

As a chemistry students or teacher we should be aware of the fact that chemistry laboratories can be hazardous if some general rules and safety procedures are not followed. The chemistry lab courses at different stages require the student to handle materials which are irritant, toxic, poisonous, flammable, explosive and carcinogenic. The glassware and equipment also needs to be handled carefully to avoid any accidents such as burns, cuts, or bruises.

It is generally observed that most of the accidents that take place in the chemistry laboratory are due to carelessness, impatience, and disregard for safety rules or proper operating procedures.

In order to avoid these instances of an accident in the laboratory certain rules and regulations must be followed at all times when one is working or observing in a chemical laboratory.

So as to make students and teachers aware of the precautions and safety procedures to be followed for good safe laboratory experience we have tried to list some of the general rules and safety practices in the following documents. We have also tried to present the safety symbols and their meanings. We have tried to introduce to the student to the Material safety data sheets and their importance.

## **Laboratory Safety**

### **Chemicals**

Never take stock solutions to your desk.

All bottles containing chemicals should be plainly labeled. Materials found in unlabelled bottles should be turned over to the laboratory instructor.

Handle any reagent with care.

Water is the best treatment to all acid or alkali accidents to skin, clothing or laboratory furniture.

All solid waste are disposed off in the containers provided, never to sink.

Liquid wastes, are poured into sinks while flushing with water.

Pipets are not inserted into bottles of liquid reagents. Pour the estimated quantity into a beaker or graduated cylinder. Discard any excess. Do not return to the stock bottle.

Never weigh chemicals directly on the balance pan. Use weighing paper or watch glass.

Never mix chemicals together unless you are told to do so (and then only in the manner specified).

Never taste any chemicals (you should never taste anything in the lab).

Never inhale any chemicals, unless told to do so. If you need to smell the odor of a chemical, fan the fumes toward your nose with one hand.

Distilled water is expensive and must not be wasted. It is used only for making up solutions and an occasional procedure called for by the experiment or the instructor.

Report all accidents to your instructors at once.

Before leaving the laboratory, make sure your working table surface is clean and dry. Be sure the water, gas and air cocks are completely shut off.

### **Glassware Safety**

Chipped or cracked glassware should not be used. Show it to the teacher.

Broken glassware should not be disposed of in a waste bucket kept for general purpose. A special glass disposal container should be made available in the laboratory.

When pouring liquids into glassware, make sure the container you are pouring into is resting on a table away from the edge.

If a piece of glassware gets broken, do not try to clean it up by yourself. Notify the teacher.

Do not place hot glassware in water. Rapid cooling may make it shatter.

## Heating

Use tongs and/or protective gloves to handle hot objects.

Never reach across an open flame or burner.

Always point the top ends of test tubes that are being heated away from people.

When heating a test tube, move it around slowly over the flame to distribute the heat evenly.

Only glassware that is thoroughly dry should be heated.

While heating use wire gauze platform, do not hold it in your hand or if possible use heating mantles.

## First Aid Measures

Do not touch an open wound without safety gloves. Pressing directly on minor cuts will stop bleeding in a few minutes. Apply cold packs to bruises to reduce swelling.

Immediately flush with cold water until burning sensation is reduced.

Flush eyes immediately with plenty of water for several minutes. If a foreign object is lodged in the eye, do not rub the eyes.