

Petrocol™ DH Columns

Catalog No. 24160-U

Column Description

Stationary Phase: nonpolar bonded methyl silicone
 Dimensions: 100m x 0.25mm ID, 0.5µm film
 Max. Temp.: 320°C

Conditioning:

1. Install column in oven as shown in installation instructions included with column.
2. Establish 19-21 cm/sec linear velocity.*
3. Purge column at ambient temperature for 15 min.
4. Program oven temperature to 220°C at 15°C/min. Hold at 220°C for 30 min., or until baseline is stable.

* A 35-40psi head pressure should provide a linear velocity of 19-21 cm/sec helium at 60°C.

Test Sample: This column's performance for high resolution hydrocarbon separations has been tested by using a specially selected blend of hydrocarbons (Figure A). This mixture is available (Cat. No. 4-8872) so that you can periodically assess column performance. The test mixture consists of the following hydrocarbons, by volume: n-hexane 1%, n-heptane 1%, n-octane 1%, n-nonane 1%, benzene 1%, toluene 1%, m-xylene 4%, p-xylene 2%, balance – cyclohexane.

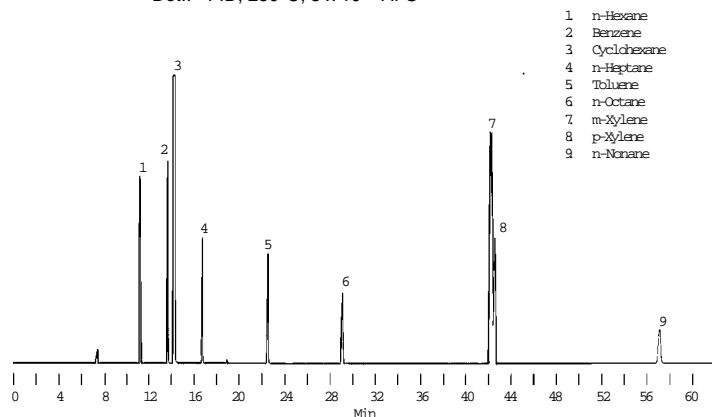
Retention Indices on Petrocol DH Columns

Except where noted otherwise, retention indices were obtained using a temperature program initiated at 35°C, held for 15 minutes, then increased at 2°C per minute to 200°C. Kovats retention indices were computed for the isothermal portion of the analysis (up to hexane). Linear retention indices were calculated for the temperature program (hexane to heptadecane). See last page for more information.

These indices reveal where particular hydrocarbons will elute with respect to bracketing n-alkanes. Thus, they can be used as an aid in identifying hydrocarbon peaks in gasoline and similar samples (e.g., naphthas, reformates, gasohol). When peak identifications are critical, confirm identification by using pure standards and your analytical conditions. The table includes paraffins, isoparaffins, naphthenes, aromatics, olefins, and alcohols common in such samples.

Figure A. Column Performance Test Mixture

Column: **Petrocol DH Column**, 100m x 0.25mm ID, 0.5µm film
 Cat. No. **2-4160**
 Oven: 60°C
 Carrier: helium, 19-21cm/sec*
 Make-up Gas: helium, 30cc/min
 Inj.: 0.1µL, split 100:1, 250°C
 Det.: FID, 250°C, 8 x 10⁻¹¹ AFS

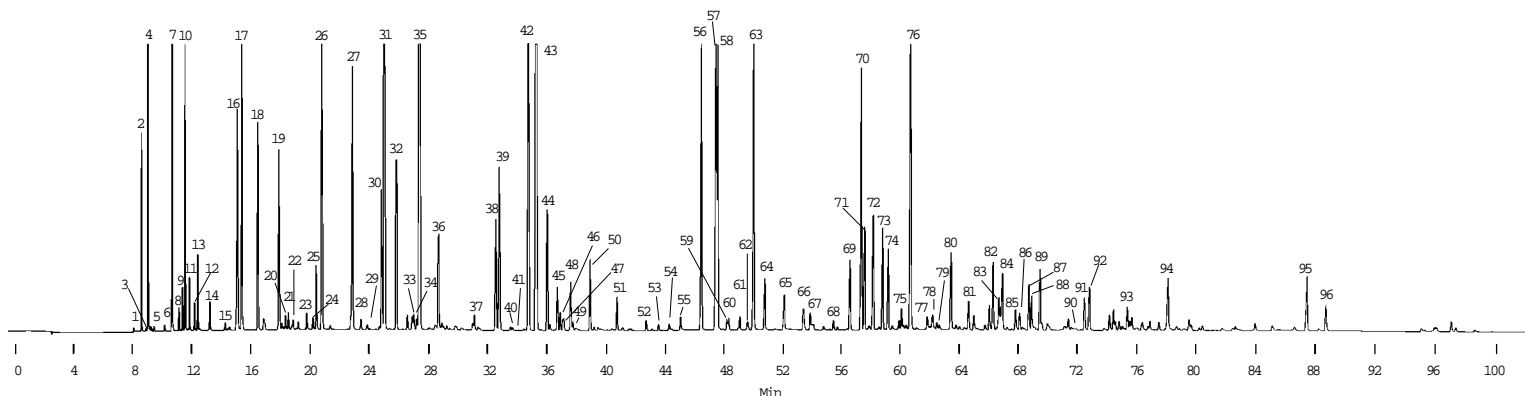


712-0297

Figure B. Gasoline

Column: **Petrocol DH Column**, 100m x 0.25mm ID, 0.5µm film
 Cat. No. **24160-U**
 Oven: 60°C
 Carrier: helium, 19-21cm/sec
 Make-up Gas: nitrogen, 30cc/min
 Inj.: 0.1µL, split 100:1, 250°C
 Det.: FID, 250°C, 8 x 10⁻¹¹ AFS

See Indices for callouts.



796-0621

Column Performance Measurements

Figure A (front page) is a representative chromatogram of the QA test mixture (Cat. No. 4-8872) on a Petrocol DH column. Using the conditions described, obtain an equivalent chromatogram from the column in your system, then make the following measurements. By checking the values you obtain against the data provided with the column, you will know how the column is performing in your system.

Plates/Meter Measure theoretical and effective plates/meter for n-nonane. Determine theoretical plates, N, from the equation below. To calculate effective theoretical plates, use the adjusted retention time for n-nonane, t'_R , rather than t_R . Obtain t'_R by subtracting the retention time for an unretained peak (e.g., methane) from the retention time for n-nonane.

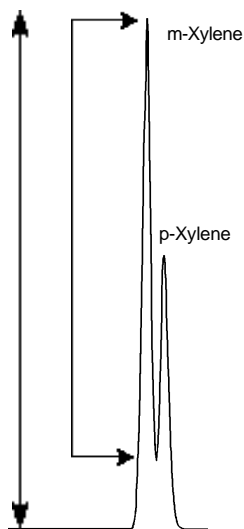
$$N = 5.54 (t_R/W_h)^2$$

where: t_R = retention time of n-nonane

W_h = n-nonane peak width at half peak height

Xylene Isomer Separation Calculate the percent separation of m-xylene and p-xylene by measuring the distance from the valley between the two peaks to the apex of the m-xylene peak (A), dividing this value by the height of the m-xylene peak (B), and multiplying by 100.

$$\text{Percent Separation} = A/B \times 100$$



796-0622

Kovats Retention Indices (KRI) To monitor stationary phase polarity, measure the KRI of benzene and toluene as follows:

$$KRI_X = 100Z + \frac{100[(\log t'_R X) - (\log t'_R Z)]}{(\log t'_R Z + 1) - (\log t'_R Z)}$$

where: X = compound of interest

$t'_R X$ = adjusted retention time of component of interest (X)

Z = carbon number of n-alkane eluting prior to X

$t'_R Z$ = adjusted retention time of n-alkane eluting prior to X

$t'_R Z+1$ = adjusted retention time of n-alkane eluting after X

Trenzahl Number (TZ) TZ is a measurement of the resolution between two consecutive n-alkanes (the higher the TZ value, the greater the resolution). Measure TZ for the n-heptane and n-octane peaks, as follows:

$$TZ = \frac{t_R \text{ n-C8} - t_R \text{ n-C7}}{W_h \text{ n-C8} + W_h \text{ n-C7}} - 1$$

where: t_R = retention time of peak

W_h = peak width at half peak height

Linear Retention Indices (LRI) Because there is, for n-alkanes, an approximately linear relationship between carbon number and elution temperature, LRI should be used when temperature programming these compounds.

$$LRI_X = 100Z + \left(\frac{100 (t_R X - t_R Z)}{t_R (Z+1) - t_R Z} \right)$$

where: X = compound of interest

Z = carbon number of n-alkane eluting prior to X

$t_R X$ = unadjusted retention time of component of interest (X)

$t_R Z$ = unadjusted retention time for n-alkane eluting prior to X

$t_R (Z+1)$ = unadjusted retention time of n-alkane eluting after X

Kovats Retention Indices and Linear Retention Indices

Peak ID	Retention Index	Compound	Peak ID	Retention Index	Compound	Peak ID	Retention Index	Compound
1	100.0	Methane	25	621.4	Methylcyclopentane	39	733.1	4-Methyl-1-cyclohexene
	157.9	Ethylene [■]		621.8	trans-1,1,1-Trimethyl-2-butene		733.5	2,4-Dimethylhexane
	181.5	Acetylene [■]	26	625.0	2,4-Dimethylpentane	734.0	cis,trans,cis-1,2,3-Trimethylcyclopentane	
	200.0	Ethane		630.0	2,3,3-Trimethyl-1-butene	734.6	4-Methylcyclohexane	
	293.5	Propylene [■]		631.5	2,2,3-Trimethylbutane	737.5	1-trans-2-cis-4-Trimethylcyclopentane	
	300.0	Propane		634.3	3,4-Dimethylpentene-1	737.7	cis,trans,cis-1,2,4-Trimethylcyclopentane	
	337.4	Propadiene [■]	637.1	3-Methyl-1,5-hexadiene	40		741.1	3,4-Dimethyl-1-hexene [■]
	339.4	Methylacetylene [■]	637.2	2,4-Dimethylpentene-1		41	742.3	3,4-Dimethyl-1-hexene [■]
	353.5	2-Methylpropane	638.4	cis-1,1,1-Trimethyl-2-butene	743.5		1-cis-2-trans-4-Trimethylcyclopentane	
	2	369.8	Isobutylene	639.6	Methylcyclopentene-1	44	744.6	1-trans-2-cis-3-Trimethylcyclopentane
378.8		Methanol	641.7	3-Methyl-1,3-pentadiene	748.0		2,3-Dimethyl-1-hexene	
3	390.8	Isobutane	642.0	2,4-Dimethyl-1-pentene	42	749.7	1-Ethylcyclopentene	
	391.8	1-Butene	642.8	trans-3-Methyl-1,3-pentadiene		43	750.6	2,3,4-Trimethylpentane
4	400.0	Butane	27	643.3	Benzene		44	752.1
	411.1	trans-2-Butene		644.8	3-Methyl-1-hexene	756.9		2,3-Dimethylhexane
5	414.3	2,2-Dimethylpropane	645.5	trans-2-trans-4-Hexadiene	45	758.2	1,1,2-Trimethylcyclopentane	
	426.0	cis-2-Butene	645.7	5-Methyl-1-hexene		761.5	3-Ethyl-2-methylpentane	
6	454.0	Ethanol	647.3	3,3-Dimethylpentane	46	762.4	2,5-Dimethyl-2-hexene	
	458.1	3-Methyl-1-Butene	650.5	2,4-Dimethyl-2-pentene		763.3	2-Methylheptane	
7	475.6	Isopentane	29	651.0	Cyclohexane	47	764.8	1-Methylcyclohexene
	489.3	1-Pentene		651.1	2,Methyl-trans-3-hexene		767.1	4-Methylheptane
8	493.2	Isopropanol	654.3	2,3-Dimethyl-1-pentene	48	768.2	3,5,5-Trimethyl-1-hexene	
	495.6	2-Methyl-1-Butene	654.9	2-Ethyl-3-methylbutene-1		768.3	3,4-Dimethylhexane	
9	500.0	Pentane	655.0	4-Methyl-1-hexene	49	768.3	3-Ethyl-3-methylpentane	
	505.0	Isoprene	657.3	1,3-Cyclohexadiene		771.8	cis,cis,trans,1,2,4-Trimethylcyclopentane	
11	507.3	trans-2-Pentene	657.3	4-Methyl-trans-2-hexene	50	770.0	2,5-Dimethyl-1,5-Hexadiene	
	509.8	3,3-Dimethyl-1-butene	657.3	4-Methyl-cis-2-hexene		770.6	3-Methylheptane	
12	515.4	cis-2-Pentene	657.6	4-Hexadiene	51	771.8	1-cis-2-trans-3-Trimethylcyclopentane	
	519.0	tert-Butanol	661.4	2-Methylhexene		773.3	1-cis-3-Dimethylcyclohexane	
13	520.9	2-Methyl-2-Butene	661.4	5-Methyl-2-hexene	52	773.4	3-Ethylhexane	
	523.4	trans-1,3-Pentadiene	664.5	5-Methyl-trans-2-hexene		774.4	Cycloheptene	
14	531.1	3-Methyl-1,2-butadiene	664.9	2,3-Dimethylpentane	53	774.5	1-trans-4-Dimethylcyclohexane	
	535.8	1-cis-3-Pentadiene	666.4	1,1-Dimethylcyclopentane		775.8	1,3-Octadiene	
15	537.7	2,2-Dimethylbutane	666.5	Cyclohexene	54	775.9	Cycloheptatriene	
	545.6	3-Methyl-1,4-pentadiene	670.3	3,4-Dimethyl-2-pentene		777.0	1,7-Octadiene	
16	555.5	Cyclopentene	671.4	2,Methyl-1,5-hexadiene	55	777.1	2-Ethyl-1-hexene	
	556.3	2,3-Pentadiene	671.5	3,Methylhexane		777.8	2-Methyl-1-heptene	
17	556.9	4-Methylcyclopentene-1	672.9	3,4-Dimethyl-cis-2-pentene	56	779.6	1,1-Dimethylcyclohexane	
	558.5	4-Methyl-1-pentene	674.0	1,6-Heptadiene		782.7	2,2,5-Trimethylhexane	
18	560.2	3-Methyl-1-pentene	678.3	1-trans-3-Dimethylcyclopentane	57	783.5	3-cis-Ethylmethylcyclopentane	
	561.4	n-Propanol	681.5	1-cis-3-Dimethylcyclopentane		58	785.8	3-trans-Ethylmethylcyclopentane
19	561.9	2-Methyl-1,4-pentadiene [■]	682.3	2-Methyl-1-hexene	59		786.8	1-Octene
	564.5	Cyclopentane	682.8	3-Ethylpentane		787.2	2-trans-Ethylmethylcyclopentane	
20	566.0	Methyl-tert-butylether	684.5	3,4-Dimethyl-trans-2-hexene	60	788.3	1,4-Octadiene	
	567.2	2,3-Dimethylbutane	684.6	1-trans-2-Dimethylcyclopentane		788.5	1,3-Dimethylcyclohexane	
21	567.5	2,3-Dimethyl-2-butene	685.7	1,2-Dimethylcyclopentane	61	789.2	1,1-Methylethylcyclopentane	
	567.5	2,3-Dimethyl-1-butene	687.1	1-Heptene		789.8	Cycloheptane	
22	568.4	1,5-Hexadiene [■]	688.9	2,2,4-Trimethylpentane	62	791.2	2,2,4-Trimethylhexane	
	569.9	cis-4-Methyl-2-pentene	691.2	1,5-Heptadiene		791.4	1-trans-2-Dimethylcyclohexane	
23	570.0	2-Methylpentane	692.6	3-Methyl-cis-3-hexene	63	792.6	1,2-Dimethylcyclohexane	
	572.3	trans-4-Methyl-2-pentene	692.6	3-Methyl-trans-3-hexene		793.4	cis-1,4-Dimethylcyclohexane	
24	572.5	2-Methyl-1,4-pentadiene [■]	693.1	trans-3-Heptene	64	795.2	trans-4-Octene	
	577.7	1,5-Hexadiene [■]	697.6	2,4-Dimethyl-1,3-pentadiene		795.4	cis,cis,cis-1,2,3-Trimethylcyclopentane	
25	583.9	3-Methylpentane	698.3	n-Heptane	65	796.5	trans-3-Octene	
	588.1	3-Methylcyclopentene	700.0	cis-3-Heptene		797.9	cis-4-Octene	
26	589.0	3-Methyl-2-pentene	701.1	2-Methyl-2-hexene	66	797.9	1,2,3-Trimethylcyclopentane	
	589.4	2-Methyl-1-pentene	701.7	3-Methyl-2-hexene		798.4	cis-3-Octene	
27	589.4	1-Hexene	701.8	trans-2-Heptene	67	800.0	n-Octane	
	594.7	sec-Butanol	702.6	3-Ethylpentene-2		801.0	trans-2-Octene	
28	597.5	1-trans-4-Hexadiene	704.4	trans-2,2-Dimethyl-3-hexene	68	801.6	2,3-Dimethyl-2-hexene	
	597.5	1-cis-4-Hexadiene	705.6	2,4,4-Trimethyl-1-pentene		801.9	trans-2,2-Dimethyl-3-heptene	
29	599.0	2-Ethyl-1-butene	710.2	2,2-Dimethyl-trans-3-hexene	69	802.2	1,3-Dimethylcyclohexane	
	600.0	Hexane	710.5	cis-2-Heptene		803.6	Isopropylcyclopentane	
30	601.1	Trichloromethane	712.3	2,3-Dimethylpentene-2	70	804.7	1,3,7-Octadiene [■]	
	601.2	trans-3-Hexene	712.8	trans-2,5-Dimethyl-3-hexene		806.3	2,4,4-Trimethylhexane	
31	602.7	cis-3-Hexene	715.0	3-Ethylcyclopentane	71			
	606.1	2-Methyl-2-pentene	716.6	1-cis-2-Dimethylcyclopentane				
32	606.5	3-Methylcyclopentene	717.4	Methylcyclohexane				
	607.1	cis-3-Methyl-2-pentene	720.2	1,1,3-Trimethylcyclopentane				
33	607.2	4,4-Dimethyl-1-pentene	720.4	2,2-Dimethylhexane				
	607.2	4,4-Dimethyl-1-pentene	723.7	2,2-Dimethyl-cis-3-hexene				
34	611.0	3-Methyl-2-pentene	727.5	2,4,4-Trimethyl-2-pentene				
	612.4	1-Hexyne	729.6	Ethylcyclopentane				
35	612.6	cis-2-Hexene	732.1	2,5-Dimethylhexane				
	613.6	2,3-Dimethyl-1,3-butadiene	732.2	2,2,3-Trimethylpentane				
36	616.7	3-Methyl-trans-2-pentene						
	617.2	3,3-Dimethylpentene-1						
37	617.6	trans-1,3-Hexadiene						
	617.6	cis-1,3-Hexadiene						
38	619.4	2,2-Dimethylpentane						
	621.2	Ethylenechloride						

Peak ID	Retention Index	Compound	Peak ID	Retention Index	Compound	Peak ID	Retention Index	Compound
	807.5	1,3,7-Octadiene [■]	66	911.7	Isopropylbenzene		1051.5	1,2-Diethylbenzene
	810.2	cis-2-Octene	67	912.7	3,3,5-Trimethylheptane		1057.7	1-Methyl-2-n-propylbenzene
	811.5	2,3,5-Trimethylhexane		917.3	5,7-Dimethyl-1,6-octadiene	87	1068.4	1,4-Dimethyl-2-ethylbenzene
	812.3	2,6-Dimethyl-3-heptene [■]		918.0	Cyclooctane	88	1071.0	1,3-Dimethyl-4-ethylbenzene
	814.6	2,6-Dimethyl-3-heptene [■]		919.8	Isopropylcyclohexane	89	1075.4	1,2-Dimethyl-4-ethylbenzene
	815.0	2,3,4-Trimethylhexane	68	920.1	2,4,5-Trimethylheptane		1075.5	Adamantane
	815.1	2,2,3,4-Tetramethylpentane		920.1	2,2-Dimethyloctane		1081.4	1-Methyl-4-tert-butylbenzene
	815.4	1-Methyl-cis-2-ethylcyclohexane		922.7	2,4-Dimethyloctane		1081.7	1,3-Dimethyl-2-ethylbenzene
	815.5	cis-1-Methyl-2-ethylcyclohexane		923.2	1,5-Cyclooctadiene		1081.8	2-Phenyl-2-methylbutane
52	817.7	2,2-Dimethylheptane		928.3	2,6-Dimethyloctane	90	1089.1	Undecene-1
	818.8	1,3-Octadiene		933.0	2,3,5-Trimethylheptane		1091.4	1-Methyl-4-tert-butylbenzene
	818.8	2,2-Dimethyl-3-ethylpentane		933.5	n-Butylcyclopentane		1092.9	1,2-Dimethyl-3-ethylbenzene
	821.2	1,4-Dimethylcyclohexane	69	938.3	3,3-Dimethyloctane		1093.0	cis-Decahydronaphthalene
	822.6	1-cis-2-Dimethylcyclohexane		943.0	n-Propylbenzene		1096.8	1-Ethyl-2-isopropylbenzene
53	824.5	2,4-Dimethylheptane [■]		943.5	3,6-Dimethyloctane		1100.0	2-Cyclohexyl-2-methylbutane
	825.4	3,3,5-Trimethylcyclohexene		944.2	3-Methyl-5-ethylheptane		1100.0	n-Undecane
	826.7	cis,cis,cis-1,3,5-Trimethylcyclohexane	70	950.7	1-Methyl-3-ethylbenzene		1103.3	1-Ethyl-4-isopropylbenzene
	827.5	4-Vinylcyclohexene	71	952.8	1-Methyl-4-ethylbenzene	91	1109.1	1,2,4,5-Tetramethylbenzene
	829.5	2,4-Dimethylheptane [■]		956.1	1,3,5-Trimethylbenzene		1110.8	2-Methylbutylbenzene
	830.0	n-Propylcyclohexane	73	956.6	3,3,4-Trimethylheptane	92	1113.3	1,2,3,5-Tetramethylbenzene
	831.1	2,6-Dimethylheptane [■]		959.0	2,3-Dimethyloctane		1126.7	t-1-Butyl-2-methylbenzene
	831.9	cis-1,3,5-Trimethylcyclohexane	74	966.0	5-Methylnonane		1127.7	Isopentylbenzene
	833.3	3,5-Dimethyl-3-heptene [■]		967.1	1-Methyl-2-ethylbenzene		1134.6	1-Ethyl-2-n-propylbenzene
54	835.6	Ethylcyclohexane		967.5	1-Ethyl-2-methylbenzene		1135.1	1,3-Dimethyl-[2,3-dihydroindene]
	836.4	3,5-Dimethyl-3-heptene [■]		968.8	a-Methylstyrene		1138.7	5-Methylindan
	837.9	1,1,3-Trimethylcyclohexane	75	969.3	2-Methylnonane		1139.9	1-Methyl-3-n-butylbenzene
	839.2	3,3-Dimethylheptane		971.5	3-Ethylcyclohexane		1140.9	1,3-Diisopropylbenzene
	839.9	2,5-Dimethylheptane		974.6	3-Methylnonane		1142.2	4-Methylindan
	840.5	2,3,3-Trimethylhexane		976.6	b-Pinene		1145.2	n-Pentylbenzene
	848.7	2,2,3,3-Tetramethylpentane		976.6	1-Methyl-trans-4-isopropylcyclohexane		1148.4	1,2,3,4-Tetrahydronaphthalene
55	849.2	2,6-Dimethylheptane [■]		978.1	1,9-Decadiene		1152.1	Tetrahydronaphthalene
56	849.4	Ethylbenzene		983.1	1,2,4-Trimethylbenzene		1152.1	1-trans-Methyl-2-(4MP)cyclopentane
	852.5	cis,trans,trans-1,2,4-Trimethyl-cyclohexane		983.7	tert-Butylbenzene		1152.6	1,2-Diisopropylbenzene
	856.0	2,3,3,4-Tetramethylpentane		984.0	cis-hydroindan		1156.4	1-Methyl-2-n-butylbenzene
	856.6	trans-1,3,5-Trimethylcyclohexane		987.6	Isobutylcyclohexane	93	1162.3	1,2,3,4-Tetramethylbenzene
57	858.3	m-Xylene		988.9	1-Decene		1168.3	1,4-Diisopropylbenzene
58	859.4	p-Xylene		989.1	1-Methyl-cis-4-isopropylcyclohexane		1168.6	t-1-Butyl-3,5-dimethylbenzene
	860.4	2,3-Dimethylheptane		993.8	1-trans-Methyl-2-n-propylcyclohexane	94	1180.6	Naphthalene
	861.1	3,4-Dimethylheptane		994.1	2,2,4,6,6-Pentylmethylheptane		1188.4	1-Dodecene
	861.5	1-cis-2-trans-4-Trimethylcyclohexane		996.7	2-Phenylbutane		1195.7	1-Methylindene
59	867.0	4-Methyloctane	77	997.7	Isobutylbenzene		1200.0	n-Dodecane
60	870.7	2-Methyloctane		998.9	trans-1-Methyl-2-propylcyclohexane		1211.2	1,3,5-Triethylbenzene
61	873.0	3-Ethylheptane		999.7	sec-Butylbenzene		1225.9	1-tert-Butyl-4-ethylbenzene
62	875.5	3-Methyloctane	78	999.7	n-Decane		1230.7	1,2,4-Triethylbenzene
	877.8	cis,trans,cis-1,2,4-Trimethylcyclohexane	79	1000.0	1,2,3-Trimethylbenzene		1242.1	1-Methyl-4-n-pentylbenzene
	880.3	3,3-Diethylpentane	80	1008.7	1,2,3-Trimethylbenzene		1252.9	4,7-Dimethyl-[2,3-dihydroindene]
63	880.9	o-Xylene		1010.	1-Methyl-3-isopropylbenzene		1253.7	n-Hexylbenzene
	882.1	1,1,2-Trimethylcyclohexane		1013.2	1,2-Dichlorobenzene		1267.7	Pentamethylbenzene
	882.1	S-Tetrachloroethane		1014.5	1-Methyl-4-isopropylbenzene	95	1273.2	2-Methylnaphthalene
	882.7	2,2,4-Trimethylheptane		1016.1	p-Cymene	96	1288.7	1-Methylnaphthalene
	886.7	4-Vinyl-1-cyclohexene		1017.8	Dicyclopentadiene		1300.0	n-Tridecane
	887.9	2,2,5-Trimethylheptane		1019.9	2,3-Dihydroindene		1302.4	Phenylcyclohexane
64	888.9	1-Nonene		1021.9	sec-Butylcyclohexane		1326.9	1,3,5-Triisopropylbenzene
	889.0	Cyclooctene	81	1023.3	Indan		1326.9	2,6-Dimethylnaphthalene
	893.2	Isobutylcyclopentane		1026.5	d-Limonene		1381.7	1,7-Dimethylnaphthalene
	894.5	1,3-cyclooctadiene		1026.5	Dipentene		1396.1	1,3-Dimethylnaphthalene
	895.2	trans-3-Nonene		1028.2	1-Methyl-2-isopropylbenzene		1396.8	n-Tetradecane
	897.1	cis-3-Nonene		1030.4	3-Ethylnonane		1400.0	1,4-Dimethylnaphthalene
65	900.0	n-Nonane	82	1034.0	1,3-Diethylbenzene		1414.8	Hexamethylbenzene
	902.5	1,1-Methylethylcyclohexane		1040.4	1-Methyl-3-n-propylbenzene		1436.7	n-Octylbenzene
	902.6	trans-2-Nonene		1041.8	1-Methyl-4-n-propylbenzene		1454.1	2-Methylindene
				1044.7	1,4-Diethylbenzene		1500.0	n-Pentadecane
				1046.3	1-Methyl-4-n-propylbenzene		1500.3	2-Naphthyl-1-propene
				1047.2	n-Butylbenzene		1600.0	n-Hexadecane
				1047.8	1,3-Dimethyl-5-ethylbenzene		1600.0	Hexaethylbenzene
				1048.7	2-Methylindane		1689.3	n-Heptadecane
				1051.0	trans-Decahydronaphthalene		1700.0	

■ Unable to distinguish whether cis or trans isomer

■ These retention indices were obtained isothermally at -50°C

Acknowledgments: Some retention indices in the table were provided and confirmed by Analytical Automation Specialists, Inc. (Baton Rouge, LA), using their commercially available software. Dr. Curt White of the Pittsburgh Energy Technology Center of the US Department of Energy also provided many of the values listed.