مركز حمدي منكو
للبحوث العلمية
HAMDI MANGO CENTER
FOR SCIENTIFIC RESEARCH

Laboratory Safety Instructions at HMCSR

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General Lab Instructions

The following are general instructions that relate to almost every laboratory. They cover basic common-sense rules.

1. Sign-in the Lab Logbook with (name, time and PI).
2. The lab supervisor must be informed about your work and availability in the lab.
3. Familiarize yourself with fire exits and safety signs and follow the instructions in the event of an accident or emergency.
4. Ensure that you are fully aware of your facility's/building's evacuation procedures.
5. Make sure you know where your lab's safety equipment (including first aid kit(s), fire extinguishers, eye wash stations, and safety showers) is located and how to properly use it.
6. Take note of emergency phone numbers to call for help in case of an emergency.
7. Open flames should never be used in the laboratory unless you have permission from a qualified supervisor.
8. An area of 1-meter diameter must be kept clear at all times around all fire sprinkler heads.
9. Always work in properly-ventilated areas.
10. Do not chew gum, drink, or eat while working in the lab.
11. Laboratory glassware should never be utilized as food or beverage containers.
12. Each time you use glassware, be sure to check it for chips and cracks. Notify your lab supervisor of any damaged glassware so it can be properly disposed.
13. Never use lab equipment that you are not approved or trained by your supervisor to operate.
14. If an instrument or piece of equipment fails during use, or is not operating properly, report the issue to the lab supervisor right away. Never try to repair an equipment problem on your own.
15. If you are the last person to leave the lab, make sure to lock all the doors and turn off all ignition sources.
16. Do not work alone in the lab.
17. Never leave an ongoing experiment unattended.
18. Never lift any glassware, solutions, or other types of apparatus above eye level.
19. Never smell or taste chemicals.
20. Do not pipette by mouth.
21. Make sure that you always follow the proper procedures for disposing lab waste.
22. Report all injuries, accidents, and broken equipment or glass right away, even if the incident seems small or unimportant.
23. If you have been injured, yell out loudly and immediately to ensure you get help.
24. In the event of a chemical splashing into your eye(s) or on your skin, immediately flush the affected area(s) with running water for a good period of time.
25. If you notice any unsafe conditions in the lab, let your supervisor know as soon as possible.

Housekeeping Safety Rules

1. Always keep your work area(s) tidy and clean.
2. Make sure that all eye wash stations, emergency showers, fire extinguishers, and exits are always accessible.
3. Only materials you require for your work should be kept in your work area. Everything else should be stored safely out of the way.
4. Only lightweight items should be stored on top of cabinets; heavier items should always be kept at the bottom.
5. Solids should always be kept out of the laboratory sink.
6. Any equipment that requires air flow or ventilation to prevent overheating should always be kept clear.

Personal Protection and Dressing Safety Rules

1. When performing laboratory experiments, you should always wear a smock or lab coat.
2. Always tie back hair that is chin-length or longer.
3. Make sure that loose clothing or dangling jewelry is secured, or better avoid wearing them in the first place.
4. Never wear sandals or other open-toed shoes in the lab. Footwear should always cover the foot completely.
5. Never wear shorts or skirts in the lab.
6. When working with Bunsen burners, lighted splints, matches, etc., acrylic nails are not allowed.
7. When working with equipment, hazardous materials, glassware, heat, and/or chemicals, always wear face shields or safety glasses.
8. When handling any toxic or hazardous agent, always wear the appropriate gloves.
9. Before leaving the lab always wash your hands.
10. When using lab equipment and chemicals, be sure to keep your hands away from your body, mouth, eyes, and face.

I hereby declare that I have read and understood all safety regulations of HMCSR and I agree to follow these instructions during my lab work at HMCSR.

Name: _____

Responsible PI: _____

Lab name: _____

Date: _____

Signature: _____

Chemical Safety Instructions

1. Dress properly before entering the lab (refer to Personal Protection and Dressing Safety Rules)
2. Sign-in the Lab Logbook with (name, time and PI).
3. The lab supervisor must be informed about your work and availability in the lab.
4. Every chemical should be treated as though it were dangerous.
5. Do not allow any solvent to come into contact with your skin.
6. All chemicals should always be clearly labeled with the name of the substance, its concentration, the date it was prepared, and the user's name.
7. Before removing any of the content from a chemical bottle, read the material safety data sheet (MSDS) twice.
8. Do not take out more chemicals from a bottle than you need for your work.
9. Do not put unused chemicals back into their original container.
10. Chemicals or other materials should never be taken out of the laboratory.
11. Flammable and volatile chemicals should only be used in a fume hood.
12. If a chemical spill occurs, report for the lab supervisor and clean it up with the appropriate procedure.
13. Ensure that all chemical waste is disposed of properly. (refer to chemical waste handling).
14. Avoid storing heavy materials up high.
15. Keep exits, passageways, areas under tables or benches, and emergency equipment areas free of stored equipment and materials.
16. Avoid storing chemicals in chemical fume hoods, except for those chemicals in current use.
17. Store volatile toxic or odoriferous chemicals in a ventilated cabinet. If a chemical does not require a ventilated cabinet, store it inside a closable cabinet or on a shelf that has a front-edge lip, do not expose stored chemicals to heat or direct sunlight.
18. When refluxing, distilling, or transferring volatile liquids, always exercise extreme caution.
19. Chemicals should never be mixed, measured, or heated in front of your face.
20. Water should not be poured into concentrated acid. Instead, pour acid slowly into water while stirring constantly.

Lab Waste Handling

1. Limit the amount of chemicals from the start.
2. Waste containers are sorted according to the following categories:
   - **Solid waste:** scalpels, needles, syringes, glass and non-hazard solid.
   - **Chemical waste:** Halogen-based, Halogen-free, Ignitable/flammable and Corrosive solvents.
3. Use the designated container to dispose any waste or left-over chemicals in the assigned containers (If you are a beginner please consult the lab supervisor).

Hazardous Signs

Each worker in the laboratory area should know and become familiar with the interpretation of all hazard signs. Examples are listed in **Figure. 1**.

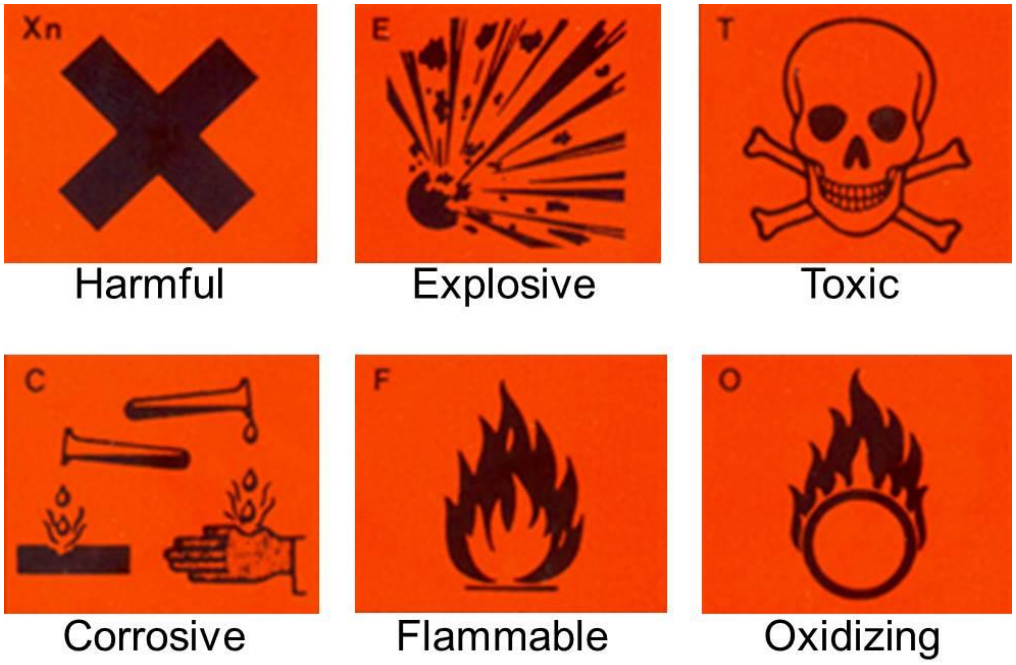

Figure. 1: Some common hazards signs.

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Biological Safety Instructions

1. Place contaminated materials in a closed durable leakproof container, and decontaminate them at a site away from the laboratory.

2. Take all special provisions before entering the laboratory (e.g., vaccination). This especially if there are used organisms containing recombinant or synthetic nucleic acid molecules in the laboratory.

3. Avoid skin contamination with organisms containing recombinant or synthetic nucleic acid molecules.

4. Wear gloves when handling experimental animals and when skin contact with the agent is unavoidable.

5. Use only disposable syringe-needle units for the injection or aspiration of fluids containing organisms that contain recombinant or synthetic nucleic acid molecules.

6. Report, immediately any spills, and accidents that result in overt exposures to recombinant or synthetic nucleic acid molecules to the Biosafety Committee at HMCSR.

7. Use biological safety cabinets (Class I or II) or other appropriate personal protective devices, when working with biohazard materials.

8. Limit using procedures that have a high potential of creating aerosols. This includes centrifuging, grinding, blending, vigorous shaking or mixing, and harvesting infected tissues from animals or eggs.

9. Use safety caps in the centrifuge if you want to centrifuge any biological materials.

Biosafety Cabinets

Biosafety Cabinets

1. Ensure that the BSC is operating properly before starting your work by checking air flow gauges.
2. Adjust the laboratorty chair height, so that armpits are level with the bottom of the view screen.
3. Store extra supplies outside the BSC. Only materials and equipment needed for the immediate work should be placed in the BSC.
4. Do not use equipment or store supplies inside the BSC that may disrupt the protective BSC airflow pattern.
5. If large equipment must be placed inside the BSC, place it as far back in the BSC as practical.
6. Wear appropriate personal protective equipment .
7. Allow cabinet blowers to operate for at least 3 to 5 minutes before beginning work to allow the BSC to “purge” particulates.
8. Turn off all flames before disinfectants are used.
9. When work is finished, surface decontaminate all items that are to be brought out of the BSC prior to their removal
10. At the end of the workday, decontaminates the BSC surface with 70 percent ethanol or dilute bleach.

Biological Safety Hazard

Workers must use appropriate personal protective equipment (PPE); such as hand protection against sharp instruments and potential thermal burns.

A. Autoclaves and Sterilizers

1. Take Care when handling or sorting hot sterilized items or sharp instruments, when removing them from autoclaves or from steam lines

2. Lab instructors must train users to follow good work practices (autoclave should be turned on and off by the responsible lab instructor.(

B. Centrifuges

1. Take Care of operating centrifuge properly. Most accidents are due to the high speed at which centrifuges are operated.

2. Lab instructors should instruct users to use appropriate decontamination and cleanup procedures for the centrifuged materials .

3. At least wait 10 minutes after the centrifuge rotor has stopped before opening the lid.

C. Cryogens and Dry Ice:

1. Be careful when dealing with cryogens. Cryogens are substances used to produce very low temperatures below -153°C such as; liquid nitrogen (LN); solid carbon dioxide or dry ice.

2.Be careful of cold hazards when dealing with cryogens. These include burns from cold materials; asphyxiation caused by the vapor of gases, explosion, and pressure.

3. Provide adequate pressure relief to all parts of a system to permit this routine outgassing and prevent an explosion.

4. The lab supervisor must be in charge of the apparatus, to ensure that the cryogenic safety hazards are minimized .

5. Users should be trained to use the appropriate personal protective equipment such as face shields or safety goggles; safety gloves.

6. Eye protection is required at all times when working with cryogenic fluids.

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