

## SELECTED CHEMICAL DATA

Chemical  
compatibility

Solvent physical  
properties

Green solvents

Solvent miscibility

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## CHEMICAL COMPATIBILITY CHART

Substance	Incompatible with
Acetic acid	Chromium (IV) oxide, nitric acid, alcohols, ethylene glycol, perchloric acid, peroxides, permanganates
Acetylene	Chlorine,chromine, fluorine, copper, silver, mercury
Alkali metals	Water, carbon dioxide, halogens
Aluminium alkyls	Water
Ammonia	Mercury, chlorine, calcium hypochlorite, iodine, bromine, hydrofluoric acid
Ammonium nitrate	Acids, metal powders, flammable liquids, chlorates, nitrates, sulphur, organic substances
Aniline	Nitric acid, hydrogen peroxide
Charcoal	Calcium hypochlorite, oxidising agents
Chlorates	Ammonium salts, acids, metal powders, sulphur, organic substances
Chlorine	Ammonia, acetylene, butadiene, butane, methane, propane, hydrogen, petroleum spirit, metal powder
Chromium (IV) oxide	Acetic acid, aniline, chromium (IV) oxide, hydrocyanic acid, hydrogen sulphide, flammable liquids
Copper	Acetylene, hydrogen peroxide
Cumene hydroperoxide	Organic and inorganic acids
Cyanides	Acids
Flammable liquids	Ammonium nitrate, chromium (IV) oxide, hydrogen peroxide, nitric acid, sodium peroxide, halogens
Fluorine	Store separately
Hydrocarbons	Fluorine, chlorine, bromine, chromium (IV) oxide, sodium peroxide
Hydrofluoric acid	Ammonia (gas or solution)
Hydrogen peroxide	Copper, chromium, iron, metals and metal salts, alcohols, acetone, organic substances, aniline, nitromethane, flammable substances,
Hydrogen sulphide	Nitric acid fuming, oxidising gas
Iodine	Acetylene, ammonia (gas and solutions)
Mercury	Acetylene, ammonia (gas and solutions)
Nitric acid concentrated	Acetic acid, aniline, chromium (IV) oxide, hydrocyanic acid, hydrogen sulphide, flammable liquids
Oxalic acid	Silver, mercury
Perchloric acid	Acetic anhydride, bismuth and alloys, alcohols, paper, wood
Phosphorus	Sulphur, oxygenated substances (chlorates)
Potassium	Alkalis metals
Potassium chlorate	Ammonium salts, acids, metal powders, sulphur, organic substances
Potassium perchlorate	Ammonium salts, acids, metal powders, sulphur, organic substances
Potassium permanganate	Glycerol, ethylene glycol, benzaldehydes, sulphuric acid
Silver	Acetylene, oxalic acid, tartaric acid, ammonium salts
Sodium	Water, carbon dioxide, halogens
Sodium peroxide	Methanol, ethanol, acetic acid, acetic anhydride, benzaldehyde, carbon sulphide, glycerol, ethylene glycol, ethyl acetate, methyl acetate, furfural
Sulphuric acid	Potassium chlorates, potassium perchlorates, potassium permanganate

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# SOLVENT PROPERTIES

Solvent	CAS Number	Formula	MW	Boiling point (°C)	Melting point (°C)	Density (g/ml)	Solubility in water (g/100 g)	Dielectric constant	Flash point (°C)
Acetone	67-64-1	C <sub>3</sub> H <sub>6</sub> O	58,079	56,05	-94,7	0,7845	Miscible	21,01	-20
Acetonitrile	75-05-8	C <sub>2</sub> H <sub>3</sub> N	41,052	81,65	-43,8	0,7857	Miscible	36,64	6
Benzene	1076-43-3	C <sub>6</sub> H <sub>6</sub>	78,11	80,1	5,5	0,8765	0,18	2,28	-11
1-Butanol	71-36-3	C <sub>4</sub> H <sub>10</sub> O	74,12	117,7	-88,6	0,8095	6,3	17,8	37
2-Butanol	78-92-2	C <sub>4</sub> H <sub>10</sub> O	74,12	99,5	-88,5	0,8063	15	17,26	24
2-Butanone	78-93-3	C <sub>4</sub> H <sub>8</sub> O	72,11	79,6	-86,6	0,7999	25,6	18,6	-9
t-Butyl alcohol	75-65-0	C <sub>4</sub> H <sub>10</sub> O	74,12	82,4	25,7	0,7887	Miscible	12,5	11
Carbon tetrachloride	56-23-5	CCl <sub>4</sub>	153,82	76,8	-22,6	1,594	0,08	2,24	--
Chlorobenzene	108-90-7	C <sub>6</sub> H <sub>5</sub> Cl	112,56	131,7	-45,3	11,058	0,05	5,69	28
Chloroform	67-66-3	CHCl <sub>3</sub>	119,38	61,2	-63,4	14,788	0,795	4,81	--
Cyclohexane	110-82-7	C <sub>6</sub> H <sub>12</sub>	84,16	80,7	6,6	0,7739	<0,1	2,02	-20
1,2-Dichloroethane	107-06-2	C <sub>2</sub> H <sub>4</sub> Cl <sub>2</sub>	98,96	83,5	-35,7	1,245	0,861	10,42	13
Dichloromethane	75-09-2	CH <sub>2</sub> Cl <sub>2</sub>	84,93	39,8	-96,7	1,326	1,32	9,08	1,6
Diethylene glycol	111-46-6	C <sub>4</sub> H <sub>10</sub> O <sub>3</sub>	106,12	-246	10	11,197	10	31,8	124
Diethyl ether	60-29-7	C <sub>4</sub> H <sub>10</sub> O	74,12	34,5	-116,2	0,713	7,5	4267,00	-45
Diethylene glycol dimethyl ether	111-96-6	C <sub>6</sub> H <sub>14</sub> O <sub>3</sub>	134,17	-162	68	0,943	Miscible	7,23	67
1,2-Dimethoxy-ethane	110-71-4	C <sub>4</sub> H <sub>10</sub> O <sub>2</sub>	90,12	84,5	-69,2	0,8637	Miscible	7,3	-2
N,N Dimethylformamide	68-12-2	C <sub>3</sub> H <sub>7</sub> NO	73,09	-153	60,48	0,9445	Miscible	38,25	58
Dimethyl sulphoxide	67-68-5	C <sub>2</sub> H <sub>6</sub> OS	78,13	189	18,4	1,92	25,3	47,00	95
1,4-Dioxane	123-91-1	C <sub>4</sub> H <sub>8</sub> O <sub>2</sub>	88,11	101,1	11,8	1,033	Miscible	2,21(25)	12
Ethanol	64-17-5	C <sub>2</sub> H <sub>6</sub> O	46,07	78,5	-114,1	0,789	Miscible	24,6	13
Ethyl acetate	141-78-6	C <sub>4</sub> H <sub>8</sub> O <sub>2</sub>	88,11	77	3,6	0,895	8,7	6(25)	-4
Ethylene glycol	107-21-1	C <sub>2</sub> H <sub>6</sub> O <sub>2</sub>	62,07	195	13	1,115	Miscible	37,7	111
Glycerine	56-81-5	C <sub>3</sub> H <sub>8</sub> O <sub>3</sub>	92,09	290	7,8	1,261	Miscible	42,5	160
n Heptane	142-82-5	C <sub>7</sub> H <sub>16</sub>	100,2	98	0,6	0,684	0,01	1,92	-4
Hexamethylphosphoramide	680-31-9	C <sub>6</sub> H <sub>18</sub> N <sub>3</sub> OP	179,2	232,5	7,2	1,03	Miscible	31,3	105
Hexamethylphosphorous triamide	1608-26-0	C <sub>6</sub> H <sub>18</sub> N <sub>3</sub> P	163,2	150	-44	0,898	Miscible	??	26
n Hexane	110-54-3	C <sub>6</sub> H <sub>14</sub>	86,18	69	-95	0,659	0,014	1,89	-22
Methanol	67-56-1	CH <sub>4</sub> O	32,04	64,6	-98	0,791	Miscible	32,6(25)	12
Methyl t- butyl ether	1634-04-4	C <sub>5</sub> H <sub>12</sub> O	88,15	55,2	-109	0,741	5,1	??	-28
N-methyl-2-pyrrolidinone	872-50-4	CH <sub>5</sub> H <sub>9</sub> NO	99,13	202	-24	1,033	10	32,00	91
Nitromethane	75-52-5	CH <sub>3</sub> NO <sub>2</sub>	61,04	101,2	-29	1,382	9,5	35,9	35
n Pentane	109-66-0	C <sub>5</sub> H <sub>12</sub>	72,15	36,1	-129,7	0,626	0,04	1,84	-49
1-Propanol	71-23-8	C <sub>3</sub> H <sub>8</sub> O	88,15	97	-126	0,803	Miscible	20,1(25)	15
2-Propanol	67-63-0	C <sub>3</sub> H <sub>8</sub> O	88,15	82,4	-88,5	0,785	Miscible	18,3(25)	12
Pyridine	110-86-1	C <sub>5</sub> H <sub>5</sub> N	79,1	115,2	-41,6	0,982	Miscible	12,3(25)	17
Tetrahydrofuran	109-99-9	C <sub>4</sub> H <sub>8</sub> O	72,106	65	-108,4	0,8833	30	7,52	-14
Toluene	108-88-3	C <sub>7</sub> H <sub>8</sub>	92,14	110,6	-93	0,867	0,05	2,38(25)	4
Triethylamine	121-44-8	C <sub>6</sub> H <sub>15</sub> N	101,19	88,9	-114,7	0,728	0,02	2,4	-11
Water	7732-18-5	H <sub>2</sub> O	18,02	100	0	0,998	--	78,54	--
o-Xylene	95-47-6	C <sub>8</sub> H <sub>10</sub>	106,17	144	-25,2	0,897	Insoluble	2,57	32
p-Xylene	106-42-3	C <sub>8</sub> H <sub>10</sub>	106,17	138,4	13,3	0,861	Insoluble	2,27	27



## GREEN SOLVENTS

	2 Methyl Tetrahydrofuran	Cyclopentyl methyl ether (CPME)	1,3 Propanediol	1,3 Dioxalane	N,N Dimethylformamide	N Methyl 2 pyrrolidone	1,2 Dichloroethane	Methyl ethyl ketone	Tetrahydrofuran	Diethyl ether	1,4 Dioxane	tert Butyl methyl ether (MTBE)	Dichloromethane
Substance number	87132*	84565*	87134*	87135*	23470*	26211*	23341*	25641*	28552*	23809*	23532.297	22104*	23367*
Available packs (l)	1; 5; 25 and 190	1 and 5	1 and 5	1 and 5	1; 2,5 and 20	1 and 2,5	1,0	1; 2,5; 5; 25 and 200	1; 2,5; 5 and 25	1; 2,5; 5 and 25	1; 5 and 25	1 and 2,5	1; 2,5; 5; 25 and 190
CAS No.	96-47-9	5614-37-9	504-63-2	646-06-6	68-12-2	872-50-4	107-06-2	78-93-3	109-99-9	60-29-7	123-91-1	1634-04-4	75-09-2
Molar mass (g/mol)	86,14	100,16	76,1	74,08	73095,00	99,13	98,96	72,11	72108,00	74124,00	88107,00	88,15	84933,00
Density at 20 °C (g/cm <sup>3</sup> )	0,85	0,86	1053	1067,00	0,95	1,03	1,26	0,806	0,89	0,71	1,03	0,74	1,36
Boiling point (°C)	80	106	214	75,6	153	202,0	83,4	79,6	65	34,6	101	55	39,6
Fusion point (°C)	-136	<-140	-27	-95	-61	-24	-35	-86	-108,5	-116,3	11,8	-108,7	-97
Flash point (°C)	-11	-1	129	-6	58	93	-9	-5	-14,5	-45	12	-28	-
Viscosity at 20 °C (Cp)	0,6 (25°C)	0,55	0,52	0,6 (25°C)	0,802	1,65	0,67	0,39	0,55	0,24	1,31	-	0,43
Vaporisation (kcal/ kg)	89,7	69,2	-	114	-	-	85	118	98,1	86,08	98,6	81,7	79
Refractive index (20 °C)	1406	1419	1439	1397,000	1,42	1,47	1445	1,38	1407	1353	1422	1369	1,42
Dielectric constant (25 °C)	7	4,76	-	7,34	-	-	10	18	7,58	4197	2227	-	11
Azeotrop with water in °C	71	83	-	71,0	-	-	-	-	64	34,2	87,8	-	-
Solubility in water at 23 °C (g/100 g)	14	1,1	-	-	-	-	0,87	22,6	-	6,5	-	4,8	1,32
Water solubility in solvent at 23 °C (g/100 g)	4,4	0,3	-	-	-	-	0,16	9,9	-	1,2	-	1,5	0,14
Explosion range [vol %] lower/upper limit	1,5% / 8,9%	1,1% / 9,9%	2,6% / 16,6%	2,1% / 20,5%	2,2% / 16,0%	1,3% / 9,5%	6,2% / 16,0%	1,8% / 11,5%	1,84% / 11,8%	1,85% / 48,0%	2,0% / 22,0%	1,6% / 15,1%	13,0% / 22,0%



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