Chemical Management

The four basic categories of chemical hazards are…….

- Chemicals that have acute and/or chronic effects. Effects are duration and/or dose dependent.
- Liquids with a flash point at or below 140°F (60°C)
- Solids or liquids at pH extremes that can cause damage to living tissue. (i.e. pH <2 or >12.5)
- Highly unstable materials that may react with air, water, heat or friction/shock.

CONTAINER LABELING

- All containers need a label (even water!)
- Essential for communicating hazards
- Must be original label or identified, with contents, concentration, hazards, owner and date prepared

Date containers when they enter the lab or when created.
### Chemical Segregation and Storage

Always Consult the Manufacturer’s Material Safety Data Sheet Prior to Storage and Handling

<table>
<thead>
<tr>
<th>Class of Chemicals</th>
<th>Recommended Storage Method and Additional Concerns</th>
<th>Common Chemical Examples</th>
<th>Common Incompatibles. (Always Consult MSDS)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Flammable Liquids</strong></td>
<td>An approved flammable storage cabinet <em>Remember: peroxide-forming chemicals must be dated upon delivery and opening (consult Peroxide Forming-Chemical Handout)</em></td>
<td>Ethanol, Methanol, Acetone, Xylene, Toluene, *Diethyl Ether, *Tetrahydrofuran</td>
<td>Oxidizers, reactive, acids, bases</td>
</tr>
<tr>
<td><strong>Toxics</strong></td>
<td>In a ventilated, dry, cool area in a chemically resistant secondary container</td>
<td>Chloroform, Cyanides, Heavy Metal Compounds (e.g. Cadmium, Mercury)</td>
<td>Flammable liquids, acids, bases, reactive, oxidizers please consult EHS for assistance</td>
</tr>
<tr>
<td><strong>Corrosive Acids- Inorganic</strong></td>
<td>Store in corrosives cabinet (marked ACID), or on protected shelving and in secondary containment <em>Do NOT store acids on metal shelving</em></td>
<td>Hydrochloric Acid, Sulfuric Acid, Phosphoric Acid, Chromic Acid, Nitric Acid</td>
<td>Flammable liquids, flammable solids, bases and oxidizers, organic acids, cyanides, sulfides</td>
</tr>
<tr>
<td><strong>Corrosive Acids- Organic</strong></td>
<td>Store in corrosives cabinet, on protected shelving, secondary containment away from inorganic acids <em>Do NOT store acids on metal shelving</em></td>
<td>Acetic Acid, Trichloroacetic Acid, Formic Acid</td>
<td>Flammable liquids, flammable solids, bases and oxidizers, inorganic acids, cyanides, sulfides</td>
</tr>
<tr>
<td><strong>Corrosive Bases- Inorganic</strong></td>
<td>Store in corrosives cabinet, or on protected shelving away from acids</td>
<td>Ammonium Hydroxide, Potassium Hydroxide, Sodium Hydroxide</td>
<td>Flammable liquids, acids, oxidizers, organic bases</td>
</tr>
<tr>
<td><strong>Corrosive Bases- Organic</strong></td>
<td>Store in corrosive cabinet, and separated from acids and inorganic bases</td>
<td>Hydroxylamine, Tetramethylethyamine Diamine, Triethylamine</td>
<td>Acids, oxidizers, hypochlorites, inorganic bases</td>
</tr>
<tr>
<td><strong>Flammable Solids</strong></td>
<td>Cool dry area away from oxidizers and corrosives</td>
<td>Carbon, Charcoal, Paraformaldehyde</td>
<td>Acids, bases, oxidizers</td>
</tr>
<tr>
<td><strong>Oxidizers</strong></td>
<td>Store in secondary containment with non-combustibles or inorganic material</td>
<td>Perchlorates, Permanganates, Nitrates</td>
<td>Flammables, combustibles and organic materials</td>
</tr>
<tr>
<td><strong>Water Reactive</strong></td>
<td>Store in a cool dry location. Protect from fire sprinkler system and sources of water. Label area for water-reactive storage</td>
<td>Sodium, Lithium, and Potassium Metals, Sodium Borohydride</td>
<td>Aqueous solutions, oxidizers, water sources. Please consult EHS, and MSDS for specific information</td>
</tr>
<tr>
<td><strong>Explosives</strong></td>
<td>Store in a secure location away from other chemicals, store in areas away from shock or friction</td>
<td>Trinitrophenol, Picric Acid, Diazoisobutylnitrile</td>
<td>Please consult the MSDS and EHS.</td>
</tr>
<tr>
<td><strong>General Stock Chemicals</strong></td>
<td>Storage on laboratory benches, or shelves with like chemicals</td>
<td>Sodium bicarbonate, Agar, Salt buffer</td>
<td>See chemical-specific MSDS</td>
</tr>
</tbody>
</table>

#### Chemical Inventory

1. Dispose of old containers
2. Do not store duplicates
3. Ensure proper labeling
4. Keep an inventory
5. Do not store above eye level
6. Secure highly toxic materials
7. Keep Safety Data Sheets (SDS’s)
8. Ensure container integrity (caps, bottles)

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