



GC Column Solvent Retention Table

Technical Overview

Introduction

This solvent retention table provides useful data in terms of relative retention order of 275 solvents compounds on the DB-1, DB-624 and DB-WAX phases. This information is particularly useful for determining impurities in bulk solvents. A wide range of chemical functionalities and polarities are represented with this list of compounds. These columns were selected for their capacity, selectivity and reproducibility.

Warning: Other manufacturers' "equivalent replacements" will likely not have the identical selectivity as Agilent J&W GC columns. We do not recommend using this data on other manufacturer's columns.



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Solvent Retention Data		Analyte	DB-624	DB-1	DB-WAX
Column:	DB-624, 30 m x 0.53 mm, 3.00 µm (p/n)125-1334	1,1,1,2-tetrachloroethane	14.38	13.43	13.80
Carrier:	Helium, constant pressure at 30 cm/s (40 °C)	1,1,1-trichloroethane	8.05	7.56	4.85
Oven:	40 °C for 5 min 40-260 °C at 10 °/min 260 °C for 3 min	1,1,2,2-tetrachloroethane	16.38	14.67	17.73
Injection:	Split 1:10, 250 °C	1,1,2-trichloroethane	12.60	11.00	13.80
Detector:	FID, 300 °C	1,1,2-trichlorotrifluoroethane (Freon 113)	4.00	4.09	2.13
		1,10-decanediol	27.43	25.84	34.11
		1,1-dichloroethane	6.11	5.02	9.10
		1,1-dichloroethylene (vinylidene chloride)	4.00	3.75	2.65
		1,1-dichloropropane	8.72	8.55	9.71
		1,1-dichloropropene	8.34	7.85	4.56
Column:	DB-1, 30 m x 0.53 mm, 3.00 µm (p/n) 125-1034	1,2,3-trichlorobenzene	22.23	21.28	21.25
Carrier:	Helium, constant pressure at 30 cm/s (40 °C)	1,2,3-trichloropropane	16.46	14.84	17.06
Oven:	40 °C for 5 min 40-260 °C at 10 °/min	1,2,3-trimethylbenzene (hemimellitene)	18.18	17.61	15.29
Injection:	Split 1:10, 250 °C	1,2,4,5-tetrachlorobenzene	24.02	23.35	22.08
Detector:	FID, 300 °C	1,2,4-trichlorobenzene	21.41	20.63	20.03
		1,2,4-trimethylbenzene (pseudocumene)	17.47	16.99	14.27
		1,2-dibromo-3-chloropropane (DBCP)	20.02	18.50	20.57
		1,2-dibromoethane (EDB)	13.43	12.10	13.80
		1,2-dichlorobenzene	18.69	17.81	17.80
Column:	DB-WAX, 30 m x 0.53 mm, 1.00 µm (p/n)125-7032	1,2-dichloroethane (ethylene dichloride)	9.62	7.17	7.20
Carrier:	Helium, constant pressure at 34 cm/s (40 °C)	1,2-dichloropropane	10.17	8.93	4.95
Oven:	40 °C for 5 min 40-230 °C at 10 °/min 230 °C for 7 min	1,3,5-trichlorobenzene	20.35	19.85	18.19
Injection:	Split 1:10, 250 °C	1,3,5-trimethylbenzene (mesitylene)	16.82	16.41	13.55
Detector:	FID, 300 °C	1,3-butanediol	16.10	13.30	20.96
		1,3-dichlorobenzene	17.96	17.20	16.60
		1,3-dichloropropane	12.86	11.35	12.38
		1,3-diisopropylbenzene	20.35	20.02	15.47
		1,3-dioxolane	7.30	4.09	7.09
		1,3-propanediol	13.13	9.95	18.97
		1,4-butanediol	17.70	15.03	23.14
		1,4-dichlorobenzene	18.79	17.31	17.06
		1,4-diisopropylbenzene	20.73	20.42	16.20
		1,4-dioxane	10.38	9.18	9.65
		1,5-pentanediol	19.52	17.17	24.43
		1,6-hexanediol	21.30	19.17	25.75
		1,7-heptanediol	22.97	21.03	27.26
		1,8-octanediol	24.54	22.73	29.06
		1,9-nonanediol	26.02	24.33	31.29
		1-butanol	9.73	7.90	11.48
		1-chloro-4-nitrobenzene (diisopropyl ketone)	3.06	21.34	23.97
		1-chlorobutane	8.25	7.56	3.99
		1-chlorohexane	14.21	13.69	9.10
		1-decanol	22.65	21.85	21.12
		1-heptanol	17.22	16.13	16.91
		1-hexanol	15.06	13.81	15.31
		1-methyl-2-pyrrolidone	19.66	17.21	20.71
		1-nonanol	20.97	20.11	19.80
		1-octanol	19.17	18.21	18.40
		1-pentanol	12.63	11.11	13.54
		1-penten-3-ol	10.20	8.54	11.77
		1-penten-3-one (ethyl vinyl ketone)	10.03	8.40	8.56
		1-propanol	6.34	4.44	9.11
		2,2-dichloropropane	7.16	6.34	3.99
		2,3-butanediol	14.14	11.40	18.70
		2,3-butanedione (diacetal)	6.99	5.09	7.44
		2,3-pentanedione	10.34	8.66	9.49
		2,4-dimethyl-3-pentanone	12.94	11.90	7.94
		2,6-dimethyl-4-heptanone	17.06	16.26	12.03
		2-butanone (MEK)	7.19	5.41	5.35
		2-buten-1-ol (crotyl alcohol)	9.87	7.99	12.95
		2-butoxyethanol (butyl cellosolve)	15.89	14.72	16.31
		2-chlorotoluene	16.71	16.07	14.71

Analyte	DB-624	DB-1	DB-WAX
2-ethoxyethanol (cellosolve)	10.98	9.39	13.11
2-ethoxyethyl acetate	15.57	14.40	14.31
2-ethyl-1-hexanol	18.40	17.42	17.41
2-heptanol	15.63	14.61	14.71
2-heptanone	15.46	14.26	12.27
2-hexanol	13.31	12.06	12.95
2-hexanone	13.01	11.60	10.04
2-methoxyethanol (methyl cellosolve)	8.67	6.74	12.25
2-methyl-1-butanol (active amyl alcohol)	11.87	10.30	12.73
2-methyl-2-butanol (tert-amyl alcohol)	8.73	7.14	8.43
2-methyl-3-buten-2-ol	7.91	6.17	9.11
2-methyl-3-pentanone	11.85	10.59	7.94
2-methylbutyl acetate	14.82	14.81	12.05
2-nitrotoluene	21.60	20.02	22.62
2-octanone	17.63	16.46	14.20
2-pentanol	10.60	9.10	10.94
2-pentanone	10.11	8.46	7.44
2-penten-1-ol	12.63	11.11	14.65
2-phenoxyethanol	22.65	20.92	26.14
2-propen-1-ol (allyl alcohol)	6.21	4.09	10.78
2-propyn-1-ol (propargyl alcohol)	7.55	4.57	15.16
3-buten-1-ol	9.02	6.95	12.02
3-chloropropene (allyl chloride)	4.57	3.96	3.46
3-chlorotoluene	16.82	16.07	14.90
3-heptanol	15.53	14.54	14.29
3-heptanone	15.29	14.19	11.66
3-hexanol	13.16	11.97	12.49
3-hexanone	12.80	11.52	9.34
3-methyl-1-butanol (iso-amyl alcohol)	11.78	10.17	12.73
3-methyl-2-butanone	9.21	7.60	6.15
3-methyl-2-buten-1-ol	12.85	11.33	14.82
3-nitrotoluene	22.40	20.72	21.92
3-octanone	17.45	16.46	13.66
3-pentanol	10.60	9.10	10.66
3-pentanone	10.34	8.80	7.44
3-penten-2-one (methyl vinyl ketone)	6.93	5.09	6.61
4-chlorostyrene (diisobutyl ketone)	19.35	18.56	18.19
4-chlorotoluene	16.82	16.07	4.90
4-heptanone	14.95	13.88	11.06
4-hexen-3-one	14.24	12.76	12.55
4-hydroxy-4-methyl-2-pentanone	14.98	12.89	15.70
4-methyl-2-pentanol	12.28	10.93	11.89
4-methyl-2-pentanone	11.64	10.22	8.19
4-methyl-3-penten-3-one	13.20	11.90	11.26
4-methylstyrene1	17.68	16.99	15.61
4-nitrotoluene	22.79	21.05	23.14
4-phenyl-2-butanone (benzyl acetone)	22.91	21.36	22.76
4-tert-butyltoluene	19.35	18.97	15.13
5-methyl-2-hexanone	14.73	13.46	11.40
5-methyl-3-heptanone	16.52	15.55	12.38
acetal (acetaldehyde diethyl acetal)	10.58	10.21	5.09
acetaldehyde	2.46	2.16	2.47
acetone	4.05	3.05	3.60
acetic acid	9.10	16.87	16.87
acetonitrile	4.27	2.87	8.12
acetophenone	19.69	18.13	20.13
acrolein	3.81	2.98	4.10
acrylic acid	12.21	19.16	19.61
acrylonitrile	5.22	3.43	7.81
a-ethylphenethyl alcohol	22.65	21.38	23.10
allyl ether	9.65	9.05	6.04
allyl ethyl ether	6.41	6.00	3.05

Analyte	DB-624	DB-1	DB-WAX
a-methylphenyl alcohol	19.60	18.03	22.00
a-methylstyrene	17.22	16.62	15.13
amyl acetate	15.57	14.04	10.96
benzaldehyde	17.45	15.88	17.25
benzene	8.69	8.00	6.46
benzointrile	18.21	16.26	19.55
benzyl acetate	21.07	19.86	21.01
benzyl alcohol	19.27	17.42	22.82
benzyl ether	29.08	27.72	30.41
b-ethylphenethyl alcohol	23.03	21.71	24.12
bromobenzene	16.39	15.54	15.47
bromochloromethane	7.59	4.79	9.26
bromodichloromethane	10.64	9.22	11.76
bromoethane	4.27	3.75	2.95
bromoform	15.61	14.20	17.00
butyl acetate	13.24	12.36	9.85
butyl ether	14.41	14.39	6.97
butyl ethyl ether	9.34	9.18	3.27
butyl methyl ether	7.10	6.85	2.80
butylbenzene	18.69	18.24	14.81
butyraldehyde	6.84	5.29	4.72
carbon disulfide	4.27	4.09	2.65
carbon tetrachloride	8.34	8.18	4.85
chlorobenzene	14.25	13.44	13.00
chlorodibromomethane	13.25	11.81	14.52
chloroform	7.75	6.34	8.58
cis-1,2-dichloroethylene	7.16	5.98	7.84
cis-1,3-dichloropropene	11.38	10.20	11.27
cis-2-hexen-1-ol	15.19	13.81	16.31
cis-3-hexen-1-ol	14.88	13.51	15.87
cis-4-hepten-1-ol	17.22	16.02	17.67
crotonaldehyde	9.18	7.03	9.07
cyclohexane	8.10	8.32	2.27
cyclohexanol	15.63	14.26	16.31
cyclohexanone	16.04	14.26	14.61
cyclopentanol	3.16	11.56	14.57
cyclopentanone	13.39	11.42	12.46
decane	16.82	17.12	7.63
dibromomethane	10.37	8.93	11.98
diethylene glycol	18.24	15.60	23.91
diethylene glycol monobutyl ether	21.46	20.26	21.74
diethylene glycol monoethyl ether	18.04	16.60	19.48
diethylene glycol monomethyl ether	16.78	15.09	19.06
diglyme (diethylene glycol dimethyl ether)	9.92	8.68	6.04
DMF (dimethylformamide)	13.73	10.80	15.25
DMSO (methyl sulfoxide)	15.58	11.94	19.21
dodecane	20.58	20.85	12.23
epichlorohydrin	11.22	9.35	11.69
ethanol	3.47	2.68	6.46
ethyl acetate	7.34	6.21	5.03
ethyl acrylate	10.02	8.93	7.87
ethyl benzoate	21.22	20.15	20.27
ethyl ether	3.72	3.50	2.13
ethyl formate	4.72	3.56	3.78
ethyl propionate	10.37	9.42	6.93
ethyl vinyl ether	3.72	3.50	2.39
ethylbenzene	14.42	13.90	11.13
ethylene glycol	12.15	8.54	19.47
ethylene glycol monobutyl ether	15.84	14.68	16.24
ethylene glycol monoethyl ether	10.95	9.35	13.11
ethylene glycol monomethyl ether	8.64	6.72	12.24
fluorobenzene	9.18	8.36	7.72

Analyte	DB-624	DB-1	DB-WAX
fluorotrichloromethane (Freon 11)	3.24	3.23	2.13
furan	3.72	3.36	3.27
furfural	14.63	12.54	18.32
furfuryl alcohol	15.32	13.25	19.90
glycidol	11.93	9.10	17.25
glyme (propylene glycol dimethyl ether)	8.65	7.56	6.04
heptanal	15.60	14.52	12.32
heptane	9.15	9.58	2.65
hexachloro-1,3-butadiene	21.69	21.46	17.84
hexadecane	26.63	26.88	18.70
hexanal	13.14	11.88	10.07
hexane	5.82	6.25	2.05
iodobenzene	18.10	17.87	18.30
iodomethane	4.27	3.75	3.46
iso-amyl acetate	14.75	13.97	10.31
iso-butanol	8.60	6.74	10.96
iso-butyl acetate	12.19	11.30	8.36
iso-butylbenzene	17.68	17.31	13.47
iso-butyraldehyde	5.66	4.37	3.54
iso-octane	8.81	9.27	2.44
isophorone	21.04	19.31	19.47
iso-propanol	4.27	3.22	6.28
iso-propyl acetate	8.87	7.88	5.32
iso-propyl ether	6.23	6.21	3.27
iso-propylbenzene (cumene)	15.88	15.43	12.13
methacrolein	6.01	4.68	4.83
methacrylonitrile	7.53	5.36	7.54
methanol	2.59	2.15	5.40
methyl acetate	4.60	3.79	3.78
methyl benzoate	19.90	18.76	19.70
methyl formate	2.80	2.44	2.85
methyl propionate	7.88	6.78	5.54
methyl tert-butyl ether (MTBE)	5.30	5.06	2.30
methylene chloride	4.80	3.85	6.18
morpholine	12.98	13.62	13.62
m-tolualdehyde	19.63	18.23	19.77
m-xylene	14.62	14.11	11.44
nitrobenzene	20.35	18.56	21.41
nonanal	19.71	18.84	16.05
nonane	14.63	14.95	4.97
octanal	17.76	16.80	14.29
octane	12.11	12.48	3.22
o-tolualdehyde	19.63	18.23	19.73
o-xylene	15.28	14.69	12.39
pentachlorobenzene	27.10	26.38	25.09
pentadecane	25.26	25.51	17.28
pentanal (valeraldehyde)	10.25	8.76	7.46
pentane	3.37	3.51	1.89
pentyl ether	18.53	18.51	12.66
propionaldehyde	3.91	3.11	3.25
propionic acid	11.89	18.18	18.18
propionitrile	7.25	4.43	8.72
propyl acetate	10.51	9.47	7.38
propyl benzoate	22.92	21.91	21.46
propyl ether	9.05	9.05	3.05
propyl formate	7.66	6.48	5.93
propyl propionate	13.07	12.25	9.17
propylbenzene	16.56	16.07	12.86
propylene glycol (1,2-propanediol)	13.16	9.90	18.96
p-tolualdehyde	19.96	18.50	20.13
p-xylene	14.62	14.11	11.30
pyridine	11.70	10.21	12.44

Analyte	DB-624	DB-1	DB-WAX
sec-butanol	7.55	5.80	8.77
sec-butyl acetate	11.76	10.91	7.69
sec-butylbenzene	17.68	17.37	13.64
styrene	15.28	14.55	13.80
styrene oxide	19.46	18.24	19.46
tert-amyl methyl ether	8.89	8.68	3.27
tert-butanol	5.01	3.72	5.54
tert-butyl acetate	10.02	9.32	5.40
tert-butyl ethyl ether	6.90	6.85	2.47
tert-butylbenzene	17.39	16.99	13.41
tetrachloroethylene	12.86	12.66	8.58
tetradecane	23.80	24.06	15.75
tetrahydropyran	10.06	9.35	5.83
THF (tetrahydrofuran)	7.64	6.75	4.45
toluene	11.93	11.33	9.06
trans-1,2-dichloroethylene	5.33	6.17	4.38
trans-1,3-dichloropropene	12.30	10.80	12.78
trans-1,4-dichloro-2-butene	16.46	14.91	17.00
trans-2-hepten-1-ol	17.22	16.13	17.77
trichloroethylene	9.80	9.22	7.84
tridecane	22.24	22.51	14.09
triethylamine	8.91	8.93	3.26
triglyme (triethylene glycol dimethyl ether)	21.95	20.75	20.77
undecane	18.78	19.07	10.10
vinyl acetate	6.37	4.09	5.03

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