SAFETY IN THE CHEMISTRY LABORATORY

CHE134 Summer II 2016

Stony Brook University
HAZARD - is the potential for something to cause harm.

RISK - the likelihood (probability) that the hazard will cause actual harm.

A Risk Assessment therefore is a careful examination of what could cause harm - bodily injury or adverse health effects.
Once potential Hazards have been identified (through Risk Assessment) steps must be taken to ensure the safety of everyone by minimizing Risk.

**RISK MANAGEMENT**

the process of taking actual practical steps to protect people from real harm.

The greater the risk, the more effective and reliable safety measures should be.
The National Fire Prevention Association (NFPA)
Posting and Labeling Method

NFPA postings have a four color (1-4) number rating, which quickly supplies the hazard information broken down into four hazard classes:

1 indicating a low level of hazard

4 indicating a high level of hazard

For FAST identification the information is displayed in a FIRE DIAMOND
CHE134

SUSB028  Synthesis of Aspirin

Consider what Chemicals we will Use

Risk Assessment - Identify Hazards

Risk Management - Precautions to Take
Sulfuric Acid (liquid) - A Catalyst

Very Corrosive      Do NOT mix with water

Use in FUME HOOD

Alert TA to any spills

First Aid

Eyes: Immediately flush eyes with large amounts of water for at least 15 minutes, holding lids apart to ensure flushing of the entire surface. USE EYEWASH FOUNTAIN

Skin: immediately flush skin with large quantities of soap and water for at least 15 minutes.
**Salicylic Acid (solid)** - a reactant

**Aspirin (solid)** - a product

Harmful if swallowed

Irritating to eyes, respiratory system and skin

**First Aid**

**Inhalation:**
Move affected person from exposure. If recovery not rapid or complete seek medical attention

**Skin:** Wash affected area with plenty of soap and water.

**Eyes:** Rinse immediately with plenty of water for at least 5 minutes while lifting the eye lids  **USE EYEWASH FOUNTAIN**
Acetic Anhydride (liquid) - a reactant

<table>
<thead>
<tr>
<th>NFPA RATING</th>
<th>Health</th>
<th>Fire</th>
<th>Reactivity</th>
<th>Special</th>
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</thead>
<tbody>
<tr>
<td>Acetic anhydride</td>
<td>2</td>
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Flammable     Harmful if Swallowed
Corrosive     Skin Burns     Eye Damage
Lachrymator   - Fumes Cause Tearing of Eyes

**First Aid**

Skin : Immediately wash with soap and water for 20 minutes

Eyes : Flush with water for 20 minutes. Hold eyelids apart

USE EYEWASH FOUNTAIN
A TA who **DID NOT** follow specified Risk Management guidelines after spilling acetic anhydride on himself. He should have rinsed his arm with water for **15 to 20 minutes**.
**Ferric Chloride Solution (liquid)** - a reagent

Skin contact may produce burns

Irritating to eyes; possible burns to eyes

**First Aid**

Skin: Wash affected area with soap and water.

Eyes: Flush immediately with water for at least 20 minutes. Hold eyelids apart to ensure complete irrigation of eye tissue.
**Ethanol (liquid)** - a reagent

**Toxic**     **Flammable**

**Severe Eye Irritation**

**Moderate Skin Irritation**

**First Aid**

**Eyes**: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Gently lift eyelids and flush continuously with water. **USE EYEWASH FOUNTAIN**

**Skin**: Flush with Water
Bunsen Burner

Open Flame

Gas Leaks

Wear Goggles

Tie Back Long Hair

NO Loose Clothing (scarves etc)

Check Rubber Hoses for - Cracks - Breaks - Leaks

Strike (Light) Match BEFORE Turning on Gas