

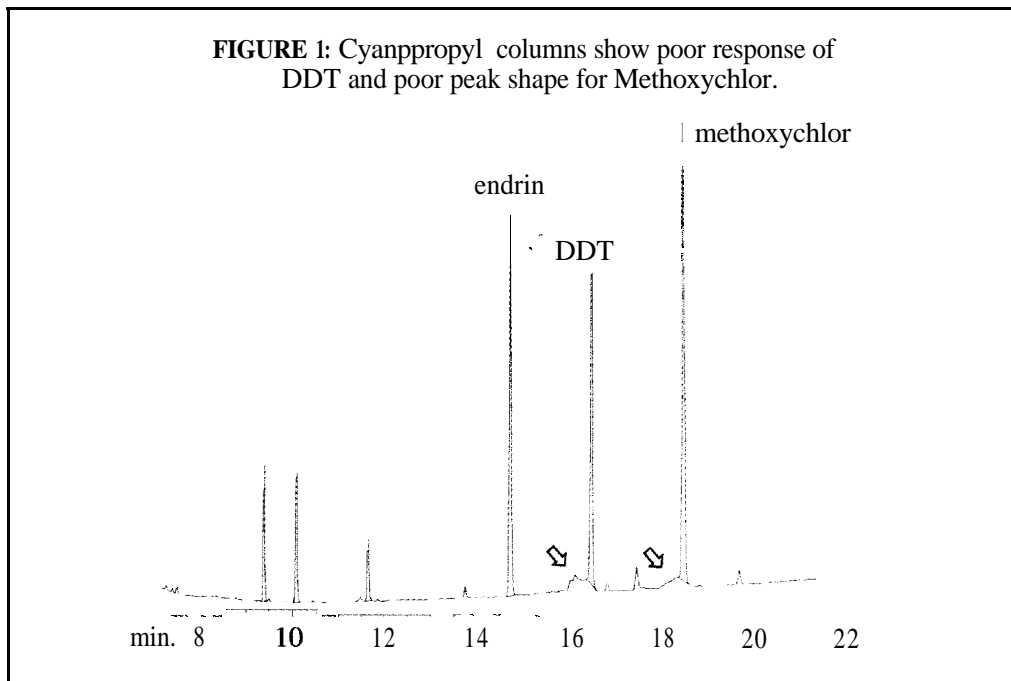
Restek

Rtx@-5 & Rtx@-50

Advantage The Perfect Combination for Chlorinated Pesticide Analysis

Many labs use a 5% phenyl (Rtx@-5) column as the primary analytical column and a cyanopropyl (Rtx@-1701) column as the confirmation column for chlorinated pesticide analysis. These two columns work well together since they produce significantly different elution orders for the chlorinated pesticides. These columns also meet the resolution criteria of the methods, and the same temperature program conditions can be used, which allows simultaneous confirmation.

Unfortunately, the chemistry of cyanopropyl columns can cause breakdown of DDT and sometimes produce a fronting peak for methoxychlor. This problem is well known. Some capillary column manufacturers specially test their columns with pesticides to screen for poor performance. Figure 1 shows the low response of DDT and the fronting shoulder of the methoxychlor peak on a cyanopropyl column that is



not performing well for pesticides.

The limited temperature of the cyanopropyl stationary phase can also create problems. A different stationary phase with a higher maximum operating temperature would dramatically improve the longevity of the column.

Rtx-50 - The ideal confirmation column for Chlorinated Pesticide analysis.

As an alternative to the cyanopropyl column, many labs have switched to using a 50% phenyl (Rtx@-50) capillary column. The Rtx@-50 is an intermediately polar phase with a maximum operating temperature of

330°C. This column meets the resolution criteria of the method without the breakdown or limited thermal stability of the cyanopropyl column. The 330°C maximum operating temperature of the Rtx@-50 allows high temperature bake-out to remove contamination of high molecular weight compounds.

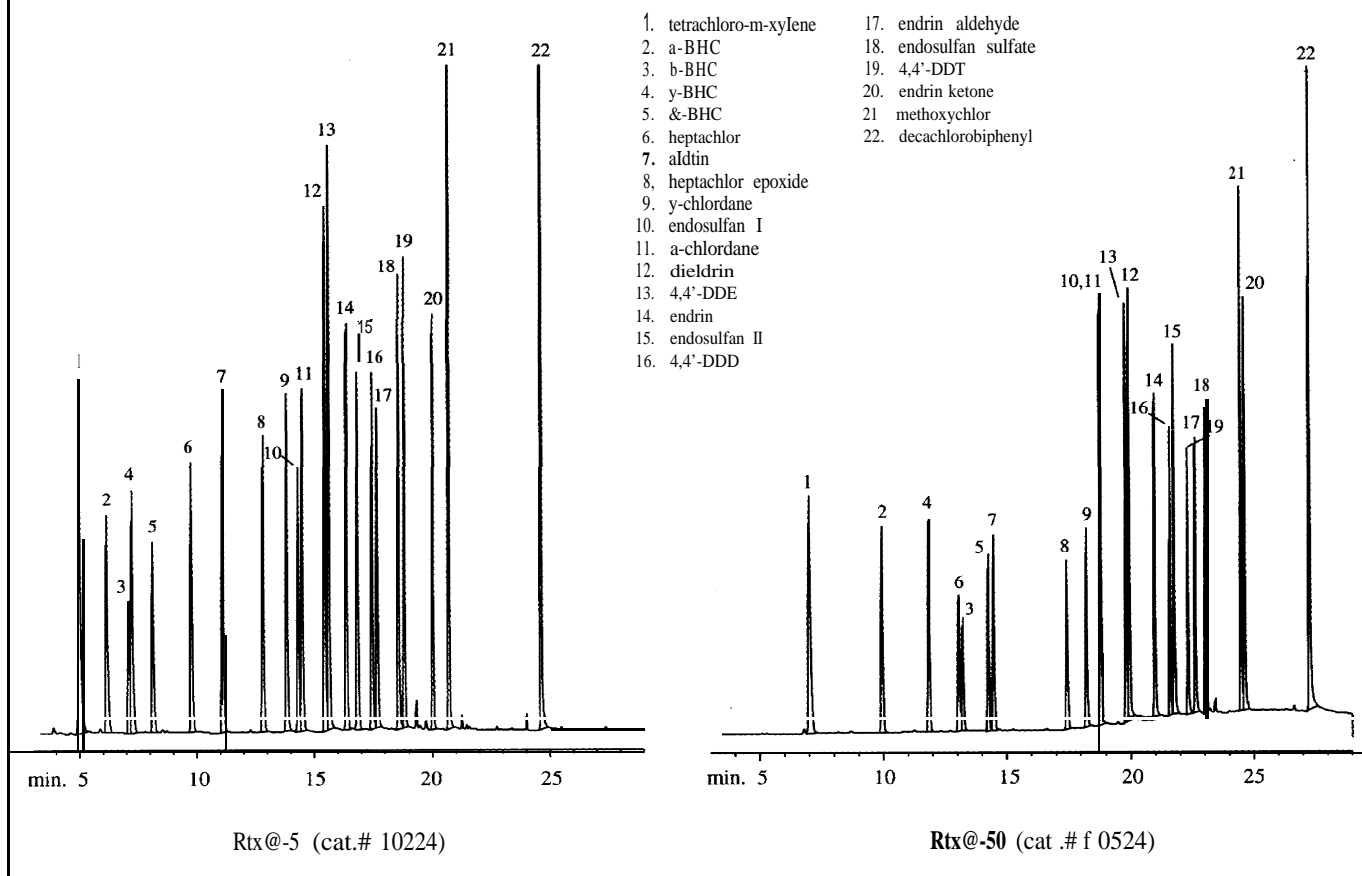
The Rtx@-50 produces excellent response and peak shape for active compounds such as endrin, DDT, and methoxychlor. When used in conjunction with the Rtx@-5, the Rtx@-50 column produces a significantly different elution order, making it an ideal confirmation column. Figure 2 shows the simultaneous confirmational analysis

of chlorinated pesticides on the Rtx@-5/Rtx@-50 column combination.

Meeting the calibration and resolution requirements for chlorinated pesticides can be simplified by using a combination of Rtx@-5 and Rtx@-50 columns. Both of these columns exhibit excellent peak shape for all the pesticides, and their increased thermal stability allows high temperature bake-out to remove contaminants. Restek offers the Rtx@-5 and Rtx@-50 columns in several diameter and film thickness combinations. Preassembled pesticide column kits containing the Rtx@-5 and Rtx@-50 columns are also available.



FIGURE 2: The Rtx"-5/Rtx"-50 column combination shows good resolution for chlorinated pesticide analysis.



CONDITIONS FOR FIGURE 2

30m, 0.32mm ID, 0.25um
 1ul direct injection of organochlorine pesticides. Sample split to two columns using an angled "Y" Press-Tight" connector (cat.# 20403) and a 5-meter guard column (cat.# 10044). Concentration 40-400pg on-column.
Oven temp.: 150°C (hold 2 min.) to 210°C @ 4°C/min. to 300°C @ 10C/min.
Inj./det. temp.: 225C/300C
Detector type: ECD
Carrier gas: He
Dead time: 1.2 min. @ 150°C

PRODUCT LISTING

Rtx"-5
30m, 0.32mm ID, 0.25um:
 cat.# 10224, each

Rtx"-50
30m, 0.32mm ID, 0.25um:
 cat.# 10524, each

5m, 0.32mm ID
Guard Column:
 cat.# 10044, each

UNIVERSAL ANGLED
"Y" PRESS-TIGHT"
 Connector:

cat.# 20403, ea 20404, 3-pk
"Y" VU_UNION Connector
 cat.# 20432, ea

Replacement Inserts
 cat.# 20433, ea 20434, 3-pk

PESTICIDE COLUMN
KIT (30m 0.32mm ID,
0.25um Rtx"-5/Rt x"-50 with

a 5m x 0.53mm ID Guard Column
("Y" Vu-Union)
 cat.# 52240-495, kit

(angled "Y" Press-Tight")
 cat.# 52240-496, kit