Section 6

Ethers

Diethyl ether

Alternative names
Ethyl ether, ethoxy ethane, ether, ethyl oxide, sulfuric ether, **not** petroleum ether

Reference codes			
CAS number	60 29 7	Hazchem code	3YE
UN number	1155	EPA code	U117
Physical properties			
Molecular weight	74	Cubic expansion coeff (per °C × 10^3)	1.6
Empirical formula	$C_4H_{10}O_1$	Surface tension (@20°C dyn/cm)	17
Boiling point (°C)	34.5	Absolute viscosity (@25°C cP)	0.24
Freezing point (°C)	–116	Refractive index (25°C)	1.352
Specific gravity (20/4)	0.715		
Fire hazards			
Flash point (closed cup °C)	–45	Lower explosive limit (ppm)	18500
Autoignition temperature (°C)	160	Upper explosive limit (ppm)	360000
Electrical conductivity	3E–16		
Health hazards			
IDLH (ppm)	19000	Vapour concentration @21°C ppm	610000
OES-TWA	400	Vapour density (relative to air)	2.57
OES-STEL	500	Vapour pressure @21°C mmHg	462
Odour threshold (ppm)	1	POCP	60

Aqueous effluent	
Solubility in water (25°C %w/w)	6.9
Solubility of water in (25°C %w/w)	1.3
Log_{10} activated carbon partition	
Log_{10} partition in octanol/water (w/w)	+0.77
Biological oxygen demand w/w (days)	0.03 (5)
Theoretical oxygen demand w/w	2.59

Vapour pressure equation constants (Log_{10}, mmHg)		
Antoine equation	A	6.98472
	B	1090.64
	C	231.20
Cox chart	A	7.00353
	B	1088.4

Solvent properties			
Solubility parameter	7.4	Kauri butanol value	
Dipole (D)	1.3	Evaporation time (ether = 1)	1.0
Dielectric constant (20°C)	4.3	Evaporation time (BuAc = 1)	28.0
Polarity (water 100)	11.7		
Thermal information			
Latent heat (cal/mol)	6216		
Nett heat of combustion (kcal/gmol)	598		
Specific heat (cal/mol/°C)	40		
Critical pressure (MN/m^2)	3.61		
Critical temperature (K)	473		
Latent heat of fusion (cal/mol)	1735		
Van der Waals' volume	3.39		
Van der Waals' surface area	3.02		
Molar volume	103.5		

Solute	Azeotrope X% w/w	Azeotrope °C	Azeotrope Reference	Solute γ^{∞}	Reference	Partition coefficient	Reference
Hydrocarbons							
n-Pentane	68	33	8296				
n-Hexane	None		8301				
n-Heptane							
n-Octane				1.5	1x/3/1077		
n-Nonane							
n-Decane							
2,2,4-TMP							
Cyclohexane							
Benzene	None		8293	0.9	3+4/516		
Toluene	None		8304	1.2	1x/3/1077		
Ethylbenzene							
Xylenes							
C_9 Aromatics							
Tetralin							
Alcohols							
Methanol	2	62		4.8	2a/170	2.9	P157
Ethanol	None		4029	3.8	2a/375	1.75	V2/341
n-Propanol	None		6464			0.18	P678
i-Propanol	None		6351			0.44	P649
n-Butanol	None		8104				
i-Butanol							
s-Butanol							
n-Amyl alc.							
i-Amyl alc.						1.3	P1274
Cyclohexanol							
1-Octanol							
Ethanediol							
DEG						55.7	P1004
1,2-Propanediol						13.4	P657
Glycol ethers							
PGME							
EGME						1.61	P655
EEE						1.22	P1001
EGBE							
Chlorinated							
MDC	30	41	1566	0.6	3+4/492		
Chloroform	None		1474	0.4	3+4/486		
Carbon tet.	None		1136				
1,2-EDC	None		2987				
1,1,1-TCA							
TCE							
Perk.							
MCB							

Solute	Azeotrope X% w/w	Azeotrope °C	Azeotrope Reference	Solute γ^{∞}	Reference	Partition coefficient	Reference
Ketones							
Acetone	None		5346	2.2	3+4/177	0.28	V2/470
MEK				1.9	1x/3/1077		
MIBK							
Cyclohexanone							
NMP							
Acetophenone						<0.01	P2744
Ethers							
Diethyl ether	–		–	–	–	–	–
DIPE							
Dibutyl ether	None		8305				
MTBE							
1,4-Dioxane				2.0	1x/3/1077		
THF							
Esters							
Me acetate	None		5527			0.08	P516
Et acetate				1.1	3+4/513	0.03	P860
i-Propyl acetate							
n-Butyl acetate							
Cellosolve acetate							
Miscellaneous							
DMF						24.3	P594
DMAc							
DMSO							
Sulfolane							
CS_2	99	34	1235	1.6	3+4/495		
Acetic acid	None		3136	2.6	3+4/502	0.41	V2/228
Aniline						0.03	P1710
Nitrobenzene	None		8297				
Morpholine							
Pyridine						0.20	P1101
2-Nitropropane							
Acetonitrile	None		2778	2.5	3+4/499	0.40	P261
Furfuraldehyde							
Phenol						<0.01	P1617
Water	99	34	375	28.6	1a/257		

Diisopropyl ether

Alternative names
Isopropyl ether, DIPE

Reference codes			
CAS number	108 20 3	Hazchem code	3YE
UN number	1159	EPA code	
Physical properties			
Molecular weight	102	Cubic expansion coeff (per °C × 10^3)	1.4
Empirical formula	$C_6H_{14}O_1$	Surface tension (@20°C dyn/cm)	18
Boiling point (°C)	68	Absolute viscosity (@25°C cP)	0.33
Freezing point (°C)	–86	Refractive index (25°C)	1.367
Specific gravity (20/4)	0.724		
Fire hazards			
Flash point (closed cup °C)	–28	Lower explosive limit (ppm)	14000
Autoignition temperature (°C)	430	Upper explosive limit (ppm)	79000
Electrical conductivity			
Health hazards			
IDLH (ppm)	10000	Vapour concentration@ 21°C ppm	193000
OES-TWA	250	Vapour density (relative to air)	3.58
OES-STEL	310	Vapour pressure @21°C mmHg	123
Odour threshold (ppm)	0.1	POCP	

Aqueous effluent	
Solubility in water (25°C %w/w)	1.2
Solubility of water in (25°C %w/w)	0.62
Log_{10} activated carbon partition	2.9
Log_{10} partition in octanol/water (w/w)	+2.0
Biological oxygen demand w/w (days)	0.19 (5)
Theoretical oxygen demand w/w	2.83

Vapour pressure equation constants (Log_{10}, mmHg)		
Antoine equation	A	6.84953
	B	1139.34
	C	231.742
Cox chart	A	7.09624
	B	1256.2

Solvent properties			
Solubility parameter	6.9	Kauri butanol value	
Dipole (D)	1.2	Evaporation time (ether = 1)	1.6
Dielectric constant (20°C)		Evaporation time (BuAc = 1)	8.1
Polarity (water 100)			

Thermal information	
Latent heat (cal/mol)	6936
Nett heat of combustion (kcal/gmol)	885
Specific heat (cal/mol/°C)	52
Critical pressure (MN/m^2)	3.14
Critical temperature (K)	500
Latent heat of fusion (cal/mol)	2631
Van der Waals' volume	4.74
Van der Waals' surface area	4.09
Molar volume	142.3

Solute	Azeotrope X% w/w	Azeotrope °C	Azeotrope Reference	Solute γ^{∞}	Reference	Partition coefficient	Reference
Hydrocarbons							
n-Pentane							
n-Hexane	53	67	12128				
n-Heptane	None		12196	1.1	3+4/559		
n-Octane				1.3	1x/3/1243		
n-Nonane							
n-Decane							
2,2,4-TMP							
Cyclohexane				1.0	3+4/555		
Benzene	None		10863	1.2	3+4/553		
Toluene				1.1	3+4/558		
Ethylbenzene				1.4	3+4/563		
Xylenes							
C_9 Aromatics							
Tetralin							
Alcohols							
Methanol	76	57	2091a	3.3	2a/261		
Ethanol	83	64	4110	5.0	2a/459		
n-Propanol				3.5	2a/586		
i-Propanol	85	66	6391	4.5	2b/101	0.5	V2/618
n-Butanol				3.0	2b/202		
i-Butanol							
s-Butanol							
n-Amyl alc.							
i-Amyl alc.							
Cyclohexanol							
1-Octanol							
Ethanediol							
DEG							
1,2-Propanediol							
Glycol ethers							
PGME							
EGME							
EEE							
EGBE							
Chlorinated							
MDC							
Chloroform	64	71	1496	0.5	3+4/537		
Carbon tet.	None		1163	1.1	3+4/529		
1,2-EDC	None		3004				
1,1,1-TCA							
TCE	None		2331				
Perk.							
MCB							

Solute	Azeotrope X% w/w	Azeotrope °C	Azeotrope Reference	Solute γ^{∞}	Reference	Partition coefficient	Reference
Ketones							
Acetone	39	54	5386				
MEK	Azeo		3b/357	2.8	3b/357		
MIBK							
Cyclohexanone				1.7	3b/506		
NMP							
Acetophenone							
Ethers							
Diethyl ether							
DIPE	–		–	–	–	–	–
Dibutyl ether							
MTBE							
1,4-Dioxane	None		7548	2.2	1x/3/1243		
THF							
Esters							
Me acetate							
Et acetate							
i-Propyl acetate							
n-Butyl acetate							
Cellosolve acetate							
Miscellaneous							
DMF							
DMAc						4.5	V3/103
DMSO							
Sulfolane							
CS_2							
Acetic acid	None		3185	3.2	3+4/544	0.6	V2/282
Aniline							
Nitrobenzene							
Morpholine							
Pyridine							
2-Nitropropane							
Acetonitrile							
Furfuraldehyde							
Phenol						0.01	P1656
Water	95	62	579	19.2	1/525		

Dibutyl ether

Alternative names
Butyl ether

Reference codes

CAS number	142 96 1	Hazchem code	
UN number		EPA code	

Physical properties

Molecular weight	130	Cubic expansion coeff (per °C × 10^3)	1.15
Empirical formula	$C_8H_{18}O_1$	Surface tension (@20°C dyn/cm)	1.4
Boiling point (°C)	142	Absolute viscosity (@25°C cP)	0.63
Freezing point (°C)	–95	Refractive index (25°C)	1.397
Specific gravity (20/4)	0.769		

Fire hazards

Flash point (closed cup °C)	25	Lower explosive limit (ppm)	15000
Autoignition temperature (°C)	194	Upper explosive limit (ppm)	76000
Electrical conductivity			

Health hazards

IDLH (ppm)		Vapour concentration @21°C ppm	7377
OES-TWA		Vapour density (relative to air)	4.48
OES-STEL		Vapour pressure @21°C mmHg	5.5
Odour threshold (ppm)	0.5	POCP	

Aqueous effluent

Solubility in water (25°C %w/w)		0.03
Solubility of water in (25°C %w/w)		0.20
Log_{10} activated carbon partition		4.59
Log_{10} partition in octanol/water (w/w)		
Biological oxygen demand w/w (days)		
Theoretical oxygen demand w/w		2.95

Vapour pressure equation constants (Log_{10}, mmHg)

Antoine equation	A	6.7963
	B	1297.29
	C	191.03
Cox chart	A	7.31357
	B	1649.0

Solvent properties

Solubility parameter	7.2	Kauri butanol value	
Dipole (D)	1.2	Evaporation time (ether = 1)	
Dielectric constant (20°C)		Evaporation time (BuAc = 1)	
Polarity (water 100)	7.1		

Thermal information

Latent heat (cal/mol)	8944
Nett heat of combustion (kcal/gmol)	1182
Specific heat (cal/mol/°C)	66.0
Critical pressure (MN/m^2)	
Critical temperature (K)	307
Latent heat of fusion (cal/mol)	
Van der Waals' volume	6.09
Van der Waals' surface area	5.18
Molar volume	170.4

Solute	Azeotrope X% w/w	Azeotrope °C	Azeotrope Reference	Solute γ^{∞}	Reference	Partition coefficient	Reference
Hydrocarbons							
n-Pentane				1.0	1x/3/1370		
n-Hexane				1.0	1x/3/1370		
n-Heptane				1.0	1x/3/1370		
n-Octane				1.1	1x/3/1370		
n-Nonane							
n-Decane							
2,2,4-TMP							
Cyclohexane				1.0	1x/3/1370		
Benzene				0.9	1x/3/1370		
Toluene				1.0	1x/3/1370		
Ethylbenzene	None		14102				
Xylenes	78	142	14117				
C_9 Aromatics							
Tetralin							
Alcohols							
Methanol							
Ethanol	None		4170	3.5	2e/391	0.98	V2/389
n-Propanol							
i-Propanol							
n-Butanol	17	118	8195	0.7	2d/231	0.04	V3/122
i-Butanol	None		8379				
s-Butanol							
n-Amyl alc.	50	135	9770				
i-Amyl alc.	35	130	9883				
Cyclohexanol	None		11745				
1-Octanol							
Ethanediol	90	140	4354				
DEG							
1,2-Propanediol		136	6668				
Glycol ethers							
PGME	63	138	10003				
EGME	32	122	6615				
EEE	50	127	8479				
EGBE	None		12247				
Chlorinated							
MDC							
Chloroform	None		1501a	0.5	1x/3/1370		
Carbon tet.				0.8	1x/3/1370		
1,2-EDC				1.2	1x/3/1370		
1,1,1-TCA				0.8	1x/3/1370		
TCE							
Perk.							
MCB	None		10537				

Solute	Azeotrope X% w/w	Azeotrope °C	Azeotrope Reference	Solute γ^{∞}	Reference	Partition coefficient	Reference
Ketones							
Acetone						0.07	CEP
MEK				2.3	1x/3/1370		
MIBK							
Cyclohexanone							
NMP							
Acetophenone							
Ethers							
Diethyl ether	None		8305				
DIPE							
Dibutyl ether	–		–	–	–	–	–
MTBE							
1,4-Dioxane				2.1	1x/3/1370		
THF							
Esters							
Me acetate							
Et acetate							
i-Propyl acetate							
n-Butyl acetate	5	126	11333				
Cellosolve acetate							
Miscellaneous							
DMF							
DMAc						5.0	V3/104
DMSO							
Sulfolane							
CS_2							
Acetic acid	None		3220			1.0	V2/304
Aniline	None		11198				
Nitrobenzene							
Morpholine							
Pyridine							
2-Nitropropane							
Acetonitrile							
Furfuraldehyde	80	138	8788	4.2	3a/139		
Phenol	None		10960				
Water	67	93	735				

Methyl tert butyl ether

Alternative names
Tert butyl methyl ether, MTBE

Reference codes

CAS number	1634 04 4	Hazchem code	
UN number		EPA code	

Physical properties

Molecular weight	88	Cubic expansion coeff (per °C × 10^3)	
Empirical formula	$C_5H_{12}O_1$	Surface tension (@20°C dyn/cm)	18.3
Boiling point (°C)	55	Absolute viscosity (@25°C cP)	0.35
Freezing point (°C)	–109	Refractive index (20°C)	1.369
Specific gravity (20/4)	0.741		

Fire hazards

Flash point (closed cup °C)	–34	Lower explosive limit (ppm)	16000
Autoignition temperature (°C)	460	Upper explosive limit (ppm)	84000
Electrical conductivity			

Health hazards

IDLH (ppm)		Vapour concentration @21°C ppm	372000
OES-TWA		Vapour density (relative to air)	3.06
OES-STEL		Vapour pressure @21°C mmHg	206
Odour threshold (ppm)		POCP	

Aqueous effluent

Solubility in water (25°C %w/w)		4.3
Solubility of water in (25°C %w/w)		1.4
Log_{10} activated carbon partition		
Log_{10} partition in octanol/water (w/w)		
Biological oxygen demand w/w (days)		
Theoretical oxygen demand w/w		2.75

Vapour pressure equation constants (Log_{10}, mmHg)

Antoine equation	A	
	B	
	C	
Cox chart	A	7.06046
	B	1191.2

Solvent properties

Solubility parameter	7.4	Kauri butanol value	
Dipole (D)	1.2	Evaporation time (ether = 1)	1.6
Dielectric constant (20°C)	4.5	Evaporation time (BuAc = 1)	8.4
Polarity (water 100)	14.8		

Thermal information

Latent heat (cal/mol)	7030
Nett heat of combustion (kcal/gmol)	740
Specific heat (cal/mol/°C)	
Critical pressure (MN/m^2)	
Critical temperature (K)	
Latent heat of fusion (cal/mol)	
Van der Waals' volume	4.07
Van der Waals' surface area	3.63
Molar volume	119.0

Solute	Azeotrope X% w/w	Azeotrope °C	Azeotrope Reference	Solute γ^{∞}	Reference	Partition coefficient	Reference
Hydrocarbons							
n-Pentane							
n-Hexane				1.2	1x/3/1152		
n-Heptane				0.9	1x/3/1152		
n-Octane							
n-Nonane							
n-Decane							
2,2,4-TMP							
Cyclohexane				1.1	1x/3/1152		
Benzene							
Toluene							
Ethylbenzene							
Xylenes							
C_9 Aromatics							
Tetralin							
Alcohols							
Methanol	90	51	2058	3.0	2c/160		
Ethanol				3.0			
n-Propanol				2.9			
i-Propanol				2.6			
n-Butanol							
i-Butanol							
s-Butanol							
n-Amyl alc.							
i-Amyl alc.							
Cyclohexanol							
1-Octanol							
Ethanediol							
DEG							
1,2-Propanediol							
Glycol ethers							
PGME							
EGME							
EEE							
EGBE							
Chlorinated							
MDC							
Chloroform							
Carbon tet.							
1,2-EDC							
1,1,1-TCA							
TCE							
Perk.							
MCB							

Ethers

Solute	Azeotrope X% w/w	Azeotrope °C	Azeotrope Reference	Solute γ^{∞}	Reference	Partition coefficient	Reference
Ketones							
Acetone							
MEK							
MIBK							
Cyclohexanone							
NMP							
Acetophenone							
Ethers							
Diethyl ether							
DIPE							
Dibutyl ether							
MTBE	–		–	–	–	–	–
1,4-Dioxane							
THF							
Esters							
Me acetate							
Et acetate							
i-Propyl acetate							
n-Butyl acetate							
Cellosolve acetate							
Miscellaneous							
DMF							
DMAc							
DMSO							
Sulfolane							
CS_2							
Acetic acid							
Aniline							
Nitrobenzene							
Morpholine							
Pyridine							
2-Nitropropane							
Acetonitrile							
Furfuraldehyde							
Phenol							
Water	97	52	466				

1,4-Dioxane

Alternative names
Glycol ethylene ether, p-dioxane, diethylene dioxide, diethylene oxide

Reference codes			
CAS number	123 91 1	Hazchem code	2SE
UN number	1185	EPA code	
Physical properties			
Molecular weight	88	Cubic expansion coeff (per °C × 10^3)	1.1
Empirical formula	$C_4H_8O_2$	Surface tension (@20°C dyn/cm)	40
Boiling point (°C)	101	Absolute viscosity (@25°C cP)	1.3
Freezing point (°C)	+12	Refractive index (25°C)	1.420
Specific gravity (20/4)	1.034		
Fire hazards			
Flash point (closed cup °C)	12	Lower explosive limit (ppm)	20000
Autoignition temperature (°C)	180	Upper explosive limit (ppm)	222000
Electrical conductivity	5E–15		
Health hazards			
IDLH (ppm)	200	Vapour concentration @21°C ppm	41000
OES-TWA	25	Vapour density (relative to air)	3.06
OES-STEL	100	Vapour pressure @21°C mmHg	32
Odour threshold (ppm)	170	POCP	
Aqueous effluent			
Solubility in water (25°C %w/w)		Total	
Solubility of water in (25°C %w/w)		Total	
Log_{10} activated carbon partition			
Log_{10} partition in octanol/water (w/w)		–0.42	
Biological oxygen demand w/w (days)		0	
Theoretical oxygen demand w/w		1.82	
Vapour pressure equation constants (Log_{10}, mmHg)			
Antoine equation	A	7.43155	
	B	1554.679	
	C	240.337	
Cox chart	A	7.19047	
	B	1426.5	
Solvent properties			
Solubility parameter	10.0	Kauri butanol value	
Dipole (D)	0.4	Evaporation time (ether = 1)	7.3
Dielectric constant (20°C)	2.21	Evaporation time (BuAc = 1)	2.2
Polarity (water 100)	16.4		
Thermal information			
Latent heat (cal/mol)	8510		
Nett heat of combustion (kcal/gmol)	567		
Specific heat (cal/mol/°C)	36		
Critical pressure (MN/m^2)	5.21		
Critical temperature (K)	588		
Latent heat of fusion (cal/mol)	3080		
Van der Waals' volume	3.19		
Van der Waals' surface area	2.64		
Molar volume	85.1		

Solute	Azeotrope X% w/w	Azeotrope °C	Azeotrope Reference	Solute γ^{∞}	Reference	Partition coefficient	Reference
Hydrocarbons							
n-Pentane							
n-Hexane	2	60	7547	3.3	3+4/472		
n-Heptane	44	92	7552	4.0	1x/3/1052		
n-Octane		100	7554	7.4	1x/3/1052		
n-Nonane				4.7	3+4/481		
n-Decane							
2,2,4-TMP							
Cyclohexane	25	80	7540	2.6	3+4/468		
Benzene	12	82	7537	1.1	3+4/465		
Toluene	80	102	7550	1.2	1x/3/1052		
Ethylbenzene							
Xylenes							
C_9 Aromatics							
Tetralin							
Alcohols							
Methanol	None		1998	1.6	2a/148		
Ethanol	9	78	4011	2.5	1x/3/1052		
n-Propanol	45	95	6447	1.7	2a/531		
i-Propanol	None		6337	1.2	2b/56		
n-Butanol	None		7519	1.5	2b/147		
i-Butanol	96	101	7522	1.4	2b/278		
s-Butanol	60	99	7520				
n-Amyl alc.							
i-Amyl alc.							
Cyclohexanol	None		7543				
1-Octanol							
Ethanediol	None		4206				
DEG							
1,2-Propanediol							
Glycol ethers							
PGME							
EGME	None		6541				
EEE							
EGBE							
Chlorinated							
MDC							
Chloroform	None		1465	0.46	3+4/441		
Carbon tet.	None		1124	1.2	1x/3/1052		
1,2-EDC	None		2979	1.4	3+4/447		
1,1,1-TCA							
TCE	None		2301				
Perk.	None		2181				
MCB							

Ethers

Solute	Azeotrope X% w/w	Azeotrope °C	Azeotrope Reference	Solute γ^{∞}	Reference	Partition coefficient	Reference
Ketones							
Acetone	None		5333				
MEK				1.3	1x/3/1052		
MIBK				1.6	3b/523		
Cyclohexanone	None		7539				
NMP							
Acetophenone							
Ethers							
Diethyl ether							
DIPE	None		7548				
Dibutyl ether							
MTBE							
1,4-Dioxane	–		–	–	–	–	–
THF							
Esters							
Me acetate							
Et acetate	None		7514	1.1	3+4/455		
i-Propyl acetate	None		7527				
n-Butyl acetate							
Cellosolve acetate							
Miscellaneous							
DMF				1.7	3+4/454		
DMAc							
DMSO				2.2	3+4/450		
Sulfolane							
CS_2				2.4	3+4/446		
Acetic acid	23	119	119	2.3	3+4/448		
Aniline							
Nitrobenzene							
Morpholine							
Pyridine	None		7524				
2-Nitropropane							
Acetonitrile	None		2769a				
Furfuraldehyde							
Phenol							
Water	82	88	349	4.1	1/382		

Tetrahydrofuran

Alternative names
THF, tetramethylene oxide, 1,4-epoxybutane, oxacyclopentane

Reference codes			
CAS number	109 99 9	Hazchem code	2SE
UN number	2056	EPA code	U213
Physical properties			
Molecular weight	72	Cubic expansion coeff (per °C × 10^3)	1.1
Empirical formula	$C_4H_8O_1$	Surface tension (@20°C dyn/cm)	28
Boiling point (°C)	66	Absolute viscosity (@25°C cP)	0.55
Freezing point (°C)	–109	Refractive index (25°C)	1.404
Specific gravity (20/4)	0.888		
Fire hazards			
Flash point (closed cup °C)	–15	Lower explosive limit (ppm)	23000
Autoignition temperature (°C)	212	Upper explosive limit (ppm)	118000
Electrical conductivity	4.5 E–5		
Health hazards			
IDLH (ppm)		Vapour concentration @21°C ppm	230000
OES-TWA	100	Vapour density (relative to air)	2.5
OES-STEL	200	Vapour pressure @21°C mmHg	133
Odour threshold (ppm)	30	POCP	70

Aqueous effluent		
Solubility in water (25°C %w/w)	Total	Lower critical solution
Solubility of water in (25°C %w/w)	Total	temperature 72°C
Log_{10} activated carbon partition		
Log_{10} partition in octanol/water (w/w)	+0.46	
Biological oxygen demand w/w (days)		
Theoretical oxygen demand w/w	2.59	

Vapour pressure equation constants (Log_{10}, mmHg)		
Antoine equation	A	6.99515
	B	1202.29
	C	226.254
Cox chart	A	7.09092
	B	1246.2

Solvent properties			
Solubility parameter	9.1	Kauri butanol value	
Dipole (D)	1.75	Evaporation time (ether = 1)	2.3
Dielectric constant (20°C)	7.6	Evaporation time (BuAc = 1)	6.3
Polarity (water 100)	21		
Thermal information			
Latent heat (cal/mol)	6664		
Nett heat of combustion (kcal/gmol)	601		
Specific heat (cal/mol/°C)	36		
Critical pressure (MN/m^2)	5.2		
Critical temperature (K)	541		
Latent heat of fusion (cal/mol)			
Van der Waals' volume	2.94		
Van der Waals' surface area	2.72		
Molar volume	81.08		

Solute	Azeotrope X% w/w	Azeotrope °C	Azeotrope Reference	Solute γ^{∞}	Reference	Partition coefficient	Reference
Hydrocarbons							
n-Pentane	None			2.0	1x/3/1046		
n-Hexane	50	63	7407	1.9	1x/3/1046		
n-Heptane							
n-Octane				1.7	1x/3/1047		
n-Nonane							
n-Decane							
2,2,4-TMP							
Cyclohexane	97	60		1.7	1x/3/1046		
Benzene				0.84	1x/3/1046		
Toluene				0.85	1x/3/1046		
Ethylbenzene				0.90	1x/3/1047		
Xylenes							
C_9 Aromatics				0.9	1x/3/1047		
Tetralin							
Alcohols							
Methanol	69	61	1996	2.4	2a/141		
Ethanol	90	66	4009	1.9	2c/328		
n-Propanol	None			1.4	2c/497		
i-Propanol	None		6335a	1.4	2b/55		
n-Butanol	None			1.2	2b/146		
i-Butanol							
s-Butanol							
n-Amyl alc.							
i-Amyl alc.							
Cyclohexanol							
1-Octanol							
Ethanediol	None		4204a	6.6	2d/3		
DEG							
1,2-Propanediol							
Glycol ethers							
PGME							
EGME							
EEE							
EGBE							
Chlorinated							
MDC				0.5	1x/1/100		
Chloroform	34	72	1464	0.25	1x/3/1046		
Carbon tet.	None			0.75	3+4/429		
1,2-EDC				0.60	1x/3/1046		
1,1,1-TCA							
TCE							
Perk.							
MCB							

Ethers

Solute	Azeotrope X% w/w	Azeotrope °C	Azeotrope Reference	Solute γ^{∞}	Reference	Partition coefficient	Reference
Ketones							
Acetone	8	64					
MEK							
MIBK							
Cyclohexanone							
NMP							
Acetophenone							
Ethers							
Diethyl ether							
DIPE							
Dibutyl ether							
MTBE							
1,4-Dioxane				1.1	1x/3/1046		
THF	–		–	–	–	–	–
Esters							
Me acetate							
Et acetate				1.1	1x/3/1046		
i-Propyl acetate							
n-Butyl acetate							
Cellosolve acetate							
Miscellaneous							
DMF							
DMAc							
DMSO	None			4.6	3+4/433	2.05	V2/396
Sulfolane							
CS_2							
Acetic acid							
Aniline							
Nitrobenzene							
Morpholine							
Pyridine							
2-Nitropropane	None		6273				
Acetonitrile							
Furfuraldehyde							
Phenol							
Water	96	64	345	10.4	1/367		