Chemical Storage Guidelines

Use these guidelines to determine appropriate storage locations for the chemicals in your area. The tables below show examples of chemicals within each group, but are NOT all inclusive. For more information about storing chemicals, refer to your Safety Data Sheets, the Laboratory Safety Manual, or contact an EH&S Laboratory Safety Specialist.

**Acids (pH < 7.0)**

<table>
<thead>
<tr>
<th>Mineral acid</th>
<th>Organic acid</th>
<th>Oxidizing acid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrochloric acid</td>
<td>Acetic acid</td>
<td>Nitric acid</td>
</tr>
<tr>
<td>Phosphoric acid</td>
<td>Formic acid</td>
<td>Perchloric acid</td>
</tr>
</tbody>
</table>

**Storage:** Store in a corrosives cabinet, if available, or in compatible secondary containment.

**Incompatibility information:** Acids should be segregated from bases and flammables. Oxidizing acids are incompatible with most chemicals, especially organics.

**Specific combinations to avoid:**

- **Acetic acid** with chromic acid, nitric acid, hydroxyl compounds, ethylene glycol, perchloric acid, peroxides, or permanganates
- **Chromic acid** with acetic acid, naphthalene, camphor, glycerin, turpentine, alcohol, (especially ethanol) or flammable liquids
- **Nitric acid** with acetic acid, aniline, chromic acid, hydrocyanic acid, hydrogen sulfide, flammable liquids, flammable gases, copper, brass, or any heavy metals
- **Perchloric acid** with acetic acid, acetic anhydride, bismuth and its alloys, alcohol, paper, wood, ether, oils or grease

**Bases (pH > 7.0)**

<table>
<thead>
<tr>
<th>Inorganic base</th>
<th>Organic base</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium hydroxide</td>
<td>Diethylamine</td>
</tr>
<tr>
<td>Sodium hydroxide</td>
<td>Piperidine</td>
</tr>
</tbody>
</table>

**Storage:** Store in a corrosives cabinet, if available, or in compatible secondary containment.

**Incompatibility information:** Bases should be segregated from acids, flammables, and reactives.
Flammables

<table>
<thead>
<tr>
<th>Flammable liquid</th>
<th>Flammable solid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetone</td>
<td>Napthalene</td>
</tr>
<tr>
<td>Ether</td>
<td>Paraformaldehyde</td>
</tr>
</tbody>
</table>

**Storage:** Flammable liquids totaling more than 10 gallons must be stored in a flammable cabinet.

**Incompatibility information:** Flammables should be segregated from acids, bases and oxidizers.

**Specific combinations to avoid:**

- **Flammable liquids** with ammonium nitrate, chromic acid, hydrogen peroxide, nitric acid, sodium peroxide and halogens (fluorine, chlorine, bromine, iodine).

Oxidizers

<table>
<thead>
<tr>
<th>Examples of -ates</th>
<th>Examples of -ites</th>
<th>Peroxide examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcium nitrate</td>
<td>Potassium nitrite</td>
<td>3-Chloroperoxybenzoic acid</td>
</tr>
<tr>
<td>Potassium dichromate</td>
<td>Sodium hypochlorite</td>
<td>Hydrogen peroxide</td>
</tr>
</tbody>
</table>

**Incompatibility information:** Oxidizers should be segregated from bases, flammables, and reactives. Oxidizers should also be segregated from reducing agents such as ammonia, activated carbon, metals and metal hydrides.

**Specific combinations to avoid:**

- **Ammonium nitrate** with acids, metal powders, flammable liquids, chlorates, nitrites and sulfur and finely divided organic or combustible materials.
- **Hydrogen peroxide** with alcohols, acetone, aniline, copper, chromium, iron, phosphorus, nitromethane, organic materials and other metals and their salts.
- **Hypochlorites** with acids, activated carbon and sulfuric and other acids.
- **Nitrates** with acids, activated carbon and sulfuric and other acids.
- **Nitrites** with acids.
- **Potassium chlorate** with sulfuric and other acids.
- **Potassium permanganate** with benzaldehyde, ethylene glycol, glycerin and sulfuric acid.
Poisons/Toxics

<table>
<thead>
<tr>
<th>Acutely toxic</th>
<th>Organic poison</th>
<th>Inorganic poison</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen cyanide</td>
<td>Acrylamide</td>
<td>Lead chloride</td>
</tr>
<tr>
<td>Sodium azide</td>
<td>Ethidium bromide</td>
<td>Mercuric iodide</td>
</tr>
</tbody>
</table>

Incompatibility information: See individual Safety Data Sheets (SDS) for incompatibility information.

Specific combinations to avoid:

- Azides with acids, heavy metals and their salts and oxidizing agents.
- Cyanides with acids.
- Sulfides with acids

Reactives

<table>
<thead>
<tr>
<th>Air reactive (pyrophoric)</th>
<th>Water reactive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Butyllithium</td>
<td>Acetic anhydride</td>
</tr>
<tr>
<td>White phosphorus</td>
<td>Sodium metal</td>
</tr>
</tbody>
</table>

Storage: See individual SDSs for storage information.

Incompatibility information: Reactives should be segregated from acids, bases, and oxidizers.

Specific combinations to avoid:

- Alkali metals (i.e. lithium, sodium, potassium, rubidium, and cesium) with carbon tetrachloride or other chlorinated hydrocarbons, carbon dioxide, and water.
- Anhydrides with water.
- White phosphorus with air, alkali metals, reducing agents, and strong bases.

Low Hazard Chemicals

<table>
<thead>
<tr>
<th>Liquids</th>
<th>Solids</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buffer solutions</td>
<td>Carbonates, Phosphates, Sulfates</td>
</tr>
<tr>
<td>Weak acids/bases (i.e. citric acid)</td>
<td>Salts (i.e. calcium or sodium chloride)</td>
</tr>
</tbody>
</table>