

Chemical Storage Guidelines

[Refer Material Data Sheet for storage of every chemical you handle]

								
Flammable liquids	Acids	Bases	Oxidizers	Toxics	Compressed gases	Poison inhalation	Water reactive	Liquid nitrogen
<p>Do not store with acids or oxidizers</p> <p>Only store in refrigerators rated for flammables</p> <p>Keep quantities to a minimum (no 5 gallon cans permitted)</p> <p>Amounts over two(2) gallons: Store in an approved flammable cabinet</p>	<p>Do not store with bases, flammables, or cyanides</p> <p>Do not store under the sink</p>	<p>Do not store with acids</p> <p>May be kept with flammable liquids if in secondary containment</p>	<p>Do not store with flammable liquids or solids</p> <p>Do not store under the sink</p> <p>Avoid storage on wooden shelves</p>	 <p>And other Health Hazards</p> <p>Store on sturdy shelves below eye level or in secured cabinets</p> <p>Store separate from other hazard classes</p>	<p>Secure at all times even when empty</p> <p>Store away from heat sources</p> <p>Store with cap when regulator is removed</p> <p>Incompatible gases must be separated by a 30 minute fire barrier or 20 feet or line of sight</p>	<p>Store in a vented gas cabinet or a chemical fume hood</p> <p>Secure at all times</p> <p>Store with cap or plug in place</p>	<p>Do not store under the sink</p> <p>Store away from aqueous solutions</p> <p>Keep separate from other hazard classes</p>	<p>Store in a well ventilated area</p> <p>Consult EHS before storing 240L tanks</p>
<p>Examples</p> <p>Acetone Methanol Ether Hexane</p>	<p>Examples</p> <p>Sulfuric acid Hydrochloric acid Nitric acid Acetic acid</p>	<p>Examples</p> <p>Sodium hydroxide Potassium hydroxide Bleach</p>	<p>Examples</p> <p>Silver nitrate Ammonium persulfate Sodium periodate</p>	<p>Examples</p> <p>Sodium cyanide Sodium azide Aniline Ethidium bromide</p>	<p>Examples</p> <p>Helium Nitrogen Oxygen Hydrogen</p>	<p>Examples</p> <p>Carbon monoxide Chlorine gas Ethylene oxide Ammonia gas</p>	<p>Examples</p> <p>Sodium borohydride Hydrazine Sodium metal Phosphorus</p>	<p>Example</p> <p>LN</p>
<p>Special circumstances</p> <p>Combustible liquids (i.e. toluene) can be stored in the flammable cabinet if there is room.</p>	<p>Special circumstances</p> <p>Some acids are flammable (i.e. Acetic acid) but still store them with the acids.</p>	<p>Special circumstances</p> <p>Some bases are flammable (i.e. ethanol amine) but still store them with the bases.</p>	<p>Special circumstances</p> <p>Some acids are oxidizers (i.e. nitric acid) but still store them with the acids.</p>	<p>Special circumstances</p> <p>Inspect containers regularly.</p>	<p>Special circumstances</p> <p>Container volumes less than 5 liters (i.e. lecture bottles) can be stored lying down.</p>	<p>Special circumstances</p> <p>Consult with EHS when storing or using these materials.</p>	<p>Special circumstances</p> <p>There may be enough moisture in the air to react these materials. Use caution.</p>	<p>Special circumstances</p> <p>Liquid nitrogen tanks vent loudly periodically. Do not be concerned.</p>

Incompatible Chemical List

(This is a partial list, always refer to the Material Datasheet for more information)

Chemical	Incompatible with
Acetic Acid	Chromic acid, nitric acid, perchloric acid, peroxides, permanganates
Acetylene	Chlorine, bromine, copper, fluorine, silver, mercury
Acetone	Concentrated nitric acid and sulfuric acid mixtures
Alkali, alkaline earth metals	Water, carbon tetrachloride or other chlorinated hydrocarbons, i.e., powdered aluminum or magnesium, carbon dioxide, halogens, calcium, lithium, sodium, potassium
Ammonia (anhydrous)	Mercury, chlorine, calcium hypochlorite, iodine, bromine, anhydrous HF
Ammonium nitrate	Acids, powdered metals, flammable liquids, chlorates, nitrites, sulfur, finely divided organics or combustibles
Aniline	Nitric acid, hydrogen peroxide
Arsenical materials	Any reducing agents
Bromine	See chlorine
Calcium Oxide	Water
Carbon (activated)	Calcium hypochlorite, all oxidizing agents
Carbon tetrachloride	Sodium
Chlorates	Ammonium salts, acids, powdered metals, sulfur, finely divided organic or combustible materials
Chromic acid and chromium trioxide	Acetic acid, naphthalene, camphor, glycerol, alcohol, flammable liquids in general
Chlorine	Ammonia, acetylene, butadiene, butane, methane, propane (or other petroleum gases), hydrogen, sodium carbide, benzene, finely divided metals, turpentine
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
Fluorine	Everything
Hydrocarbons (such as butane, propane, benzene)	Fluorine, chlorine, bromine, chromic acid, sodium peroxide
Hydrocyanic acid	Nitric acid, alkali
Hydrofluoric acid (anhydrous)	Ammonia (aqueous or anhydrous)
Hydrogen peroxide	Copper, chromium, iron, most metals or their salts, alcohols, acetone, organic materials, aniline, nitromethane, combustible materials
Hydrogen sulfide	Fuming nitric acid, oxidizing gases

Continued...

Chemical	Incompatible with
Hypochlorite	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, copper, brass, any heavy metals
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, grease, oils
Peroxide, 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 perchlorate (see also chlorates)	Sulfuric and other acids
Potassium permanganate	Glycerol, ethylene glycol, benzaldehyde, sulfuric acid
Selenides	Reducing agents
Silver	Acetylene, oxalic acid, tartaric acid, ammonium compounds, fulminic acid
Sodium	Carbon tetrachloride, carbon dioxide, water
Sodium nitrate	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 (similar compounds of light metals, such as sodium, lithium)
Tellurides	Reducing agents

Potentially Explosive Combinations of Common Reagents

- ❖ Acetone + chloroform in the presence of base
- ❖ Acetylene + copper, silver, mercury or their salts
- ❖ Ammonia (including aqueous solutions) + Cl₂, Br₂, or I₂
- ❖ Carbon disulfide + sodium azide
- ❖ Chlorine + an alcohol
- ❖ Chloroform or carbon tetrachloride + powdered Al or Mg
- ❖ Decolorizing carbon + an oxidizing agent
- ❖ Diethyl ether + chlorine (including a chlorine atmosphere)
- ❖ Dimethyl sulfoxide + CrO₃
- ❖ Ethanol + calcium hypochlorite
- ❖ Ethanol + silver nitrate
- ❖ Nitric acid + acetic anhydride or acetic acid
- ❖ Picric acid + a heavy metal salt such as Pb, Hg, or Ag Silver oxide + Ammonia + ethanol
- ❖ Sodium + a chlorinated hydrocarbon
- ❖ Sodium hypochlorite + an amine