

RESTEK

The Advantage

Innovators of
High Resolution
Chromatography
Products

Rtx[®]-CLPesticides & Rtx[®]-CLPesticides2

**A complete solution for chlorinated
pesticide, herbicide, and PCB analysis.**

by Frank Dorman

For years, environmental laboratories have struggled with various chlorinated pesticide analytical methods. Keeping track of resolution requirements and breakdown performance criteria while analyzing extracts containing high-boiling contaminants is not easy. With the introduction of the Rtx-CLPesticides and Rtx-CLPesticides2 columns from Restek, it is now possible to analyze the 22 common chlorinated pesticides with baseline resolution on both columns (see **Figures 1 and 2**). In addition, the analysis time is less than 24 minutes on both columns, resulting in higher throughput of samples. Since the columns exhibit baseline resolution, it is possible to combine the calibration standards (Mix A and B) for most methods, again resulting in increased throughput by decreasing the number of injections for calibration runs.

Stationary phase thermal stability and low bleed are also important column features so that sample contamination can

- **Baseline resolution of the 22 chlorinated pesticides in Methods 8081, CLP, and 608.**
- **Less than 25 minute analysis time.**
- **High thermal stability with low bleed.**
- **Excellent inertness.**
- **Unsurpassed performance for the 508 pesticides and the 8151 herbicides.**

be minimized by programming to a high temperature at the end of the analysis. The Rtx-CLPesticides and Rtx-CLPesticides2 columns have 330°C temperature limits, allowing for high temperature "bake out" to minimize the effects of high-boiling contaminants. While these contaminants don't always appear in the GC-ECD chromatogram, they can cause shifts in retention time, elevated baselines, and target compound breakdown.

The inertness of the stationary phase is important to minimize the possibility of on-column breakdown. Restek has published the details of this in previous presentations' and

issues of *The Restek Advantage**. This is most often observed in cyanopropyl capillary column stationary phases ("-1701") which very often provides the best resolution between target compounds, but suffers from poor inertness and reduced thermal stability. Both the Rtx-CLPesticides and the Rtx-CLPesticides2 columns have excellent inertness and will not be prone to the on-column breakdown problems observed with the "-1701" phases.

While the performance of these columns is unmatched for the 22 chlorinated pesticides as listed in USEPA 808 1, many laboratories also use the same GCs for other analyses. It is

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Column**
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Rtx[®]-CLPesticides & Rtx[®]-CLPesticides2

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common for the same instruments to be used for herbicide analysis (EPA Method 8 15 1) and the extended pesticide compound lists (Method 508). The Rtx-CLPesticides and Rtx-CLPesticides2 columns also exhibit excellent performance for these analyses as well, making them the clear choice for any pesticide/PCB/herbicide analysis.

In summary, the combination of the Rtx-CLPesticides and Rtx-CLPesticides2 columns provide unsurpassed performance for the analysis of chlorinated pesticides. They can be conditioned at the end of each analysis to remove high-boiling contaminants without degrading the stationary phase. They also give improved response and reduced breakdown of methoxychlor and DDT. By designing the

stationary phase with the requirements of the method in mind, Restek is leading the way into the next era of chromatography. If you are involved with the analysis of chlorinated pesticides and want to improve your resolution capacity to analyze dirty extracts, and increase your throughput, try the Rtx-CLPesticides and Rtx-CLPesticides2 columns.

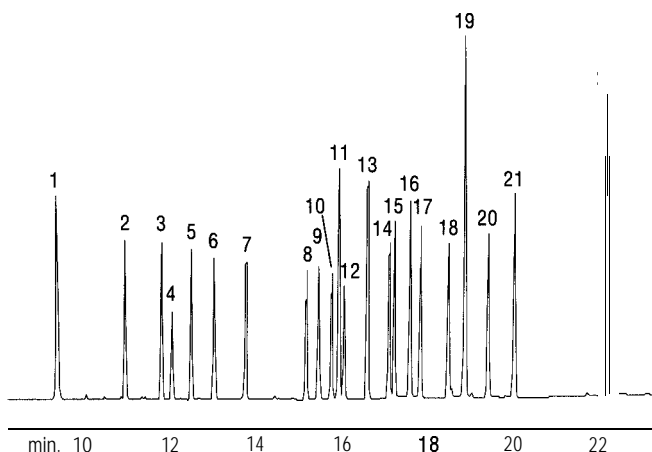
1. 1997 Pittsburgh Conference, Paper 1187.
2. The Restek Advantage, Summer 1996.

Convenient, cost-saving kits are available that include both Rtx-CLPesticides columns, a guard column, and a 5-pack of Tye-Tight[®] connectors.

Call your local distributor for more information!

Figure 1:

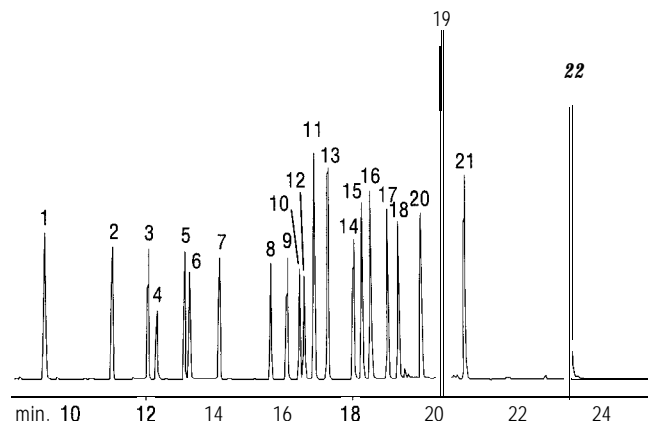
The Rtx-CLPesticides column provides baseline resolution of 22 chlorinated pesticides in EPA 8081 in less than 23 minutes.



30m, 0.32mm ID, 0.50µm Rtx-CLPesticides column (cat # 11139) run in parallel with the Rtx-CLPesticides2 column. Oven temp.: 120°C (hold 1 min.) to 300°C @ 9°C/min. (hold 10min.); Oead time: 1.4 min. Carrier gas: He.

Figure 2:

The Rtx-CLPesticides2 column is the ideal confirmation column to the Rtx-CLPesticides column, with 4 elution order changes, baseline resolution of 22 components, and a run time of less than 24 minutes for EPA 8081 pesticides.



30m, 0.32mm ID, 0.25µm Rtx-CLPesticides2 column (cat # 11324) run in parallel with the Rtx-CLPesticides column. Oven temp.: 120°C (hold 1min.) to 300°C @ 9°C/min. (hold 10min.); Dead time: 1.4 min. Carrier gas: He.

Peak List for Figures 1 and 2

- | | |
|---------------------------------|------------------------|
| 1. 2,4,5,6-tetrachloro-m-xylene | 12. endosulfan I |
| 2. a-BHC | 13. dieldrin |
| 3. γ-BHC | 14. endrin |
| 4. β-BHC | 15. 4,4'-DDD |
| 5. δ-BHC | 16. endosulfan II |
| 6. heptachlor | 17. 4,4'-DDT |
| 7. aldrin | 18. endrin aldehyde |
| 8. heptachlor epoxide | 19. methoxychlor |
| 9. γ-chlordane | 20. endosulfan sulfate |
| 10. a-chlordane | 21. endrin ketone |
| 11. 4,4'-DDE | 22. decachlorobiphenyl |

Product Listing:

New

Rtx-CLPesticides2 Column

Description	Cat #
30m, 0.25mm ID, 0.20µm	11323
30m, 0.32mm ID, 0.25µm	11324
30m, 0.53mm ID, 0.42µm	11340
Rtx-CLPesticides Column	
30m, 0.25mm ID, 0.25µm	11123
30m, 0.32mm ID, 0.50µm	11139
30m, 0.53mm ID, 0.50µm	11140