

New Rtx[®]-440 GC Column, for Rapid Analysis of Pesticides, PAHs or Other Semivolatiles

Exclusive Stationary Phase from Restek

by Gary Stidsen, GC Columns Marketing Manager

- Unique selectivity compared to other phases.
- Ideal polarity for pesticides, many other semivolatile compounds.
- Low bleed, thermally stable to 340°C—excellent for trace analysis by GC/MS.

new!

New Rtx[®]-440 stationary phase exhibits unique selectivity at an intermediate polarity. Applications testing we have performed to date includes organochlorine pesticides, polycyclic

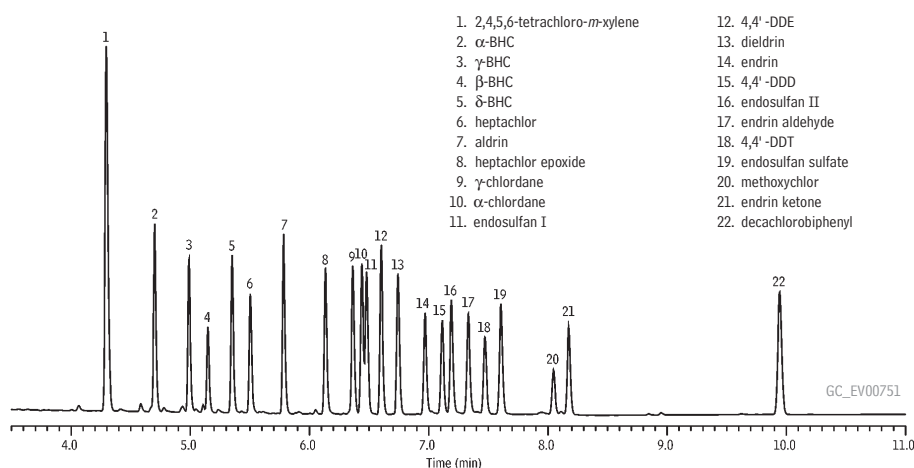
aromatic hydrocarbons (PAHs), and semivolatile environmental compounds (US EPA Method 8270). The new column resolves 20 commonly monitored organochlorine pesticides in 10 min-

utes (Figure 1), or the 34 organochlorine pesticides listed in US EPA Method 8081 in less than 13 minutes.

We also have had very promising results with analyzing PAHs on Rtx[®]-440 columns, as shown in Figure 2. Phenanthrene and anthracene (peaks 5 and 6), benzo(a)anthracene and chrysene (peaks 9 and 10) and benzo(b)fluoranthene and benzo(k)fluoranthene (peaks 11 and 12) are resolved well, as is a more difficult pair of analytes: indeno(1,2,3-cd)pyrene and dibenzo(a,h)anthracene (peaks 14 and 15). The analysis is complete in less than 18 minutes.

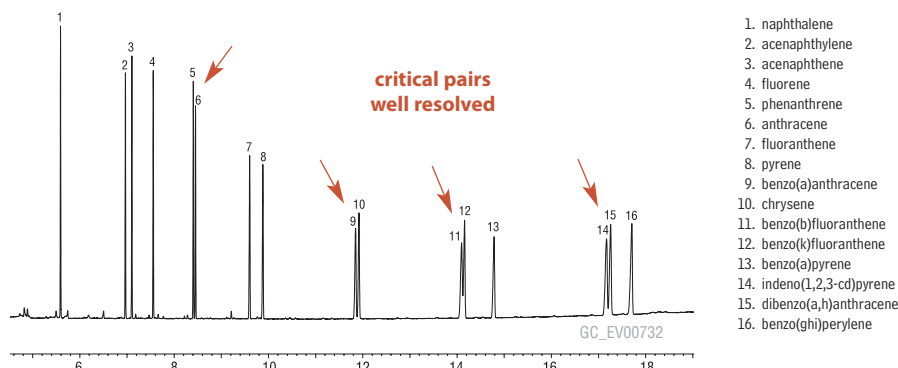
Our chemists are continuing their applications research with this new phase. Please call our Technical Service team to obtain the latest information about Rtx[®]-440 columns.

Figure 1 Separate 20 organochlorine pesticides in 10 minutes, using an Rtx[®]-440 column.



Column: Rtx[®]-440 30m, 0.32mm ID, 0.50 μ m (cat.# 12939)
 Sample: 50ng/mL Organochlorine Pesticides Mix AB standard (cat#32291) & 50ng/mL Pesticide Surrogate Mix (cat#32000) in hexane
 Inj.: 1.0 μ L splitless (hold 1.0 min.), 3.5mm ID single gooseneck inlet liner (cat.# 20962)
 Inj. temp.: 250°C
 Carrier gas: hydrogen, constant pressure
 Linear velocity: 71cm/sec. @ 110°C
 Oven temp.: 110°C (hold 0.5 min.) to 268°C @ 30°C/min. to 290°C @ 11°C/min. to 320°C @ 25°C/min. (hold 5 min.)
 Det.: ECD @ 310°C

Figure 2 Analyze 16 PAHs in 22 minutes, and resolve critical pairs, with an Rtx[®]-440 column.



Column: Rtx[®]-440 30m, 0.25mm ID, 0.25 μ m (cat.# 12923)
 Sample: 610 PAH Mix (cat.# 31011) diluted to 20ppm each compound in methylene chloride
 Inj.: 1.0 μ L splitless (hold 0.4 min.), 4mm splitless liner (cat.# 20772)
 Inj. temp.: 320°C
 Carrier gas: hydrogen, constant flow
 Flow: 3.6mL/min.
 Oven temp.: 40°C (hold 2 min.) to 240°C @ 30°C/min., to 320°C @ 8°C/min. (hold 5 min.)
 Det.: FID @ 320°C



Rtx[®]-440 Columns (fused silica)

(proprietary intermediate-polarity Crossbond[®] phase)
 Temp. limits: 20°C to 320/340°C

ID	df (μ m)	30-Meter
0.25mm	0.25	12923
	0.50	12938
0.32mm	0.25	12924
	0.50	12939
0.53mm	0.50	12940
	1.00	12955



Organochlorine Pesticide Mix AB #1

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 (B)
4,4'-DDT	methoxychlor

200 μ g/mL each in hexane:toluene (1:1), 1mL/ampul
 cat. # 32291 (ea.)

Pesticide Surrogate Mix

decachlorobiphenyl	2,4,5,6-tetrachloro- <i>m</i> -xylene
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200 μ g/mL each in acetone, 1mL/ampul
 cat. # 32000 (ea.)

SV Calibration Mix #5 / 610 PAH Mix

acenaphthene	chrysene
acenaphthylene	dibenzo(a,h)anthracene
anthracene	fluoranthene
benzo(a)anthracene	fluorene
benzo(a)pyrene	indeno(1,2,3-cd)pyrene
benzo(b)fluoranthene	naphthalene
benzo(k)fluoranthene	phenanthrene
benzo(ghi)perylene	pyrene

2,000 μ g/mL each in methylene chloride, 1mL/ampul
 cat. # 31011 (ea.)