

SPECIFIC GRAVITY OF LIQUIDS

The density of over 150 different liquids are listed below. While the data is useful for design, individual samples will differ. Temperature and purity will often have a marked influence. As 1000kg of pure water @ 4°C = 1 cubic metre, those materials under 1000kg/cubic metre will float; more dense will sink ie. those materials with a specific gravity more than 1.

Pure water at 4°C (max. density) was chosen as the 'base line' for specific gravity and given the value of 1.

Some other standards set pure water at 60°F as sg = 1 so it is more correct to state the base used. The specific gravity of all other materials are compared to water as a fraction heavier or lighter density. For example, acetic acid has a specific gravity (sg) of 1.0491 while acetone has a sg of 0.785 (784.58 kg/cu.m) - see table below. As specific gravity is just a comparison, it can be applied across any units. The density of pure water is also 62.4 lbs/cu.ft (pounds per cubic foot) and if we know that a sample of ethyl alcohol has a sg of 0.785 then we can calculate that its density is 0.785 x 62.4 = 49 lbs/cu.ft. Note, kg/cu.m divided by 16.02 = lbs/cu.ft. kg/cu.m divided by 1,000 = g/ml (grams per millilitre) and also = kg/L (1000g = 1 kg and 1000ml = 1 Litre)

Liquid	Temp	kg/cu.m	Liquid	Temp	kg/cu.m
1,1,2-Trichlorotrifluoroethane		25 C	Citric acid	25 C	1659.51
1564.00			Coconut oil	15 C	924.27
1,2,4-Trichlorobenzene	20 C	1454.00	Cotton seed oil	15 C	925.87
1,4-Dioxane	20 C	1033.60	Cresol	25 C	1023.58
2-Methoxyethanol	20 C	964.60	Creosote	15 C	1066.83
Acetic Acid	25 C	1049.10	Crude oil, 48° API	60 F	790
Acetone	25 C	784.58	Crude oil, 40° API	60 F	825
Acetonitrile	20 C	782.20	Crude oil, 35.6° API	60 F	847
Alcohol, ethyl	25 C	785.06	Crude oil, 32.6° API	60 F	862
Alcohol, methyl	25 C	786.51	Crude oil, California	60 F	915
Alcohol, propyl	25 C	799.96	Crude oil, Mexican	60 F	973
Ammonia (aqua)	25 C	823.35	Crude oil, Texas	60 F	873
Analine	25 C	1018.93	Cumene	25 C	860.19
Automobile oils	15 C	880 - 940	Cyclohexane	20 C	778.50
Beer (varies)	10 C	1010	Cyclopentane	20 C	745.40
Benzene	25 C	873.81	Decane	25 C	726.28
Benzil	25 C	1079.64	Diesel fuel oil 20 to 60	15 C	820 - 950
Brine	15 C	1230	Diethyl ether	20 C	714
Bromine	25 C	3120.40	o-Dichlorobenzene	20 C	1305.80
Butyric Acid	20 C	959	Dichloromethane	20 C	1326.00
Butane	25 C	599.09	Diethylene glycol	15 C	1120
n-Butyl Acetate	20 C	879.60	Dichloromethane	20 C	1326.00
n-Butyl Alcohol	20 C	809.70	Dimethyl Acetamide	20 C	941.50
n-Butyl Chloride	20 C	886.20	N,N-Dimethylformamide	20 C	948.70
Caproic acid	25 C	921.06	Dimethyl Sulfoxide	20 C	1100.40
Carbolic acid	15 C	956.30	Dodecane	25 C	754.63
Carbon disulfide	25 C	1260.97	Ethane	-89 C	570.26
Carbon tetrachloride	25 C	1584.39	Ether	25 C	72.72
Carene	25 C	856.99	Ethylamine	16 C	680.78
Castor oil	25 C	956.14	Ethyl Acetate	20 C	900.60
Chloride	25 C	1559.88	Ethyl Alcohol	20 C	789.20
Chlorobenzene	20 C	1105.80	Ethyl Ether	20 C	713.30
Chloroform	20 C	1489.20	Ethylene Dichloride	20 C	1253.00
Chloroform	25 C	1464.73	Ethylene glycol	25 C	1096.78

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Liquid	Temp	kg/cu.m
Fluorine refrigerant R-12	25 C	1310.95
Formaldehyde	45 C	812.14
Formic acid		
10% concentration	20 C	1025
80% concentration	20 C	1221
Freon - 11	21 C	1490
Freon - 21	21 C	1370
Fuel oil	60 F	890.13
Furan	25 C	1416.03
Furforol	25 C	1154.93
Gasoline, natural	60 F	711.22
Gasoline, Vehicle	60 F	737.22
Gas oils	60 F	890
Glucose	60 F	1350-1440
Glycerin	25 C	1259.37
Glyme	20 C	869.10
Glycerol	25 C	1126.10
Heptane	25 C	679.50
Hexane	25 C	654.83
Hexanol	25 C	810.53
Hexene	25 C	671.17
Hydrazine	25 C	794.52
Iodine	25 C	4927.28
Ionene	25 C	932.27
Isobutyl Alcohol	20 C	801.60
Iso-Octane	20 C	691.90
Isopropyl Alcohol	20 C	785.40
Isopropyl Myristate	20 C	853.20
Kerosene	60 F	817.15
Linolenic Acid	25 C	898.64
Linseed oil	25 C	929.07
Methane	-164 C	464.54
Methanol	20 C	791.30
Methyl Isoamyl Ketone	20 C	888.00
Methyl Isobutyl Ketone	20 C	800.80
Methyl n-Propyl Ketone	20 C	808.20
Methyl t-Butyl Ether	20 C	740.50
N-Methylpyrrolidone	20 C	1030.40
Methyl Ethyl Ketone (MEK)	20 C	804.90
MEK	25 C	802.52
Milk	15 C	1020-1050
Naphtha	15 C	664.77
Naphtha, wood	25 C	959.51
Napthalene	25 C	820.15
Ocimene	25 C	797.72
Octane	15 C	917.86
Olive oil	20 C	800 - 920
Oxygen (liquid)	-183 C	1140
Palmitic Acid	25 C	850.58
Pentane	20 C	626.20

Liquid	Temp	kg/cu.m
Pentane	25 C	624.82
Petroleum Ether	20 C	640.00
Petrol, natural	60 F	711.22
Petrol, Vehicle	60 F	737.22
Phenol	25 C	1072.28
Phosgene	0 C	1377.59
Phytadiene	25 C	823.35
Pinene	25 C	856.99
Propane	-40 C	583.07
Propane, R-290	25 C	493.53
Propanol	25 C	804.13
Propylene Carbonate	20 C	1200.60
Propylene	25 C	514.35
n-Propyl Alcohol	20 C	803.70
Propylene glycol	25 C	965.27
Pyridine	25 C	978.73
Pyrrrole	25 C	965.91
Rape seed oil	20 C	920
Resorcinol	25 C	1268.66
Rosin oil	15 C	980
Sabiname	25 C	812.14
Sea water	25 C	1025.18
Silane	25 C	717.63
Sodium Hydroxide (caustic soda)		
	15 C	1250
Sorbaldehyde	25 C	895.43
Soya bean oil	15 C	924 - 928
Stearic Acid	25 C	890.63
Sulphuric Acid 95% conc.	20 C	1839
Sugar solution 68 brix	15 C	1338
Sunflower oil	20 C	920
Styrene	25 C	903.44
Terpinene	25 C	847.38
Tetrahydrofuran	20 C	888.00
Toluene	20 C	866.90
Toluene	25 C	862.27
Triethylamine	20 C	727.60
Trifluoroacetic Acid	20 C	1489.00
Turpentine	25 C	868.20
Water, pure	4 C	1000.00
Water, sea	77 F	1021.98
Whale oil	15 C	925
o-Xylene	20 C	880.20