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Laboratory Safety Instructions

The following instructions offer a *basic guide* to use of your laboratory facility, especially during performance of laboratory experiments and related activities. Strict adherence to this guidance is essential so as to ensure your personal safety as well as of those working along with you.

General Safety Rules

1. Listen to or read instructions carefully before attempting to do anything.
2. Wear laboratory aprons for overall physical protection; safety goggles to protect your eyes from chemicals, heated materials, or things that might splinter.
3. Use face shields and gloves whenever handling corrosive fluids.
4. It is preferable that one wears glasses rather than contact lenses, during laboratory activities.
5. Make sure that you wear shoes that provide complete coverage of your feet.
6. Tie back long hair.
7. Roll up loose sleeves during the period of experiments.
8. Never apply your mouth to carry out any laboratory experiment related activity.
9. During laboratory work, keep your hands away from your face, especially when handling chemicals.
10. After handling chemicals, always wash your hands with soap and water.
11. Keep your work area neat and orderly. Bring to the laboratory only what is necessary for carrying out the experiments.
12. Do not leave an equipment unattended when its operating.
13. Know the location of the fire extinguishers, fire blanket, eyewash station, safety shower, emergency phone, and the first aid kit.
14. It is also important to know emergency exits from the laboratory, should it become necessary to evacuate a laboratory urgently.
15. Clean up your laboratory area at the conclusion of the laboratory period.
16. Do not eat / drink in the laboratory.
17. Maintain adequate discipline in the laboratory (no practical jokes!)
18. Notify your laboratory coordinator immediately if any spills or accidents occur.

A. Glassware Safety

1. Chipped or cracked glassware should not be used, have them replaced before you start experiments
2. Broken glassware should not be disposed of in a trashcan. Use special glass disposal container for it.
3. When pouring liquids into glassware, make sure the container you are pouring into is resting on a table at least a hands breadth from the edge.
4. If a piece of glassware gets broken, do not try to clean it up by yourself. Notify the laboratory coordinator.
5. Do not place hot glassware in water. Rapid cooling may break/splinter it.

B. Chemical Safety

1. Wear protective goggles whenever heating or pouring hazardous chemicals.
2. Never mix chemicals together unless you are told to do so (and then only in the manner specified). Incompatibility between chemicals can pose serious hazard.
3. Never taste any chemicals (you should never taste anything in the laboratory!).
4. If you *at all* need to smell the odor of a chemical, waft the fumes toward your nose with one hand. Do not put your nose over the container and inhale the fumes.
5. Keep chemical containers away from sparks, heat, and flame.
6. When handling a chemical make sure you read the hazard label on the container to learn of any special type of hazard associated with the chemical.
7. Wherever necessary, go through the *Material Safety Data Sheet* (MSDS), especially of substances you have never worked with before, so as to apprise yourself of any hazard inherent to the substance. A MSDS typically provides the following information:
 - a. Product Identity
 - b. Hazardous Ingredients
 - c. Physical Data
 - d. Fire and Explosion Hazard Data
 - e. Reactivity Data
 - f. Health Hazard Data
 - g. Precautions for Safe Handling and Use
 - h. Control Measures
8. Follow the instructions of the laboratory coordinator when disposing of all chemicals.

C. Heating Safety

1. Use tongs and/or protective gloves to handle hot objects.
2. Never reach across an open flame or burner.
3. Always point the top ends of test tubes that are being heated away from people.
4. When heating a test tube, move it around slowly over the flame to distribute the heat evenly.
5. Only glassware that is thoroughly dry should be heated.
6. Heat glassware by placing it on a wire gauze platform on a ring stand. Do not hold it in your hand.

D. Electrical Safety

1. Ensure that there are no worn-out or stripped wires as part of the experimental setup.
2. Ensure that only 3-pin plugs are used at power sources.
3. Check and ensure that electrical equipment are grounded / earthed.
4. Do not use wet hands to operate electricals.
5. Do not pull cords out of socket forcibly.
6. Do not poke power sockets.
7. Switch off associated electrical supplies after your experiment is over.

E. First Aid Administration

1. *Eye injury*: Flush eyes immediately with plenty of water for several minutes. If foreign object is lodged in the eye, do not allow the eye to be rubbed.
2. *Burns*: Immediately flush with cold water until burning sensation is lessened. Apply appropriate relieving ointment (from the first aid kit)
3. *Cuts / bruises*: Do not touch an open wound without washing hands; ideally, use of medical gloves is helpful. Pressing directly on minor cuts will stop bleeding in a few minutes. Apply cold compress to bruises to reduce swelling.
4. Seek professional medical attention without delay in case of serious injury.