

## 'Experiment' 1 - Safety Practices in the Chemistry Laboratory

You are the most responsible person when it comes to your safety. If you ingest poisons into your body, you are to blame. What you do in the privacy of your own home is your business, but in a chemistry laboratory, life is much different. There exist many hazardous chemicals, dangerous equipment and other people that must all be respected and paid attention to.

An accident in a chemistry laboratory can cause serious injury or death. However, potential hazards can usually be anticipated, thus preventing such nasty accidents. The number of laboratory accidents can be sharply reduced if all safety precautions and directions given for an experiment are strictly followed by every student. Special note should be made of really nasty stuff. Whilst common sense rules the day, three rules sum up good laboratory practice:

- 1. Read the experiment before coming to class. Your instructor might remove you from lab if you do not fully understand the procedure to be followed that day.*
- 2. Know how to get help if something does happen. All accidents should be reported to your instructor immediately.*
- 3. Do not deviate from the procedure unless specifically instructed to do so. Come up with your own lab, (remember that cool demo your high school teacher did?) and you will be removed permanently from the course, no questions asked.*

**While these are overarching rules that cover our safety in lab, there are some more specific rules that we must follow such that everyone remains safe and leaves with as many body parts as they came in with:**

- **Where goggles at all times, not just when you are playing with chemicals.** If you are in lab, you are wearing goggles. Contact lenses can be dangerous in the presence of some chemicals. You had better wear your glasses.
- **Wear 'older' clothing that you don't mind getting dirty.** Do not wear your 'Sunday best' to lab.
- **Know location of all safety equipment.** More on this later.
- **Purses, backpacks, sweaters, coats, cars, kites, notes, textbooks, and pianos are allowed in only one place, in cubbies in front of each station.**
- **Do not eat, drink, smoke, apply lip-anything, or imbibe in lab.** This one is obvious. You had better wash your hands after lab before you touch anything you might want to eat also.
- **Dispose of waste materials in the appropriate places.** There is no need for us to kill any more fishes than we already do. If your instructor tells you it is ok to pour stuff down the drain, great. If they you to put it in a waste container, follow their instructions.
- **Keep the laboratory clean.** This means put away all of your trash, scratch paper, matches, etc. The instructor is not your mother, pick up after yourself.

- Avoid touching hot objects. You should NEVER carry anything hot around the lab. Let it cool before you transport it.
- Read the label. If the experiment calls for you to add 1.5 M H<sub>2</sub>SO<sub>4</sub>, then do not add 18 M H<sub>2</sub>SO<sub>4</sub>. Always double-check the compound identity before you extract it from its container.

## What to do if something bad happens

### **Chemical Spills**

Notify your bench neighbors and the instructor immediately. Make sure you know what the chemical is. If your instructor tells you to do something, do it. Time might be critical, so move like you have a purpose.

### **Chemical in Eye**

Immediate attention is critical. Run for assistance to get to the eyewash station. Drench your eyes for at least 5 minutes, more depending on what the chemical is. If the chemical gets on your goggles and not in your eyes, do not take off your goggles right away. Consult your instructor. Quick.

### **Burns**

Flush the area immediately with cool water for 20 minutes. Inform your instructor.

### **Cuts or Wounds**

Immediately notify your instructor, no matter how small the damage.

### **Fire**

If you start on fire, Stop, Drop, and Roll, just like you learned in elementary school. Someone will come get you with either a fire blanket or fire extinguisher. Get your laboratory instructor's attention. A simple scream in this case might work.

## MSDSs:

A Material Safety Data Sheet (MSDS) is designed to provide both workers and emergency personnel with the proper procedures for handling or working with a particular substance. MSDS's include information such as physical data (melting point, boiling point, flash point etc.), toxicity, health effects, first aid, reactivity, storage, disposal, protective equipment, and spill/leak procedures. These are of particular use if a spill or other accident occurs. The formats of MSDS's tend to vary, but they usually convey the same basic kinds of information. They are chock full of information, and a simple search on your favorite web browser will bring the information to your fingertips, for free. Many of the labs you will do this semester will require you to find the MSDS for at least one of the chemicals involved. Now, common sense should be adhered to. The MSDS does not know how much of the stuff you will be using. To prove this point, look at the hazard identification section of a MSDS for ethanol, the active ingredient in whiskey:

POISON! DANGER! VAPOR HARMFUL. MAY BE FATAL OR CAUSE BLINDNESS IF SWALLOWED. CANNOT BE MADE NONPOISONOUS. HARMFUL IF INHALED OR ABSORBED THROUGH SKIN. FLAMMABLE LIQUID AND VAPOR. AFFECTS CENTRAL NERVOUS SYSTEM. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. MAY AFFECT LIVER, BLOOD, KIDNEYS, GASTROINTESTINAL TRACT AND REPRODUCTIVE SYSTEM. All alcohols are poisons. This MSDS was found at <http://hazard.com/msdslindex.php> a good first place to look for MSDS sheets.

## Location of equipment / information:

You must know the location of the following: Fire extinguisher, fire blanket, eyewash station, fire exits, and emergency shower. You must also know the phone number to call in case of fire, and what the phone number for poison control is (1-800-222-1222). This information will be placed on a piece of paper that you will fill out and sign in lab.

**Jackson Community College  
Chemistry Department  
Laboratory Safety Contract**

1. Protective goggles are required at all times in the laboratory and where chemicals are stored and handled, including the instrument room
2. Horseplay, pranks, or other acts of mischief are especially dangerous and are prohibited. If done, you will be removed permanently from the course.
3. Exercise care in handling all chemicals and heed all warning labels and signs.
4. Eating, drinking, chewing gum, and smoking are prohibited.
5. Unauthorized experiments are prohibited. If done, you will be removed permanently from the course.
6. Appropriate clothing must be worn. Confine long hair and loose clothing. Open toed shoes or sandals are not permitted.
7. Purses, backpacks and other personal items will remain in the designated areas.
8. Always wash hands and arms with soap and water before leaving the laboratory.
9. Never perform experimental work when alone in the laboratory.
10. No chemicals or equipment may be removed from the laboratory without specific permission and supervision of the instructor.
11. Clean up all spills and broken glassware. Report all spills and accidents to the instructor immediately.

I, \_\_\_\_\_, have read and agree to follow the safety regulations set forth in this "contract". I will strictly follow the oral or written instructions provided by the instructor.

STUDENT'S SIGNATURE: \_\_\_\_\_

DATE: \_\_\_\_\_ Lab D/T : \_\_\_\_\_