LABORATORY SAFETY

By

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Why is laboratory safety important?

- TO PREVENT:
  - adverse health effects from exposure to chemicals
  - exposure to organisms, diseases, etc. in laboratories
  - laboratory equipment hazards - if not maintained properly

Lab safety must be taught to :

- all employees, including service groups
- Students
- Contractors
- Visitors

Lab safety must be reviewed when;

- new employees
- new procedures
- a change in procedures
- new equipment

Areas to cover

- General procedures or rules
- Glassware (do's and don'ts)
- Procedures for handling chemicals
- Personal protective equipment
- Waste disposal
- Emergency response plans

General procedures or rules

- You should remember the following:

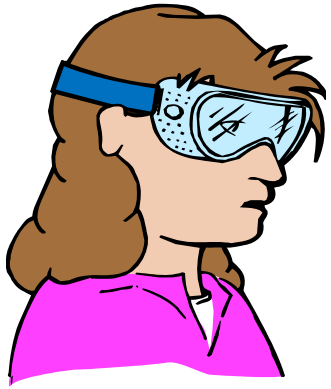
✓ No open-toed shoes

✓ No shorts unless a lab coat is used

✓ Restrain hair when working with hazardous materials

✓ Remove protective clothing right outside the workstation

✓ Use the proper Personal Protective Equipment for the job



General procedures or rules cont..

- Personal habits play a large role in minimizing hazards. The following measures must be taken:

✓ Do not eat, drink, smoke, chew gum or apply cosmetics, or remove/insert contact lenses while in the laboratory

✓ Do not store food or beverages in the lab or in chemical refrigerator

✓ Do not mouth pipette

✓ Wash hands before leaving laboratory or after handling contaminated material

General procedures or rules cont..

These safe practices should be followed to ensure safe working conditions:

- ✓ Do not use chipped or cracked glassware
- ✓ Know emergency procedures
- ✓ Keep the laboratory neat and clean
- ✓ Use hazardous chemicals under a fume hood and biohazardous materials under a biosafety cabinet (BSC)
- ✓ Decontaminate as needed

1. Glassware safety

- The following guidelines should be checked every time you deal with glassware

1. Inspect glassware before and after each use.
2. Discard or repair any cracked, broken, or damaged glassware
3. When inserting glass tubing into rubber stoppers, corks, or tubing, follow these guidelines:
   - Use adequate hand protection.
   - Lubricate the tubing.
   - Hold hands close together to minimize movement if the glass breaks.
   - Never use laboratory glassware to serve food or drinks.

Disposing of broken glass

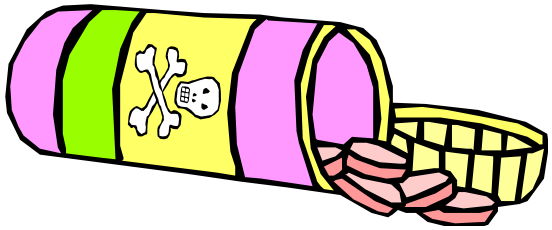
- Do not pick up broken glass with bare or unprotected hands.
- Use a brush and dust pan to clean up broken glass.
- Remove broken glass in sinks by using tongs for large pieces and cotton held by tongs for small pieces.
- Place all the recovered broken glass into the broken glass container.

2. Procedures for handling chemicals

- proper labeling, including wastes
- proper storage
  - storage cabinets
  - store compatible chemicals together
  - rooms properly vented & correct temperature

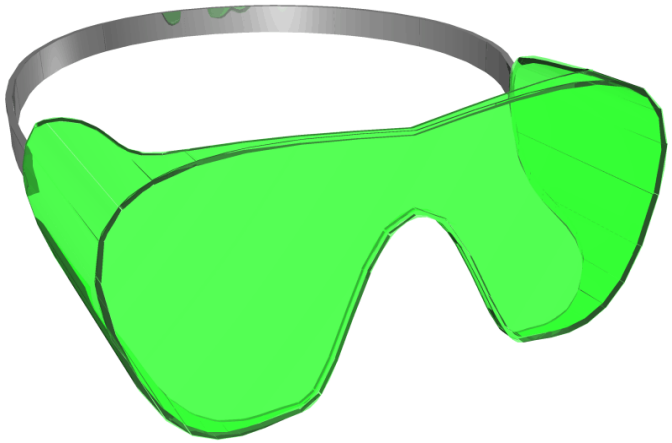
Procedures for handling chemicals cont.

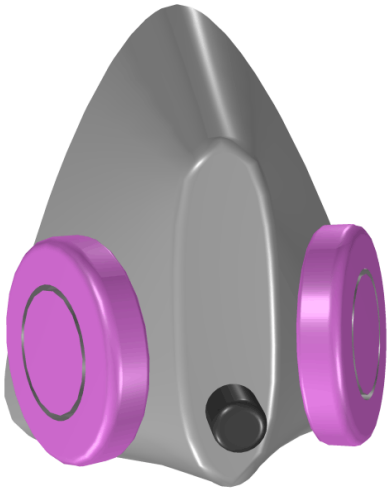
- Proper handling
  - **use <u>label</u> or <u>MSDS</u>**
  - **never** test by taste or odor
  - acids poured into water **never** vice versa
  - take precautions and use proper equipment when stirring or heating flammable liquids



3. Personal Protective Equipment:

- aprons,lab coats
- gloves-latex,nitrile,neoprene
- goggles, face shields, safety glasses
- respirators-full, partial, dust mask
- noise protection





Knowing *what* to use and *when* to use it is the key to properly protecting yourself.

4. Waste management

Waste Management Processes

Segregation

Packaging

Labeling

Handling, and storage of waste products

Transportation

Disposal

5. Emergency plan

- The first step is:

KNOW YOUR SURROUNDING.

1) The exits and emergency escape routes

2) The positioning of the fire extinguishers and the fire alarms

3) Emergency security numbers

4) The location of first aid boxes and the first aiders

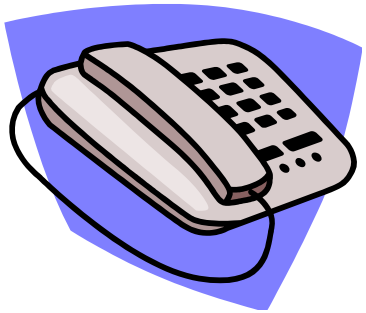
Emergency Plan

Each lab should have an emergency plan detailing the emergency response procedures for your lab.

Emergency plan cont..

When you first walk into a lab you should always take note of the location of the:

- Safety Showers
- Safety Eye Washes
- Emergency Exits
- Fire Extinguishers
- Emergency Electrical cutoff Switch



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Patron: Professor Peter C Doherty AC, FAA, FRS
Animal scientist, Nobel Prize Laureate for Physiology or Medicine–1996

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