

CHEMISTRY LAB - SAFETY PROCEDURES

General Safety Rules:

1. **Eye protection is required at all times in the laboratory.** Your eyes are very sensitive and can easily become irritated or damaged if you are not wearing safety goggles at all times. Goggles protect your eyes from chemical splashes, harmful vapors, and sharp equipment.
2. **No food or drinks are allowed in the classroom.** Because of the nature of chemistry, you will be working with many substances that are harmful if they are ingested. It is not worth the risk to assume that what you are eating has not been contaminated in some way.
3. **Horseplay and pranks are prohibited.** Chemistry lab can be fun and exciting, but it can also be dangerous if care is not taken to ensure the safety of everyone working nearby.
4. **Unauthorized experiments are prohibited.** Even though science is based upon curiosity and seeking answers to questions, it is important to have a general idea of what to expect from an experiment so you will not accidentally cause injury to yourself or others.
5. **Locate and know how to use all safety equipment.** The fire extinguisher, fire blanket, safety shower, and eye-wash station can save your life if used properly and responsibly.

Emergency Procedures:

1. **Chemical spills.** If any chemical gets on your skin or clothing, flush the area with lots of cold water and notify the teacher immediately. Use the safety shower if the spill is extensive. If the chemical gets into your eyes, immediately irrigate the eye for 15 minutes at the eye-wash station.
2. **Burns.** Immerse the burned area in cold water and notify the teacher.
3. **Cuts and abrasions.** Immediately clean the wound with water and notify your teacher. Hold a sterile pad firmly over the wound until the bleeding stops, then apply a bandage.
4. **Fires.** A small fire at your desk can usually be put out by smothering it with a nonflammable material such as a damp rag or an inverted beaker. If your clothing catches fire, try to use your lab apron to put it out or wrap in a fire blanket. If necessary, roll on the floor. If a fire cannot be put out by the above procedures and there is little personal risk, use the fire extinguisher. Do not put yourself in danger to extinguish a fire.

Working with Chemicals:

All chemicals are potentially harmful to some degree. Avoid direct contact with any chemical. It is especially important to keep chemicals away from your hands, face, and clothing. Many substances are easily absorbed through the skin or through inhalation. Chemicals can also enter the body through the mouth or transferred to your eyes if your hands are contaminated.

1. **Never taste any chemical.**
2. **Carefully read the label twice on any bottle prior to using it.** Use chemicals only from containers that are clearly labeled.
3. **Do not carry supply bottles to your desk** as other students will need them. Bring your appropriate container to the supply table and take only what you need.

4. **Do not return unused portions of chemicals to their containers** as you could contaminate the entire bottle. See if other students in your area need the chemical or dispose of the excess as directed by your teacher.
5. **Weigh chemicals in a previously-weighed container or on weighing paper** rather than directly on the balance pan.
6. **Never smell an unknown substance directly to determine its odor.** Carefully waft the fumes toward your nose to protect yourself from harmful vapors.
7. **Pour substances from the reagent bottles holding the label side of the bottle in your hand.** This prevents dripping on the label and provides a clean side for holding the bottle.
8. **If a solution spills onto the table, dilute the spill with lots of water** and use paper towels to soak it up or to push it into the sink. Dispose of the towels. If an acid is spilled, neutralize it with sodium bicarbonate (baking soda), then clean up as before. Strong bases can be neutralized with acetic acid (vinegar).
9. **Disposal of waste chemicals:**
 - (a) **Do not put any solids, paper or broken glass into the sink.** They are to be disposed of in the trash or in the waste containers provided.
 - (b) **Acids, bases and water solutions may be washed down the sink** with large amounts of water, unless your instructor gives you other disposal instructions.
 - (c) **Volatile or flammable liquids should not be poured down the drain,** but should be placed in specially marked containers and kept sealed.
10. **When diluting acid always add acid into the water.** The water will absorb the heat produced and also prevent the acid from splashing onto your skin.

Working with Heat:

1. **Never reach across an open flame.** It is advisable to roll up long sleeves and to tie back hair that is longer than shoulder-length.
2. **Before heating glass containers, examine them to see that they contain no cracks.** The expansion caused by heating could cause the damaged glass to break.
3. **When heating any solid or liquid in a test tube, keep the tube in constant motion and do not point the mouth of the tube at another person.** Hold the test tube with test tube clamps to avoid burning yourself.
4. **Always hold the test tube that is being heated at an angle,** and heat the sides of the tube as well as the bottom.
5. **Never look down into a tube containing a reagent or hot water,** especially if it is being heated.
6. **Never apply a direct flame to a container of volatile or flammable materials,** and never place an open flame near such containers.
7. **Hot glass looks just like cold glass, so always place hot objects on wire gauze to cool.** Hot glass can inflict severe burns.
8. **Never immerse hot glassware in cold water,** which could cause it to shatter.

Conclusion of the Lab:

1. **Clean and dry all of your glassware and your lab table.** Return all of your equipment to its proper place.
2. **Check to see that the gas and water are turned off** before you leave your working area.
3. **Wash your hands thoroughly.**
4. **Place your goggles in the sterilizer and your apron in its proper place.**