

Lab Safety Assignment

1. and 2.

Concentrated Sulfuric Acid:

The most significant hazard is that it is highly corrosive and irritating.

The types of injury it could cause are burns if there is skin contact, inhalation may cause severe irritation of the respiratory tract characterized by coughing, choking, or shortness of breath, severe over-exposure may result in death.

Methyl Alcohol:

Methyl alcohol is very flammable and very poisonous. It is a slight irritant to the mucus membrane, and is toxic (between 100-125mL lethal dose) if ingested. Will dry skin out to the point of cracking, irritates eyes and may cause eye lesions with continued exposure.

30% Hydrogen Peroxide:

The most significant hazard is that it is highly corrosive and irritating.

Types of injuries it can cause are:

SKIN: Corrosive. Symptoms of redness, pain, and severe burn can occur. Blistering and bleaching of skin on contact.

EYES: Vapors are very corrosive and irritating to the eyes. Symptoms include pain, redness and blurred vision. Splashes can cause permanent tissue destruction.

INHALATION: Vapors are corrosive and irritating to the respiratory tract. Inhalation of mist may burn the mucous membrane of the nose and throat. In severe cases, exposures may result in pulmonary edema and death.

INGESTION: Corrosive and irritating to the mouth, throat and abdomen. Large doses may cause symptoms of abdominal pain, vomiting and diarrhea as well as blistering or tissue destruction. Stomach distention (due to rapid liberation of oxygen), and risk of stomach perforation, convulsions, pulmonary edema, coma, possible cerebral edema (fluid on the brain), and death are possible.

Iodine Crystals:

The most significant hazard is that it is equally dangerous as corrosive and toxic, and also is highly reactive.

Types of injuries it can cause are:

Eye Contact: Corrosive! Vapors are extremely irritating and may cause damage to the eyes. Contact may cause severe burns and permanent eye damage.

Skin Contact: Corrosive! Liquid contact may cause blistering burns, irritation and pain. Vapors may be severely irritating to the skin.

Ingestion: Toxic! Can cause severe burns of the mouth, throat and stomach. Causes abdominal pain, diarrhea, fever, and vomiting. Iodine is more toxic by the oral route in humans than in experimental animals. Ingestion of 2 to 3 grams of the solid may be fatal in humans.

Inhalation: Toxic! Vapors severely irritate and can burn the mucous membranes and respiratory tract. The acute toxicity of iodine by inhalation is high. Exposure can cause

severe breathing difficulties, headache, tightness of the chest and congestion of the lungs. **Chronic Exposure/Target Organs:** Exposure to iodine may cause insomnia, conjunctivitis, inflammation of the nasal passages, bronchitis, rapid heart beat, diarrhea and weight loss. Allergic sensitization may occur.

Aggravation of Pre-existing Conditions: Persons with pre-existing skin disorders, eye problems, impaired respiratory function or disease of the thyroid, lungs or kidney may be more susceptible to the effects of the substance.

3. If NaOH were splashed in your eyes, you would want to flush them with water (from the eyewash) while lifting the upper and lower lids to completely remove the chemical. Continue washing for 15 minutes. Seek medical attention if irritation persists.

If excessive methanol vapors were inhaled and began to feel sick then the person should be removed to an area of fresh air and be allowed to sit down. If breathing stops, give artificial respiration and get medical attention.

If acrylic acid were spilled on bare skin, then the area must be rinsed with copious amount of water, and all clothing affected must be removed and washed before reuse. Seek medical attention if not enough.

4. Acute affects are from short term exposure and are of a short duration. An example of an acute affect is getting some 30% hydrogen peroxide on your skin. You would get some burns and blisters immediately, but once the chemical is removed and the skin has healed there would be no recurring affects.

Chronic affects are from long term exposure and are of long term duration. An example of this is form exposure to asbestos. After being exposed to and inhaling asbestos for years, there is a chance for developing mesothelioma.

5. Corrosive – A chemical that causes visible destruction or irreversible alteration of living tissue.

Irritant – Not corrosive, but causes a reversible inflammatory effect on living tissue at site contact.

Highly Toxic – Chemical with a median lethal dose of 50mg or less per kilogram of body weight when administered orally to a 200-300 gram rat. Or 200mg per kg by continuous 24 hour skin contact, or 200ppm or less when administered by continuous inhalation for one hour.

Sensitizer – Chemical that causes a substantial portion of exposed persons to develop an allergic reaction in normal tissue after repeated exposure.

Toxic – See highly toxic, but dosages are between 50mg to 500mg orally, 200mg – 1000mg by continuous skin contact, or 200ppm – 2000ppm through continuous inhalation.

Carcinogen – a substance is a carcinogen if it is evaluated by the International Agency for Research on Cancer (IARC) and found to be a carcinogen, or it is listed as a carcinogen in the Annual Report of Carcinogens by the National Toxicology Program (NTP), or OSHA lists it as a carcinogen.

6. 30% hydrogen peroxide:

Reactivity: Hydrogen peroxide is a strong oxidizer and will spontaneously decompose into water and oxygen.

Toxicology and safety: hydrogen peroxide can cause burns and is harmful if inhaled. There is also a potential cancer hazard.

This information would be useful as a classroom teacher setting up a laboratory experiment by telling me what setups to avoid. Hydrogen peroxide should be placed under a fume hood, and goggles must be worn.

This hydrogen peroxide is different from hydrogen peroxide from a drug store because drug store hydrogen peroxide is only 1 or .5 percent, so it's mostly water.

7. Guidelines that students should follow in any lab are as follows:

- No loose clothing,
- All hair pulled back,
- No dangling jewelry, scarves, ties, etc.
- Goggles are to be worn at all times in the lab.
- Aprons are to be worn when instructed.

8. The goggles that should be worn are chemical resistant plastic goggles that cover the eyes completely.

9. A student would be asked to leave the lab if they misuse lab equipment, horseplay, or not following lab safety directions.

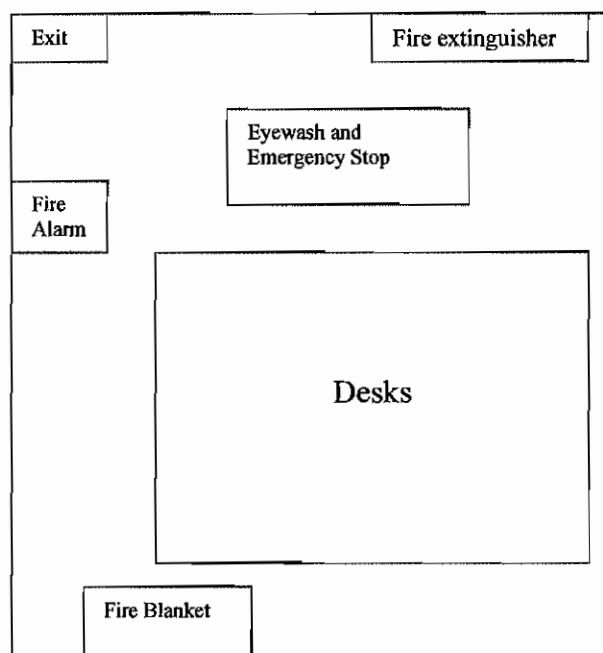
10. Students should not wear contacts because contacts can hold chemicals against the eye even as students use the eyewash.

11. What should be done:

- a. If a student breaks a beaker and cuts their hand: have another student get the nurse, use paper towels to put pressure on the cut, and clean up the glass.
- b. If chemicals are splashed in the student's eye or face: the chemical must be first determined (just in case it should not mix with water), then the area must be flushed with water for at least 15 minutes and the nurse should be contacted.
- c. If the fire alarm sounds: shut off all electricity and gas, and have the students put down their material and leave the building.
- d. If a student's manual gets lit on fire: Douse or smother the fire and check for anything else on fire.

- e. If a student's shirt catches fire: wrap them in a fire blanket and call nurse if they are burned.
- f. If chemicals have spilled on your pants: wash the pants and the skin underneath. Remove the pants and wash them before using again.

12.



There is no:

Mercury spill kit,

Paper towel dispenser for cleaning up chemicals,

Acid/base neutralization kit,

Receptacle for broken glass,

Receptacle for biological waste,

Receptacle for chemical waste,

MSDS's

The eye wash station is hooked up to the water.

The fire extinguisher is a dry chemical extinguisher and it is good until August 2009