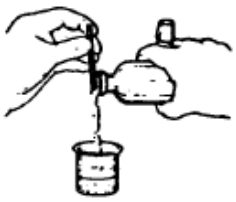
Chemistry

Laboratory Techniques

Working in the chemistry laboratory, you will be handling potentially dangerous substances and performing unfamiliar tasks. This section provides you with a guide to the various laboratory techniques, which will be used during the course.

Pouring Liquids: Always read the label on a reagent bottle before using its contents. Never pour excess liquid back into the original reagent bottle. Excess liquid should be disposed of in the proper waste container. When you are transferring a liquid to a test tube or measuring cylinder, the container should be held at eye level. Pour the liquid slowly, until the correct volume has been transferred.

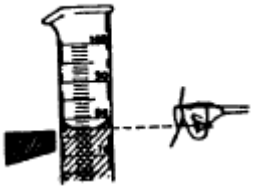
When you are pouring a liquid from a regent bottle into a beaker, the reagent should be poured slowly down a glass stirring rod. **See picture!**



Filtering a Mixture: The most common method of separating such a mixture is filtration.

- Fold a filter paper circle in half (1) and then in quarters (2). Open the folded paper to form a cone, with one thickness of paper on one side and three thickness on the other (3).
- Put the paper cone in a filter funnel. Moisten the filter paper with a small volume of distilled water, and gently press the paper against the sides of the funnel to achieve a good fit.
- Place the filter funnel inside a beaker and slowly decant the liquid through the funnel into the beaker.
- When the filtration is complete, wash the solid residue on the filter paper with distilled water to remove traces of solvent. Dry the solid.

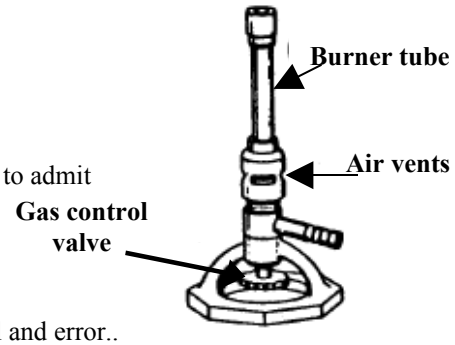
Measuring Volume: Most volume measures in the laboratory are made using equipment calibrated in milliliters. Beakers have graduation marks; these marks are designed only for quick, rough estimates of volume. Accurate volumes must be measured with volumetric/graduated pipets, burets or volumetric flasks. A volume measurement, using a graduated cylinder, is always read at the bottom of the meniscus at eye level. To make the meniscus more visible, you can place your finger or a dark piece of paper behind & just below the meniscus while making the reading.



Using a gas burner: The two most common models are the Bunsen Burner and the Tirrell Burner.

To operate a gas burner follow the general rules:

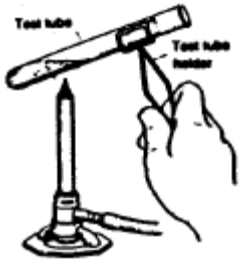
- Hold a lighted match at the top of the burner tube and turn on the gas supply.
- Always light the match before you turn on the gas. Open the air vents slowly to admit More air into the flame to produce a light blue cone-shaped flame.
- Adjust the air vents and gas supply to produce the desired size & color of flame. The blue inner cone of the flame should be about 1 inch high and free of yellow color. If you want a smaller flame close the air vent slightly and reduce the gas supply. You will learn how to control the burner flame by trial and error..



Bunsen Burner

Thermal Burn: A thermal burn can occur if you touch hot equipment or come too close to an open flame. You can prevent thermal burns by being aware that hot and cold equipment look the same. If a gas burner or hot plate has been used, hold your hand near an item to feel for heat before touching the equipment. Treat a thermal burn by immediately running cold water over the burned area for a few minutes until the pain is reduced. Greases and oils should not be used to treat burns because they tend to trap the heat. Notify your teacher immediately is you are burned!

Heating Liquids: To heat a liquid in a test tube, first grasp the test tube with a test tube holder and then hold the test tube in a slanting position in the flame & gently heat the tube a short distance below the surface of the liquid. Never point the open end of a



test tube that you are heating toward yourself or anyone working nearby. Shake the tube gently as it is being heated, until the liquid boils or the desired temperature is reached.