



Laboratory Safety

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General Safety

- ▶ Only enter the laboratory when authorized
 - ▶ Always sign-in and sign-out
- ▶ A supervisor must be present at all times
- ▶ Never work alone in the laboratory
- ▶ You have the primary responsibility for your safety
 - ▶ Don't do anything you feel is unsafe
 - ▶ Don't do anything you are not confident about
 - ▶ Be prepared for the test/experiment you will run

Personal Safety

- ▶ Medical conditions must be reported immediately
 - ▶ No matter how small they are
- ▶ No personal belongings in work area
- ▶ Be careful for your own safety
- ▶ Be as careful for the safety of others as for yourself
- ▶ Wash your hands before leaving the laboratories

Clothing

- ▶ Long sleeve (tight) shirts and pants
- ▶ Shoes must completely cover your feet
 - ▶ No sandals or opened-toed shoes
 - ▶ Preferably steel-toed shoes
 - ▶ If experiment requires heavy lifting
 - ▶ Dropping a 15 pound weight from 3 feet
- ▶ Long hair must be tied back at all times
- ▶ Remove bracelets, necklaces or other loose jewelry

Personal Protection

- ▶ Eye safety glasses are required during preparation and testing
 - ▶ Never wear contacts when working with volatile materials
- ▶ Use appropriate filter masks if:
 - ▶ handling fine particles
 - ▶ working in dusty environments
- ▶ Hard hats must be worn if:
 - ▶ lifting heavy objects with crane
 - ▶ there is danger of falling objects

Equipment Safety

- ▶ Never use a tool you are not familiar with
- ▶ Do not operate heavy equipment (cranes, forklifts, etc.)
 - ▶ Do not operate equipment you are not trained for
- ▶ All guards must be in place before equipment operation
 - ▶ Do not bypass guards or safeties
- ▶ Report faulty equipment to supervisor
 - ▶ Do not use equipment that has been marked faulty
- ▶ De-energize machinery or equipment before cleaning or adjusting

Laboratory Regulations

- ▶ Follow the assigned instructions and procedures exactly
- ▶ No food or liquids are allowed inside the laboratory
- ▶ Do not taste or ingest anything while in the laboratory
- ▶ Smoking is prohibited
- ▶ Keep work area well lit and dry (as much as possible)
- ▶ Always keep your work area and the entire laboratory clean

Laboratory Regulations

Before running your experiment:

- ▶ locate all fire extinguishers in the laboratory
- ▶ access the first aid kits and check for completion
- ▶ test the eyewash stations
- ▶ find out where the fire alarm is located
- ▶ check emergency and exit routes
- ▶ locate the nearest phone

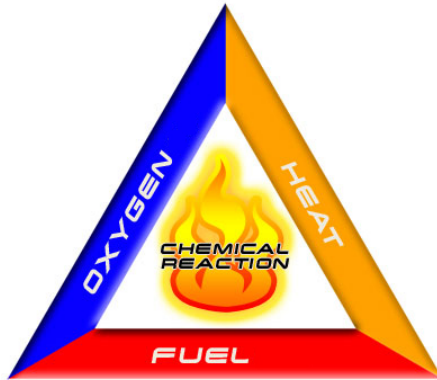
Use of Emergency Equipment

What is necessary for a fire?

- ▶ Oxygen to sustain combustion
- ▶ Heat to raise the material to its ignition temperature
- ▶ Fuel to support the combustion
- ▶ Chemical reaction between the first three elements

Remove any of the four elements to extinguish the fire

Use of Emergency Equipment



Fire triangle

Use of Emergency Equipment

How to use a Fire Extinguisher

Use the **P A S S** Technique

- ▶ **P**ull the pin at top of the extinguisher
- ▶ **A**im at the base of the fire, not the flames
- ▶ **S**queeze the lever slowly
- ▶ **S**weep from side to side

Use of Emergency Equipment



P A S S

<http://www.fire-extinguisher101.com/using.html>

<http://www.fireextinguishertraining.com>

Use of Emergency Equipment

Be quick ... but stay calm



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Use of Emergency Equipment

How to use Eyewash Station

- ▶ Try to stay as calm as possible
- ▶ Shout out for help and allow someone to assist you
 - ▶ Someone should contact emergency medical personnel
- ▶ Get to the eyewash station and turn water on
- ▶ Rinse both eyes with extensive amounts of water for a minimum of 15 minutes
- ▶ Keep your eyelids open by using your hands to ensure adequate flushing of the eyes
- ▶ Continue rinsing eyes until professional medical care arrives

Use of Emergency Equipment



Eyewash Station

Chemical Hazards

- ▶ Know the properties and dangers of the chemicals you are handling
- ▶ No open flames are allowed when chemicals are present
- ▶ Never smell or taste chemicals

Disposal

- ▶ Do not wash any material down the drain
- ▶ Do not dispose any chemicals without specific directions by the instructor
- ▶ Chemical waste must be disposed in appropriate and designated receptacles

Laboratory Accidents

- ▶ Be prepared to act intelligently and quickly
- ▶ Always notify the instructor in the event of an accident, no matter how minor it appears
- ▶ If corrosive liquids (acidic or basic) touch your skin, flood the area with water immediately
 - ▶ Rinse at least 15 minutes
 - ▶ Notify the instructor after finishing
- ▶ In the event of eye contact with any substances in the laboratory, use the eyewash stations to rinse immediately
 - ▶ Notify the instructor after finishing

Laboratory Accidents

In case of emergency, contact one of the following:

- ▶ Raphael Kampmann (Instructor) Tel: 410-6127
- ▶ Kamal Tawfiq (Department Chair) Tel: 410-6143
- ▶ Main Office Tel: 410-6139

Questions ?

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