| δ-BHC                    | 10      | endrin                                      | 20  |
| γ-BHC (lindane)          | 10      | endrin aldehyde                             | 20  |
| α-chlordane              | 10      | endrin ketone                               | 20  |
| γ-chlordane              | 10      | heptachlor                                  | 10  |
| decachlorobiphenyl (SUR) | 20      | heptachlor epoxide (isomer B)               | 10  |
| dieldrin                 | 20      | methoxychlor                                | 100 |
| 4,4'-DDD                 | 20      | 2,4,5,6-tetrachloro- <i>m</i> -xylene (SUR) | 10  |
| 4,4'-DDE                 | 20      |   |     |
| 4,4'-DDT                 | 20      |   |     |

In hexane:toluene, 1mL/ampul  
cat. # 32454

### Aroclor Solutions

Volume is 1mL/ampul. Concentration is µg/mL.

| Compound     | Solvent | Conc. | cat.# |
|--------------|---------|-------|-------|
| Aroclor 1016 | H       | 1,000 | 32006 |
| Aroclor 1221 | H       | 1,000 | 32007 |
| Aroclor 1232 | H       | 1,000 | 32008 |
| Aroclor 1242 | H       | 1,000 | 32009 |
| Aroclor 1248 | H       | 1,000 | 32010 |
| Aroclor 1254 | H       | 1,000 | 32011 |
| Aroclor 1260 | H       | 1,000 | 32012 |
| Aroclor 1262 | H       | 1,000 | 32409 |
| Aroclor 1268 | H       | 1,000 | 32410 |

H=hexane

### Decachlorobiphenyl (BZ #209)

|                                |
|--------------------------------|
| decachlorobiphenyl             |
| 200µg/mL in acetone, 1mL/ampul |
| cat. # 32029                   |

## also available

Herbicide standards are also available. Visit [www.restek.com](http://www.restek.com) to inquire.

Restek Trademarks:  
CarboPrep, MXT, Press-Tight, Resprep, Rtx, Rxi, SeCure, Siltek, Uniliner.

Other Trademarks:  
Teflon, Vespel (E.I. du Pont de Nemours & Co., Inc.), Florisil (US Silica Co.).



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Restek France • phone: 33 (0)1 60 78 32 10 • fax: 33 (0)1 60 78 70 90 • e-mail: [restek@restekfrance.fr](mailto:restek@restekfrance.fr)

Restek Ireland • phone: 44 2890 814576 • fax: 44 2890 814576 • e-mail: [restekeurope@aol.com](mailto:restekeurope@aol.com)

Thames Restek U.K. LTD • phone: 44 1494 563377 • fax: 44 1494 564990 • e-mail: [sales@thamesrestek.co.uk](mailto:sales@thamesrestek.co.uk)

Restek GmbH • phone: +49 (0) 6172 2797 0 • fax: +49 (0) 6172 2797 77 • e-mail: [info@restekgmbh.de](mailto:info@restekgmbh.de)

