

## Chemistry Lab Basics (Speedy Study Guides)

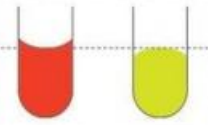
Speedy  
Study  
Guides

CHEMISTRY LAB BASICS

**Measuring Volume with a Graduated Cylinder:**

The surface of a liquid confined in a cylindrical container to form what is known as a meniscus. The meniscus of most liquids curves up the sides of the container, making the center of the curve appear lower than the edges. Mercury is one of very few exceptions - it curves down at the edges.

Since reading the meniscus at the top or at the bottom of the curve will make a difference in the volume measured, it is generally agreed to always read the bottom of the curve. The smaller the container, the greater the curve of the meniscus. Pictured below is the meniscus in a 10 mL graduated cylinder.



As the diameter of the cylinder increases, the curve of the meniscus flattens out. One picture of the meniscus is in a 100 mL graduated cylinder. While the curve is not as pronounced, because of its thickness, we must still read the bottom of the meniscus.

You can save that time drawn on the answer sheets; help identify the location of the bottom of the meniscus. If reading volumes in a cylinder is going to be regularly done, making a burnt card might be worthwhile. This is a small index card with a very thick horizontal line drawn on it with a magic marker. By holding the card behind the cylinder, and immediately below the bottom of the meniscus, the volume can be easily read.

**Measuring Volume with a Pipet:**

Pipets are much more accurate than graduated cylinders. Reading the volume of liquid in a pipet is just like reading a graduated cylinder, however there is one additional technique needed with a pipet. The diameter does not allow a liquid to be poured into a pipet - the liquid must be drawn into the pipet.

The red bulb is known as a standard pipet bulb. The black bulb is known as a safety pipet bulb. Many of the "professionals" who work today in labs with automatic pipets. These are expensive little gadgets that come in many different volumes, each delivering exactly its assigned volume with one click of a button. High school chemistry students need to know the basic techniques of pipetting, so you will be using glass pipets and the standard pipet bulb.

The standard pipet bulb requires manual dexterity that is improved by repetitive use. You may have to practice using the bulb with a pipet before you are able to accurately transfer a measured volume of liquid. The technique goes something like this:

1. Pour slightly more liquid than needed into a beaker using the "bulb" graduated on the beaker. Remove pipet directly from a reagent bottle.
2. Place the tip of the pipet below the surface of the liquid in the beaker.
3. Squeeze the pipet bulb and press it firmly over the top of the pipet. Do not force the bulb into the pipet. The soft plastic center of the bulb is tapered made to ensure a good seal on any size you keep a steady pressure between the pipet and the bulb.
4. Gradually release the pressure of your squeeze on the bulb and allow the liquid to be drawn into the pipet. Draw more liquid than needed, but do not allow the liquid to reach the bulb.
5. With the tip of the pipet still below the liquid's surface, quickly remove the bulb and place your finger or thumb over the top of the pipet to prevent the solution from flowing back into the container.
6. Record the exact volume of liquid in the pipet (remember the meniscus).
7. While this is the step that requires the most practice, to release the liquid, slowly roll your finger to the side just enough to break the seal over the top of the pipet and allow the liquid to flow. To stop the flow of liquid, roll your finger back.

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### Reviews

*Without doubt, this is actually the greatest function by any article writer. It is among the most amazing publication i have got read. Its been printed in an exceedingly basic way in fact it is simply after i finished reading through this publication where in fact changed me, change the way i believe.*



**(Arielle Ledner)**

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