



Department of Chemistry and Chemical Engineering



Laboratory Safety Rules, Practices, and Agreement

Instructions

Student: Carefully read the following laboratory rules, safety precaution, and regulations. **Your laboratory conduct will be governed by these rules, and any deviation from these rules and regulations may result in dismissal from the laboratory.** After you have read the list, sign your name on the attached acceptance form and return the form to your instructor. You may keep the remainder of the document as a reference or recycle it (turn it in); A bound copy is available in every lab classroom.

Instructor: Read through all items with the class and explain importance and relevance of each. Give a “tour” of the location and operation of the safety items. Complete and sign the instructor checklist. Check off submission of attachment with acceptance signature on your class roster “safety sheet” column, clip the sheets and give them to the safety officer.

Laboratory General Safety Procedures (Good Lab Practices)

1. Unauthorized experiments are prohibited, and only those chemicals required for the experiment to be performed are to be used. Perform the experiments as directed. Do not do anything that is not part of an approved experimental procedure. Follow all instructions given by your instructor.
2. No working alone in the lab. Students are not permitted access to storage rooms, cabinets, or refrigerators. Never take chemicals, supplies, or equipment out of the laboratory without the knowledge and consent of the instructor.
3. No smoking, drinking, or eating in the laboratory.
4. General horseplay will not be tolerated.
5. No headsets, music, or phones during lab.
6. Maintain an orderly and clean working area.
7. Read the experiment procedure in advance before performing the experiment. When uncertain of laboratory techniques or procedures, it is your responsibility to consult the laboratory manual or other suitable reference or to ask your laboratory instructor or Laboratory Assistant for the proper advice.
8. Keep books, back-packs and coats on the designated racks and shelves. Do not risk contamination by bringing them into the lab.
9. Stools and chairs must be stowed before experiments start to ensure a safe exit in the case of an emergency.
10. Laboratory benches and hoods are for experiments. A notebook, pen and laboratory manual are the only items you should need during class. Keep them out of hoods and away from flames, heat sources and chemicals.
11. Never point your test tube or glassware at yourself or your neighbor.
12. Put soap into an item to be washed. Do not contaminate soap jar with your brush. Wash with hot water. All glassware used in an experiment should be washed with soap and water and dried before being put away.

13. Avoid injuries by using proper procedures and precautions when inserting glass tubing or thermometers through rubber stoppers.
14. Clean your lab bench and hood. Put away all equipment and reagents. Wash your hands at the end of each work session even if you were wearing gloves.
15. Students who are or may be pregnant should inform their professor and consider postponing their work in the lab to another time. Pregnant students who continue in the lab must be aware of the risks they are taking by being in the lab.
16. Inform your instructor or leave a message for the Lab Coordinator or Lab Manager if you see anything unsafe.

Hazardous Chemical and Waste Management

1. Never taste chemicals.
2. Do not smell chemicals directly. If a laboratory procedure requires you to check the odor of a chemical, do so by gently wafting some of the vapor towards your nose with your hand. The lab instructor can demonstrate this procedure for you.
3. Avoid touching chemicals with your hands. Always wash your hands after any chemical contact.
4. Never pipet by mouth. Rubber bulbs or pumps will be provided in lab.
5. Work in a hood when working with reagents that give off dangerous gases, fumes, or dust. Learn the proper operation of hood sashes and use them appropriately.
6. Never return unused reagents to reagent bottles. Be careful to take only what you need. Do not contaminate the reagents. Never insert your own pipettes or medicine droppers into the reagent bottle. Avoid solution contamination by pouring a reagent into a test tube or beaker.
7. Chemicals should always be in a labeled container. All containers must be labeled before placing the chemicals into it. Labels should be read 3 times: when you pick it up; just before you use it; and after you are finished because mixing the wrong chemicals can be very dangerous.
8. Treat all chemicals with the respect they deserve. This includes reading the Safety Data Sheets (SDS) provided in the lab, asking the instructor for more information, and knowing the hazards before handling the material.
9. When weighing chemicals, be sure to keep the area clean to avoid contamination of the balances.
10. Always dilute concentrated acid by adding the ACID to the WATER and never the other way around. Water is inert and adding acid to it will dilute the acid at the point of contact which is far safer in the event of a splash.
11. Use carts or chemical carriers for moving all large volume or significantly hazardous substances.
12. In each laboratory, a bench top and/or hood will be designated the chemical distribution area. Leave reagent bottles at the transfer location. Bring test tubes or beakers to this location for transferring chemicals and carrying them back to your bench. Chemicals should never be distributed from movable carts; they should be taken to the work area or distribution areas.

13. Do not leave an experiment unattended. Turn off all heat sources when not in use. Unplug apparatus before leaving the lab. Do not put HOT apparatus away in cabinets or drawers.
14. Dispose of chemicals properly. Labeled containers will be provided for chemical waste from each experiment. Follow your instructor's or Lab Assistant's directions on how to properly dispose of chemical waste.

GHS Global Harmonized System is used on chemical labels to communicate hazards.



Irritant



Acute Health Risk – Carcinogen, Mutagen, Teratogen, Asphyxiant



Corrosive



Flammable



Oxidizer



Toxic



Environmental Toxin



Compresses Gas



Explosive (includes water reactives)

University of New Haven
'Safety Data Sheets'
available through
www.newhaven.edu and
MSDS online

1. Open our campus website www.newhaven.edu
2. Choose 'Main'
3. Choose 'Safety and Security'
4. Choose 'Environmental Health and Safety Department'.
5. Choose 'Chemical Safety Data Sheets (MSDS Site)'
6. A search screen will open.

Emergency Procedures

IMPORTANT CONTACTS:

Campus Police = ext. 7070

Emergency Dispatcher = 9-911

In case of evacuation:

1. Students will be told to leave the building. Use the stairwells. Evacuation routes are posted on each lab exit.
2. If possible, turn off equipment and shut doors to the lab.
3. Activate the fire alarm for the building.
4. Contact emergency personnel.

If a chemical is spilled on the bench or floor:

1. Inform instructor of spill/identity of the chemical spilled.
2. Alert the other students of the spill to keep them away from the contaminated area.
3. All spills, including water, should be cleaned up immediately.
4. Evacuate if necessary.
5. Assist the instructor in cleaning up the spill (and any broken glass) with the appropriate tools.
6. Contact emergency personnel.

If a chemical is spilled on a person or an individual is injured during the lab:

1. Inform instructor of the spill/identity of the chemical spilled.
2. Do not leave an injured individual(s) alone.
3. Treat chemical exposure to skin by rinsing the affected area under running water for at least 15 minutes. Eyewash stations and showers are available for extensive spills.
4. Remove any clothing that has been contaminated by chemicals.
5. Contact emergency personnel and fill out incident report.

If there is a fire:

1. If a heat source produced the fire, turn off the source immediately.
2. Inform instructor of the fire.
3. Evacuate if necessary. Evacuation routes are posted at each lab exit.
4. Use a safety shower or fire blanket to extinguish a fire on clothing/individual.
5. If a fire is contained within a beaker, place a watch glass over the beaker to extinguish the flames.
6. Contact emergency personnel (7070) for large or uncontrollable fires and fill out incident report.

Safety Equipment

Each laboratory is equipped with emergency and first aid equipment. Learn the locations and operation of all available safety equipment. Know what to do in the case of an emergency. Specific safety equipment may vary from one laboratory to another.

Have your laboratory instructor show you the location of the following:

- Fire Extinguisher
- Safety Shower
- Eyewash Station
- Emergency Phone
- First Aid Kit
- Fire Blanket
- Chemical Spill Kits
- Materials Safety Data Sheet
- Exit Doors of the Lab (and Evacuation Route)

Personal Protective Equipment (PPE)

1. Appropriate protective equipment must be worn at all times. The Campus Bookstore sells VISORGOGS as well as lab coats. Gloves will be provided as required for experiments.
 - a. VISORGOGS, an ANSI Approved Chemical Splash Goggles
 - b. Lab Coats
 - c. Gloves, as required.
2. Dress appropriately for lab. This will help protect you from flames and chemicals.
 - a. DO: Tie Back Long Hair.
 - b. DO: Wear long pants.
 - c. DON'T: Wear Sandals or Open Shoes. Footwear should be made of synthetic or natural leather, or any material that does not absorb liquids.
 - d. DON'T: Wear Loose Clothing/Sleeves.
3. Prevent the spread of chemicals to public areas; remove gloves and wash hands before leaving the lab classroom, touching computers, instruments, sample holders, and doorknobs.
4. Students will not be allowed to participate and will receive a zero for the experiment if they are not dressed properly or if they are not properly protected.