Laboratory Safety Rules and Policies

A typical Chemistry laboratory course exposes you to potential hazards. You will encounter hot objects, sharp objects, and corrosive or toxic solids, liquids and gases. Even if you practice perfect lab safety, the actions of your fellow students may put you at risk. Laboratory workers, including students, can be injured in various ways, including cuts, burns, eye damage, respiratory damage and other injuries.

The following safety rules apply at all times in the Chemistry laboratory rooms, 15-324 (including the instrument room) and 15-328.

No open food or drink is permitted at any time, whether a lab is in progress or not. No eating, drinking, candy, cough drops, chewing gum or tobacco is permitted. All beverage and food containers must be put away in a backpack/bag/purse or left outside of the lab. Never taste anything at all while in the lab rooms. Also, do not apply cosmetics in lab (this includes lip balm).

Children are not permitted in the lab rooms, even if a lab is not in progress.

Horseplay is not allowed in the lab. This is a safety hazard which may result in injuries to individuals or damage to equipment.

The following additional rules apply while a laboratory session is in progress.

1. The lab is restricted to the students enrolled in the course. Visitors are not allowed.
2. You must wear goggles for eye protection whenever hazardous chemicals are in the room, and until all students have finished cleaning up. Goggles will be furnished by the chemistry department. Even if you wear prescription glasses or contact lenses, you need to wear goggles as well.
3. You may use your own goggles for eye protection. The goggles must be chemical splash goggles, have indirect vents, be marked ANSI Z87.1-1989, and must be approved by the instructor or lab technician. Safety glasses are not acceptable. The TCC bookstore carries acceptable goggles. If you purchase your own, you should put your name on the strap or frame using permanent marker.
4. You must wear proper lab attire. Clothing must offer good protection against chemical spills and splashes. Sleeveless tops are not allowed including tank tops and off the shoulder tops. Legs and waists must be covered by your clothing. It is good practice to wear the protective aprons provided in the lab. Old clothing is a very good idea on lab days. Shoes must cover the entire foot, heel to toe (similar to what a tennis shoe would cover). Open shoes (such as flip-flops, sandals, ballet or slipper style shoes, shoes made of loosely-woven material, shoes with holes such as Crocs or garden clogs) are not allowed. For safety reasons, we also do not allow very high-heeled, high or low stiletto-heeled (narrow, pointy) or high platform shoes. If you are not dressed appropriately for lab, you may be asked to leave, without doing the lab or making it up on another day.
5. Long hair must be tied back. It can be a hazard, particularly when Bunsen burners are being used.
6. Report all accidents to your laboratory instructor immediately.
7. Know the location of the two main exits from the room, eye washes, safety shower, fire alarms, fire blanket and fire extinguishers.
8. If a chemical comes in contact with your eye, immediately flush the eye with a gently flowing source of water from the eyewash. Continue flushing for at least 15 minutes. Use your thumb and forefinger to hold your eyelids away from the eyeball, move your eyes continuously—up and down and sideways—to flush out thoroughly behind the eyelids and behind the eyeball. Notify the laboratory...
instructor immediately. Promptly seek medical attention. If someone else in the lab has a chemical in their eye, help them get to the eyewash and help them operate it!

9. Never hold a container directly under your nose. Detect odors by fanning the vapor toward your nose with your hand. (Ask your instructor to demonstrate the technique.)

10. All experiments must be performed inside the fume hood. The sash must be below the stop for the hood to function properly. Keep your head out of the fume hood as much as possible. Keep chemicals at least 15 cm (6 inches) inside the hood. Do not place chemicals or glassware outside of the hoods.

11. Keep all books and papers out of the fume hood. Small pieces of paper can easily be sucked up the back of the hood and into the mechanics causing maintenance problems. The hood is for apparatus and chemicals. Use adjacent counters or the pull-out boards for books and papers.

12. Never put anything such as trash or chemicals in the cup sink in the hood. This sink is only to be used for distillation procedures.

13. Always follow the laboratory instructions carefully and do not deviate from the laboratory instructions without the permission of the laboratory instructor. Do not perform any experiments or procedures that are not part of your lab assignment.

14. Exercise caution when heating substances with a Bunsen burner. Do not light a Bunsen burner unless instructed to do so.

15. The most common laboratory injuries are cuts from broken glass, and burns from hot objects including glass, metals or other materials. Be particularly careful when picking up objects that may be hot, and when handling glassware. It’s a good idea to inspect glassware for hairline cracks, star cracks or chips prior to use.

16. Broken glass that is clean should be swept up using the dust pan and placed in the red bucket for broken glass. Broken glass should never be put in the garbage. If the glass has chemicals on it, consult your instructor before dealing with it.

17. Students should stand at the hood to perform experiments. Except in cases of physical disability or injury, do not bring chairs next to hoods to sit on them. They present a tripping hazard.

18. Laboratory cabinet doors should be kept closed at all times except when transferring equipment to or from the cabinet.

19. Safety information about chemicals is in Material Safety Data Sheets (MSDS). They are at the Right-To-Know Station in lab and are widely available online. A keyword example is “Sodium Chloride MSDS”. All of us, faculty and students, should be fully aware of the properties of the chemicals we are using. Please use the MSDSs. You should look them up prior to lab.

**Laboratory Procedures**

The following rules are designed to ensure a more pleasant lab experience for all students, even if they are not directly related to lab safety.

1. **Think while you are working.** Most accidents are due to carelessness. Keep an eye on what your neighbors are doing. They may not be thinking!

2. **No more than 2 people may work in one hood.** If there is an odd number of students, then one must work alone.

3. Underneath each hood is the hardware and glassware needed for most labs. Specialty equipment will be placed in designated areas. Please **do not borrow from other hoods**. Obtain missing items from the instructor or the lab staff. Do not store chemicals under the hoods or in the hoods. If a product must be kept for next time, place it in the labeled tray provided by your instructor. Return specialized glassware and equipment to the cart. Do not return it to your hood.
4. **Transfer all chemicals in the fume hoods or at a weighing station, not at the supply carts.** Always read the label on the container (not on the lid) carefully. Always use a clean, dry utensil for dispensing. Replace lids and stoppers immediately. Be sure to put the correct lids on bottles and jars. Never return, accept or give to someone else, a bottle or jar without its lid. Return reagent bottles to the supply cart immediately after you are finished with them. Do not put anything into bottles of liquid reagents. Never return excess chemicals back to a bottle. Do not lay stoppers or droppers on the lab work surfaces.

5. **Only a few bottles or jars of each chemical are provided for the entire class to share.** Do not take “one of each” to your hood. You can’t possibly use them all at the same time and you can’t expect the rest of the class to share the one or two containers that are left. Don’t take them until you are ready to use them. You only have two hands so should not be carrying more than two bottles or jars at a time. Take them one or two at a time, dispense them and then **return them right away**. Other students are waiting to use them.

6. **Balances and surrounding areas should be kept clean at all times.** Spills on balances should be cleaned up immediately (your instructor will show you the proper way). All weighing should be made in a suitable container such as a weighing boat, beaker or weigh paper, never directly on the balance pan. Always remove the container from the balance before adding or removing chemicals.

7. **Absolutely no chemicals or glassware may be placed on the central tables.** This is to prevent contamination of personal belongings.

8. **You must be careful of chemical disposal.** Do not pour used chemicals down the sink unless this is the proper disposal, and if so, rinse down with lots of water. Your instructor will give instructions on how to properly dispose of chemicals. To reduce waste, take the least amount of each chemical necessary. You can always get more if needed. If you’ve accidentally dispensed too much, see if someone else needs it before disposing of it. Any questions, ASK YOUR INSTRUCTOR.

9. **When washing glassware, washing your hands or disposing of appropriate liquids, use only the big sinks.** The small sinks in the hoods should not be used for these purposes. Do not use deionized H2O for washing glassware. Use it only for filling water bottles and rinsing glassware just prior to use. Foreign objects such as boiling chips, broken glass, tape, filter paper and other debris should be removed from sinks (use forceps to remove debris from drains) and disposed of appropriately. Do not discard items such as used weighing boats, pipettes or pieces of wire. These are reusable.

10. **When you complete the lab do the following:**
    a. Return all chemicals to their proper places.
    b. Remove labels, wash and return all glassware, supplies and equipment to its proper place. Do not leave it at sink areas, on drying racks, or in the hood.
    c. Turn off and unplug electrical devices. Leave hot items in the hood to cool. Make sure that electrical cords do not contact hot surfaces (e.g. on hot plates). If already cool, put it away under the hood. Remove all clamps from ring stands and put them away in the drawer.
    d. **Don’t leave a messy hood for the next user.** Use a clean, wet (excess water squeezed out) paper towel to wipe down your own work area (hood and adjacent counter) and a common area such as weighing area or sink. Make sure to pick up solid spills with the paper towel, not just push them to the side. Do not use dry paper towel as it only smears spills around. If necessary (lots of solid or liquid spilled), rinse the paper towel and wipe again.
    e. Turn off the fume hood light, and close the sash.
    f. Wash your hands with soap and water.

**Steps a-f should be done before sitting down to work on questions and calculations so that you don’t run out of time or forget to do them before you have to leave!**

    g. When everyone is finished with their experiment and the clean-up, and the instructor has removed the supply cart(s) from the lab, you may remove your goggles and put them neatly in the cabinet with the lens facing up to prevent scratching.
Emergencies, Evacuation and Earthquakes

In the case of a lab emergency, call campus security at 566-5111. If life-threatening, call 911. If calling from a campus phone you must dial 9 first to get an outside line (9-911).

The Safety Officer for the 3rd floor is Diane Valdez. Her office is located in 15-325/326 and she can be reached at x5148. Contact her with any questions regarding emergency evacuation.

In the event that the lab has to be evacuated (e.g., fire or earthquake) the assembly area is the soccer field south of Bldg. 20 (gym). Please meet there with your class so that your instructor can ensure that everyone is accounted for.

If there is an earthquake during lab:

1. **If you are near a hood, quickly turn off the gas valve and close the hood sash.**
2. **Drop, cover, and hold on.** Take cover under a sturdy table or desk or against an interior wall away from chemicals, windows, bookcases, or tall furniture that could fall on you. The shorter the distance you move to safety, the less likely you will be injured. Hold on to one leg of the table or desk. Protect your eyes by keeping your head down and your goggles on.
3. **Wait in your safe place until the shaking stops, then check to see if you are hurt.**
4. **If it is safe, secure chemicals and remove heat sources.** Do what you can to minimize hazards due to chemical exposure or fire. Close all hood sashes. Turn off gas valves in the lab. Unplug all hotplates. Put lids on containers of chemicals. Move carefully and watch out for things that have fallen or broken, creating hazards. Be ready for additional earthquakes called "aftershocks".
5. **Check the people around you.** Assist with first aid as needed.
6. **Be on the lookout for fires.** Fire is the most common earthquake-related hazard, due to broken gas lines, damaged electrical lines or appliances, and previously contained fires or sparks being released.
7. **Stay indoors until the shaking stops and you are sure it is safe to exit.** More injuries happen when people move during the shaking of an earthquake. After the shaking has stopped, if you go outside, move quickly away from the building to prevent injury from falling debris. Stay away from buildings.
8. **If you must evacuate the building, assemble in the field south of Bldg. 20.** Stay there until you are released by a college official so that we can be sure everyone is accounted for.
9. **Know what to do ahead of time.** When an earthquake or other disaster occurs, many people hesitate, trying to remember what they are supposed to do. Responding quickly and automatically may help prevent injury.
10. **Use the phone for emergencies only.** Phone systems, including cell phones, are often overwhelmed following an earthquake. This can prevent timely responses to life-threatening emergencies.