








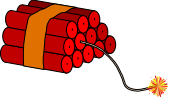




















Chemical Segregation & Incompatibilities Guidelines

Class of Chemical	Examples	Recommended Storage Method	Incompatible Materials	Possible Reaction If Mixed
Corrosive Acids 	Mineral Acids – Chromic Acid Hydrogen Chloride Hydrochloric Acid Nitric Acid Perchloric Acid Phosphoric Acid Sulfuric Acid	Separate cabinet or storage area away from potential water sources, i.e. under sink	Flammable Liquids Flammable Solids Bases Oxidizers Poisons	Heat   Gas Generation  Violent Reaction
Corrosive Bases/ Caustics 	Ammonium Hydroxide Sodium Hydroxide Sodium Bicarbonate	Separate cabinet or storage area away from potential water sources, i.e. under sink	Flammable Liquids Flammable Solids Acids Oxidizers Poisons	Heat   Gas Generation  Violent Reaction
Explosives 	Ammonium Nitrate Nitro Urea Picric Acid Trinitroaniline Trinitrobenzene Trinitrobenzoic Acid Trinitrotoluene Urea Nitrate	Secure location away from other chemicals	Flammable Liquids Oxidizers Poisons Acids Bases	Explosion Hazard 
Flammable Liquids 	Acetone Benzene Diethyl Ether Methanol Ethanol Toluene Glacial Acetic Acid	Grounded flammable storage cabinet or flammable storage refrigerator	Acids Bases Oxidizers Poisons	Fire Hazard  Heat   Violent Reaction

Flammable Solids 	Phosphorus Magnesium	Separate dry cool area	Acids Bases Oxidizers Poisons	Fire Hazard Heat Violent Reaction 
Oxidizers 	Sodium Hypochlorite Benzoyl Peroxide Potassium Permanganate Potassium Chlorate Potassium Dichromate Peroxides Perchlorates Chlorates Nitrates	Spill tray that is separate from flammable and combustible materials	Reducing Agents Flammables Combustibles Corrosives	Fire Hazard Toxic Gas Generation 
Poisons 	Cyanides Cadmium Mercury Osmium Acrylamide DMSO	Vented, cool, dry area in unbreakable chemically resistant secondary containers	Flammable Liquids Acids Bases Oxidizers Corrosives	Generation of Toxic & Flammable Gas Violent Reaction 
Water Reactive Chemicals 	Sodium Metal Potassium Metal Lithium Metal Lithium Aluminum Hydride	Dry, cool location away from potential spray from fire sprinklers and other water sources, i.e. under sink	Aqueous Solutions Oxidizers	Heat Violent Reaction 
Flammable Compressed Gases 	Methane Acetylene Propane Hydrogen	Cool, dry area away from oxidizing gases while securely attached to wall or bench	Oxidizing & Toxic Compressed Gases Oxidizing Solids	Fire Hazard Explosion Hazard 
Oxidizing Compressed Gases 	Oxygen Chlorine Bromine	Cool, dry area away from flammable gases while securely attached to wall or bench	Flammable Gases	Fire Hazard Explosion Hazard 
Poisonous Compressed Gases 	Carbon Monoxide Hydrogen Sulfide	Cool, dry area away from flammable gases or liquids while securely attached to wall or bench	Flammable Gases Oxidizing Gases	Release of Toxic Gas Violent Reaction 

Partial Incompatibility Listing

Compound/Class	Avoid Storage Near or Contact With:
Acids	
Acetic Acid -----	Chromic acid, nitric acid, hydroxyl compounds, ethylene, glycogen, perchloric acid, peroxides, permanganate
Hydrofluoric Acid -----	Ammonia (aqueous or anhydrous)
Nitric Acid (conc.) -----	Acetic acid, aniline, chromic acid, acetone, alcohol, or other flammable liquids, hydrocyanic acid, hydrogen sulfide, or other flammable gases, nitratable substances: copper, brass or any heavy metals (or will generate nitrogen dioxide/nitrous fumes) or organic products such as wood and paper
Sulfuric Acid -----	Light metals (lithium, sodium, potassium), chlorates, perchlorates, permanganates
Bases	
Ammonia -----	Mercury, chlorine, bromine, iodine, hydrofluoric acid, calcium hypochlorite
Calcium oxide -----	Water
Alkaline metals -----	Sodium, potassium, magnesium, calcium, aluminum, carbon dioxide, carbon tetrachloride or other chlorinated hydrocarbons, halogens, water
Bromine -----	Ammonia, acetylene, butadiene, methane, propane, butane (or other petroleum gases), hydrogen, sodium carbide, turpentine, benzene, finely divided metals
Carbon, activated-----	Calcium hypochlorite, oxidizing agents
Chlorine -----	Ammonia, acetylene, butadiene, methane, propane, butane, or other petroleum gases, hydrogen, sodium carbide, turpentine, benzene, finely divided metals
Copper -----	Acetylene, hydrogen peroxide, nitric acid
Fluorine -----	Isolate from everything
Iodine -----	Acetylene, ammonia (aqueous or anhydrous), hydrogen
Mercury -----	Acetylene, ammonia, fulminic acid (produced in nitric acid ethanol mixtures)
Oxygen -----	Oils, grease, hydrogen, other flammable gases, liquids, or solids
Phosphorous (white) -----	Air, oxygen, caustic alkalis as reducing agents (or will generate phosphine)
Potassium -----	Carbon tetrachloride, carbon dioxide, water
Silver -----	Acetylene, oxalic acid, tartaric acid, fulminic acid (produced in nitric acid-ethanol mixtures), and ammonium compounds
Organics	
Acetone -----	Concentrated nitric acid and sulfuric acid mixtures
Acetylene -----	Fluorine, chlorine, bromine, copper, silver, mercury
Aniline -----	Nitric acid, hydrogen peroxide
Flammable Liquids -----	Ammonium nitrate, chromic acid, hydrogen peroxide, nitric acid, sodium peroxide, halogens
Hydrocarbons----- (propane, butane, etc.)	Fluoride, chlorine, bromine, chromic acid, sodium peroxide
Nitroparaffins -----	Inorganic bases, amines
Oxalic Acid -----	Silver, mercury

Oxidizers

Chlorates -----	Ammonia salts, acids, metal powders, sulfur, finely divided organics, or combustible materials
Chromic Acid (trioxide)--	Acetic acid, naphthalene, camphor, glycerol, turpentine, alcohol or flammable liquids
Ammonium Nitrate -----	Acids, metal powders, flammable liquids, chlorates, nitrates, sulfur, finely divided organic or combustible materials
Chlorine Dioxide -----	Ammonia, methane, phosphine, hydrogen sulfide
Cumene Hydroperoxide--	Organic or inorganic acids
Hydrogen Peroxide -----	Copper, chromium, iron, most other metals or salts, alcohols, acetone, or other flammable liquids, aniline, nitromethane, or other organic or combustible materials
Hypochlorites -----	Acids (will generate chlorine or hypochlorous acid)
Nitrates -----	Sulfuric acid (will generate nitrogen dioxide)
Perchloric Acid -----	Acetic acid, bismuth and its alloys, alcohol, paper, wood, grease, oils
Peroxides (Organics) -----	Organic or inorganic acids; also avoid friction and store cold
Potassium Chlorate -----	Acids, especially sulfuric acid
Potassium Permanganate-	Glycerol, ethylene glycol, benzaldehyde, sulfuric acid
Sodium Peroxide -----	Any oxidizable substance such as methanol, ethanol, glycerol, ethylene glycol, glacial acetic acid, acetic anhydride, benzaldehyde, furfural, methyl acetate, ethyl acetate, carbon disulfide
Alkaline metals -----	Sodium, potassium, magnesium, calcium, aluminum, carbon dioxide, carbon tetrachloride or other chlorinated hydrocarbons, halogens, water
Calcium oxide -----	Water
Cyanides -----	Acids (will generate hydrogen cyanide)
Phosphorous (white)-----	Air, oxygen, caustic alkalis as reducing agents (will generate phosphine)
Potassium -----	Carbon tetrachloride, carbon dioxide, water
Sodium -----	Carbon tetrachloride, carbon dioxide, water
Sodium Peroxide -----	Any oxidizable substance such as methanol, ethanol, glycerol, ethylene glycol, glacial acetic acid, acetic anhydride, benzaldehyde, furfural, methyl acetate, ethyl acetate, carbon disulfide
Sulfides -----	Acids (will generate hydrogen sulfide)

Reducing Agents

Hydrazine -----	Hydrogen peroxide, nitric acid, other oxidants
Nitrites -----	Acids (will generate nitrous fumes)
Sodium Nitrite-----	Ammonium nitrate and other ammonium salts

Toxics/Poisons

Arsenicals -----	Reducing agents (will generate arsine)
Azides -----	Acids (will generate hydrogen azide)
Cyanides -----	Acids (will generate hydrogen cyanide)
Hydrocyanic Acid -----	Nitric Acid, alkalis
Hydrogen Sulfide -----	Fuming nitric acid, oxidizing gases
Selenides -----	Reducing agents (will generate hydrogen selenide)
Sulfides -----	Acids (will generate hydrogen sulfide)
Tellurides -----	Reducing agents (will generate hydrogen telluride)