Chemical Storage - Incompatible Chemicals

Some chemicals should not be mixed or stored with other chemicals because a severe reaction (explosion) or an extremely toxic reaction product (cyanide gas) can result. The label and MSDS will contain information on incompatibilities. The following table contains examples of incompatible chemicals:

Chemical	Kept Out of Contact With:	Yes	No
Acetic Acid	Chromic acid, nitric acid hydroxyl compounds, ethylene, glycol, perchloric acid, peroxides, permanganates		
Acetone	Concentrated nitric and sulfuric acid mixtures		
Acetylene	Chlorine, bromine, copper, fluorine, silver, mercury		
Alkali Metals	Water, carbon tetrachloride or other chlorinated hydrocarbons, carbon dioxide, the halogens		
Ammonia, anhydrous	Mercury, chlorine, calcium hypochlorite, iodine, bromine, hydrofluoric acid		
Ammonium Nitrate	Acids, metal powders, flammable liquids, chlorates, nitrites, sulfur, finely divided organic or combustible materials		
Aniline	Nitric acid, hydrogen peroxide		
Arsenical materials	Any reducing agent		
Azides	Acids		
Bromine	Same as chlorine		
Calcium Oxide	Water		
Carbon (activated)	Calcium hypochlorite, all oxidizing agents.		
Carbon tetrachloride	Sodium		
Chlorates	Ammonium salts, acids, metal powders, sulfur, finely divided organic or combustible materials		
Chromic Acid	Acetic acid, naphthalene, camphor, glycerin, turpentine, alcohol, flammable liquids in general		
Chlorine	Ammonia, acetylene, butadiene, butane, methane, propane (or other petroleum gases), hydrogen, sodium carbide, turpentine, benzene, finely divided metals		
Chlorine Dioxide	Ammonia, methane, phosphine, hydrogen sulfide		
Copper	Acetylene, hydrogen peroxide		
Cumene Hydroperoxide	Acids, organic or inorganic		
Cyanides	Acids		
Flammable Liquids	Ammonium nitrate, chromic acid, hydrogen peroxide, nitric acid, sodium peroxide, halogens		
Hydrocarbons	Fluorine, chlorine, bromine, chromic acid, sodium peroxide		
Hydrocyanic Acid	Nitric acid, alkali		
Hydrofluoric Acid	Ammonia, aqueous or anhydrous		
Hydrogen Peroxide	Copper, chromium, iron, most metals or their salts, alcohols, acetone, organic materials, aniline, nitromethane, flammable liquids, oxidizing gases		
Hydrogen Sulfide	Fuming nitric acid, oxidizing gases, acetylene, ammonia (aqueous or anhydrous), hydrogen		
Hypochlorites	Acids, activated carbon		

Iodine	Acetylene, ammonia (aqueous or anhydrous), hydrogen		
Mercury	Acetylene, fulminic acid, ammonia		
Nitrates	Sulfuric acid		
Nitric Acid (concentrated)	Acetic acid, aniline, chromic acid, hydrocyanic acid, hydrogen sulfide, flammable liquids, flammable gases		
Nitrites	Acids		
Nitroparaffins	Inorganic bases, amines		
Oxalic Acid	Silver, mercury		
Oxygen	Oils, grease, hydrogen; flammable liquids, solids, or gases		
Perchloric Acid	Acetic anhydride, bismuth and its alloys, alcohol, paper, wood		
Peroxides, organic	Acids (organic or mineral), avoid friction, store cold		
Phosphorus (white)	Air, oxygen, alkalis, reducing agents		
Potassium	Carbon tetrachloride, carbon dioxide, water		
Potassium Chlorate	Sulfuric and other acids		
Potassium Permanganate	Glycerin, ethylene glycol, benzaldehyde, sulfuric acid		
Selenides	Reducing agents		
Silver	Acetylene, oxalic acid, tartaric acid, ammonium compounds		
Sodium	Carbon tetrachloride, carbon dioxide, water		
Sodium nitrite	Ammonium nitrate and other ammonium salts		
Sodium Peroxide	Ethyl or methyl alcohol, glacial acetic acid, acetic anhydride, benzaldehyde, carbon disulfide, glycerin, ethylene glycol, ethyl acetate, methyl acetate, furfural		
Sulfides	Acids		
Sulfuric Acid	Potassium chlorate, potassium perchlorate, potassium permanganate (or compounds with similar light metals, such as sodium, lithium, etc.)		
Tellurides	Reducing agents		

*(From Manufacturing Chemists' Association, Guide for Safety in the Chemical Laboratory, pp.215-217.)