

Appendix E – Chemical Compatibility Chart

Below is a chart adapted from the CRC Laboratory Handbook which groups various chemicals into 23 groups with examples and incompatible chemical groups. This chart is by no means complete but it can aid in making decisions regarding storage. For more complete information, please refer to the SDS for the specific chemical.

Table E.1 – Chemical Compatibility Chart

Group	Name	Example	Incompatible Groups
Group 1	Inorganic acids	Hydrochloric acid, Hydrofluoric acid, Nitric acid, Sulfuric acid	2,3,4,5,6,7,8,10,13,14,16,17, 18,19,21,22,23
Group 2	Organic acids	Acetic acid, butyric acid, formic acid, propionic acid	1,3,4,7,14,16,17,18,19,22
Group 3	Caustics	Sodium hydroxide, ammonium hydroxide solution	1,2,6,7,8,13,14,15,16,17,18, 20,23
Group 4	Amines and alkanolamines	Aminoethyl ethanolamine, Aniline, Diethanolamine, Diethylamine, Ethylenediamine, Monoethanolamine, Triethanolamine, Triethylamine, Triethylenetetramine	1,2,5,7,8,13,14,15,16,17,18, 23
Group 5	Halogenated compounds	Carbon tetrachloride, chlorobenzene, Chloroform, Methylene chloride, Carbon tetrachloride, 1,2,4-Trichlorobenzene, 1,1,1-Trichloroethane, Trichloroethylene, Trichlorofluoromethane	1,3,4,11,14,17
Group 6	Alcohols, glycols, glycol ether	1,4-Butanediol, Butanol (iso, n, sec, tert), Diethylene glycol, Ethyl	1,7,14,16,20,23

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Group	Name	Example	Incompatible Groups
		alcohol, Ethyl butanol, Ethylene glycol, Furfuryl alcohol, Isoamyl alcohol, Methyl alcohol, Propylene glycol	
Group 7	Aldehydes, Acetaldehyde	Acrolein, Butyraldehyde, Formaldehyde, Paraformaldehyde, Propionaldehyde	1,2,3,4,6,8,15,16,17,19,20, 23
Group 8	Ketones	Acetone, Acetophenone, Diisobutyl ketone, Methyl ethyl ketone	1,3,4,7,19,20
Group 9	Saturated hydrocarbons	Cyclohexane, Heptane, Paraffins, Pentane, Petroleum ether	20
Group 10	Aromatic hydrocarbons	Benzene, Ethyl benzene, Naphtha, Toluene, Xylene	1,20
Group 11	Olefins	Butylene, 1-Decene, 1-Dodecene, Ethylene, Turpentine	1,5,20
Group 12	Petroleum oils	Asphalt, Gasolines, Mineral oil	20
Group 13	Esters	Amyl acetate, Butyl acetates, Castor oil, Dimethyl sulfate, Ethyl acetate	1,3,4,19,20
Group 14	Monomers, Polymerizable esters	Acrylic acid, Acrylonitrile, Butadiene, Acrylates	1,2,3,4,5,6,15,16,19,20,21, 23
Group 15	Phenols	Carbolic acid, Cresote, Cresols phenol	3,4,7,14,16,19,20
Group 16	Alkylene Oxides	Ethylene oxide, Propylene oxide	1,2,3,4,6,7,14,15,17,18,19, 23
Group 17	Cyanohydrins	Acetone cyanohydrin, Ethylene cyanohydrin	1,2,3,4,5,7,16,19,23
Group 18	Nitriles	Acetonitrile, Adiponitrile	1,2,3,4,16,23

Chemical Compatibility Chart

Group	Name	Example	Incompatible Groups
Group 19	Ammonia	Ammonium hydroxide, Ammonium gas	1,2,7,8,16,14,15,16,17,20,23
Group 20	Halogens	Chlorine, fluorine	3,6,7,8,9,10,11,12,13,14,15,19,21,22
Group 21	Ethers	Diethyl ether, THF	1,14,20
Group 22	Phosphorus	Phosphorous, elemental	1,2,3,20
Group 23	Acid anhydrides	Acetic anhydride, propionic anhydride	1,3,4,6,7,14,16,17,18,19

Incompatible Groups:

- Acidic and Alkaline
- Spontaneously Combustible and Acidic
- Acidic and Flammable
- Acidic and Cyanide
- Acidic and Reactive Sulfides
- Oxidizers and Organics
- Nitrates and Acids
- Ammoniated Compounds and Hypochlorites and Bleach
- Organic Nitrates/Perchlorates and other Oxidizers or Metals
- Azides and Metals, Metal Salts, Acids, Strong Oxidizers, Halogens
- Perchloric Acid and Metals, Metal Salts, Charcoal, Ethers, Organics, Combustibles, Acids