INCOMPATIBLE CHEMICALS

The following is a quick reference of incompatibilities for many chemicals commonly encountered in the laboratory. It is not a comprehensive list of all possible combinations and chemicals. For details on any chemical, check the MSDS.

Acetic acid with chromic acid, ethylene glycol, hydroxyl compounds, nitric acid, perchloric acid, permanganates, peroxides

Acetone with concentrated sulfuric and nitric acid mixtures, hydrogen peroxide

Acetylene with copper (tubing), bromine, chlorine, fluorine, iodine, silver, mercury and their compounds

Alkali metals (e.g. powdered aluminum or magnesium, calcium, lithium, potassium, sodium) with carbon dioxide, carbon tetrachloride, chlorinated hydrocarbons, flammable liquids, oxidizers, salt sulfur, water

Ammonia (anhydrous) with mercury, halogens, calcium hypochlorite, hydrogen fluoride

Ammonium nitrate with acids, metal powders, flammable fluids, chlorates, nitrates, sulfur, and finely divided organics or combustibles materials

Aniline with nitric acid, hydrogen peroxide, inorganic acids, oxidizers

Bromine with ammonia, acetylene, benzene, butadiene, butane, petroleum gases, hydrogen, sodium carbide, turpentine, and finely divided metals

Chlorates with ammonium salts, acids, metal powders, sulfur, finely divided organics or combustible materials

Chromic acid with acetic acid, naphthalene, camphor, alcohol, glycerol, turpentine, and other flammable liquids

Chlorine with ammonia, acetylene, butadiene, benzene, and other petroleum fractions, hydrogen, sodium carbide, turpentine, and finely divided powdered metals

Cyanides with acids

Hydrocarbons, general with fluorine, chlorine, bromine, chromic acid, sodium peroxide

Hydrogen peroxide with copper, chromium, iron, most metals or their respective salts, flammable fluids, and other combustible materials, aniline, and nitromethane.

Hydrogen sulfide with nitric acid, oxidizing gases

Iodine with acetylene, ammonia (anhydrous or aqueous)

Mercury with acetylene, ammonia, fulminic acid, hydrogen

Nitric acid with acetic, chromic, and hydrocyanic acids, aniline, hydrogen sulfide, flammable liquids or gases and substances which are readily nitrated

Oxalic acid with silver, mercury and their salts

Oxygen with oils, grease, hydrogen, flammable liquids, solids and gases

Perchloric acid with acetic anhydride, bismuth and its alloys, alcohol, paper, wood and other organic materials

Phosphorous pentoxide with water, alcohols, strong bases

Potassium permanganate with glycerol, ethylene glycol, benzadehyde, sulfuric acid

Sodium peroxide with any oxidizable substances (e.g. ethanol, methanol, glacial acetic acid, acetic anhydride, benzaldehyde, carbon disulfide, glycerol, ethylene glycol, ethyl acetate, methyl acetate, furfural)

Sulfuric acid with chlorates, perchlorates, permanganates, and water