

## おもな有機溶剤の物性<sup>1)</sup> /

## The physical properties of the typical organic solvents

有機溶剤 Organic Solvents	沸点 bp (°C)	融点 mp (°C)	比重 d (20/4°C)	水との混和性 <sup>a)</sup> Miscibility with Water <sup>a)</sup>
Methanol (MeOH)	64.5	-97.7	0.791	○
Ethanol (EtOH)	78.3	-114.5	0.789	○
Propanol ( <i>n</i> -PrOH)	97.2	-126.2	0.804	○
Isopropyl Alcohol ( <i>i</i> -PrOH)	82.2	-88.0	0.785	○
Butanol (BuOH)	117.7	-88.6	0.810	△
Isobutyl Alcohol ( <i>i</i> -BuOH)	107.9	-108	0.802	△
sec-Butyl Alcohol ( <i>s</i> -BuOH)	99.5	-114.7	0.807	△
tert-Butyl Alcohol ( <i>t</i> -BuOH)	82.3	25.6	0.781	○
Ethylene Glycol	197.5	-12.6	1.114	○
1,2-Dimethoxyethane (Glyme)	84.5	-69	0.869	○
Diethyl Ether (Et <sub>2</sub> O)	34.4	-116	0.714	x <sup>b)</sup>
Diisopropyl Ether ( <i>i</i> -Pr <sub>2</sub> O)	68.5	-85.5	0.724	x
Acetic Acid (AcOH)	117.9	16.7	1.050	○
Ethyl Acetate (AcOEt)	77.1	-83.6	0.901	x <sup>b)</sup>
Acetic Anhydride (Ac <sub>2</sub> O)	140.0	-73.1	1.083	○
Tetrahydrofuran (THF)	66.0	-108.4	0.889	○
1,4-Dioxane	101.3	11.8	1.034	○
Acetone	56.1	-94.7	0.790	○
Ethyl Methyl Ketone	79.6	-86.7	0.805	△
Carbon Tetrachloride (CCl <sub>4</sub> )	76.6	-22.8	1.594	x
Chloroform (CHCl <sub>3</sub> )	61.2	-63.5	1.489	x
Dichloromethane (CH <sub>2</sub> Cl <sub>2</sub> )	39.6	-94.9	1.326	x
1,2-Dichloroethane (ClCH <sub>2</sub> CH <sub>2</sub> Cl)	83.5	-35.7	1.252	x
Benzene (C <sub>6</sub> H <sub>6</sub> )	80.1	5.5	0.879	x
Toluene	110.6	-95.0	0.867	x
<i>o</i> -Xylene	144.4	-25.2	0.880	x
Cyclohexane	80.7	6.7	0.779	x
Pentane	36.1	-129.7	0.626	x
Hexane	68.7	-95.3	0.659	x
Heptane	98.4	-90.6	0.684	x
Acetonitrile (CH <sub>3</sub> CN)	81.6	-43.8	0.782	○
Nitromethane (CH <sub>3</sub> NO <sub>2</sub> )	101.2	-28.6	1.138	x
Dimethylformamide (DMF)	153	-60.4	0.949	○
Hexamethylphosphoric Triamide (HMPA)	233	7.2	1.027	○
Triethylamine (Et <sub>3</sub> N)	89.6	-114.7	0.728	○
Pyridine (Py)	115.3	-41.6	0.983	○
Dimethyl Sulfoxide (DMSO)	189.0	18.5	1.100	△
Carbon Disulfide (CS <sub>2</sub> )	46.2	-111.6	1.263	x

a) ○ : 自由に混和 freely miscible

b) これらの溶媒は水にかなり溶ける highly soluble in water

△ : ある範囲で混和 partially miscible

x : ほとんど混和しない(溶解度約1%以下) practically immiscible (solubility : less than 1%)

## 冷却剤とその最低温度<sup>2)</sup> / Freezing mixtures

冷却剤 Freezing mixtures	温度 Temp. (°C)	冷却剤 Freezing mixtures	温度 Temp. (°C)
Ice	0	Chloroform / N <sub>2</sub>	-63
Ethylene Glycol / CO <sub>2</sub>	-15	Chloroform / CO <sub>2</sub>	-63
Ice(100) / NH <sub>4</sub> Cl (25)	-15	Ethanol / CO <sub>2</sub>	-72
Ice(100) / NaCl(33)	-21	Ether / CO <sub>2</sub>	-77
Carbon Tetrachloride / N <sub>2</sub>	-23	Acetone / CO <sub>2</sub>	-78
Carbon Tetrachloride / CO <sub>2</sub>	-23	Methanol / N <sub>2</sub>	-98
Ice(100) / EtOH (100)	-30	<i>n</i> -Pentane / N <sub>2</sub>	-131
Acetonitrile / N <sub>2</sub>	-41	N <sub>2</sub>	-180
Ice(100) / CaCl <sub>2</sub> (150)	-49		

引用文献) 1) 『有機化学実験のてびき』, 後藤俊夫, 芝哲夫, 松浦輝男/監修, 化学同人

2) 『新版基礎有機化学実験』, 畑一夫, 渡辺健一/共著, 丸善株式会社