Rtx®-1 Bonded Packed Columns
Helping Save Time and Money

Is your laboratory currently using packed columns'? Do you like the advantages of bonded phase columns, but don't want to convert to capillary columns? Restek has the answer! Introducing Rtx"-1 bonded packed columns. the first in a new generation of bonded packed column phases. Bonded phases offer the advantage of increased thermal stability, minimal conditioning, stable baselines, and reproducible retention times.

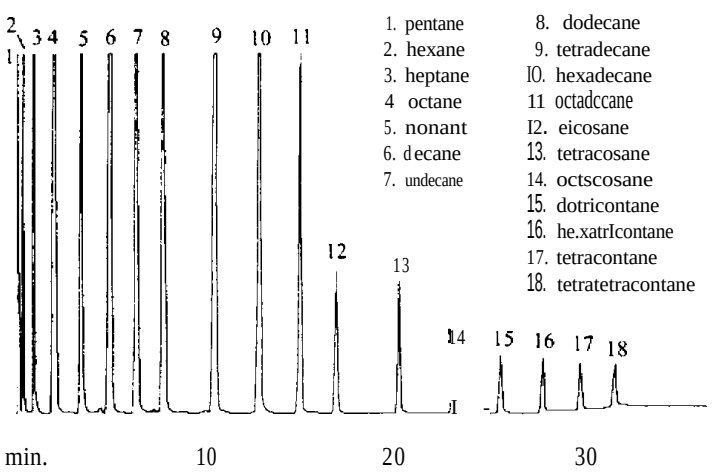
Improved Thermal Stability.
Lower Bleed Levels.
Faster Conditioning Times.
Polarity Equivalent to OV-101, UCW-982, SE-30, SP-2100, & other methyl silicone phases.

Bonded stationary phases shorten conditioning times and extend column lifetime Restek's chemists have synthesized new polymers which bond to the surface of the diatomite support. Because this layer is immobilized and preconditioned. there is no need for extended conditioning in the GC oven. Use bonded packed column phases and your lab will save time and money with reduced conditioning times and increased reproducibility.

The advantages of the bonded Rtx"-1 are best shown in a calibration run for ASTM D2887. Figure 1 shows the analysis of the D2887 calibration mix. The Rtx"-1 column demonstrates symmetrical peaks and a stable baseline after only 30 minutes of conditioning at 350°C. Table I shows the excellent retention time repeatability obtained with this bonded column demonstrating these columns can be used repeatedly at high temperature without loss of stationary phase.

The bonded stationary phase will also reduce your costs by offering increased column lifetimes. Phase degradation occurs as a result of oxygen in the carrier gas during conditioning or analysis. With bonded stationary phases. there is increased resistance to oxidation. Figure 2 shows a comparison of a conventional UCW-982 packed column to the Rtx"-1 bonded packed column. After only 170 temperature cycles. the UCW-982 column exhibited higher bleed and more tailing than the Rtx"-1 column. Although actual column lifetime will depend on the system and types of samples run, bonded phase columns will last longer than non-bonded columns under equivalent conditions.

Figure I: C5 to C-44 calibration analysis after only 30 minutes conditioning.



25" x 1/8" Rtx"-1 SimDist 2887 (cat.# 80000)
1.0ul direct injection of D2887 Calibration Mix (cat.# 31222)
Oven temp.: 35°C to 350C ,@ 10C/ min. (hold 5 min.)
Inj. & det. temp.: 350°C
Carrier gas: helium @, 3ml/min.
FID sensitivity: 756 x 10-11 AFS

Table I: Retention Time Reprtltability- for Calibration after only- 30 minures conditioning

Hydrocarbon	Min Rt	Max Rt	Avg. RT	Stand. Dev.
C5	0.211	0.243	0.232	0.001
C6	0.493	0.497	0.495	0.002
C10	5.746	5.765	5.752	0.005
C20	18.382	18.491	18.456	0.004
C28	25.093	25.103	25.098	0.004
C40	32.160	32.171	32.166	0.004
C44	34.3 16	34.325	34.326	0.007

n=9

II: McReynolds Numbers for Methyl Silicone Phases

Compounds	Rtx-1	SE-30	OV-101
benzene	22	24	15
n-butanol	63	53	58
pentanone	39	12	45

Rtx"-1 bonded columns have equivalent polarity to OV-101 and SE-30 stationary phases The Rtx"-1 bonded packing incorporates cross linking which does not alter the polarity of the stationary phase. Crosslinking increases thermal stability and reduces conditioning time without compromising resolution. Table II lists the McReynolds values obtained using the Rtx"-1 bonded packing versus OV-101 and SE-30 phases.

For high boiling compounds. low percentage loadings have traditionally been used. These columns often suffer from