

solutions used in burets may attack the glass of the buret if they are not removed. This would destroy the calibration. To speed up the cleaning of a buret in future experiments, the buret may be left filled with distilled water during storage between experiments (if your locker is large enough to permit this).

A common mistake made by beginning students is to fill the buret with the reagent solution to be dispensed to exactly the 0.00 mark. This is not necessary or desirable in most experiments, and it wastes time. The buret should be filled to a level that is comfortable for you to read (based on your height). A precise initial liquid-level reading of the buret should be taken before the solution is dispensed and again after the liquid is dispensed. The readings should be made to the nearest 0.02 mL. The volume of liquid dispensed is then obtained by simple subtraction of the two volume readings. Always use a funnel when filling a buret, and always have the buret top below eye level when you are adding liquid.

Safety Precautions

- Protective eyewear approved by your institution must be worn at all time while you are in the laboratory.
- When using a pipet, use a rubber safety bulb to apply the suction force. *Never pipet by mouth.*
- Clean the buret carefully. Do not attempt to clean the buret in the sink (most sinks are too small and the buret is likely to be broken). Mount the buret vertically on a ring stand and pour rinse liquids (soap solution, water) through the buret.
- Use a funnel when adding liquid to the buret, and have the top of the buret below eye level when adding liquids to it.

Apparatus/Reagents Required

Graduated cylinders, pipets and safety bulb, buret and clamp, beakers, distilled water

Procedure

Record all data and observations directly in your notebook in ink.

A. The Graduated Cylinder

Your instructor will set up a display of several graduated cylinders filled with different amounts of colored water. Several sizes of cylinder are available (10-mL, 25-mL, 50-mL, 100-mL). Examine each cylinder, paying particular attention to the marked scale divisions on the cylinder. For each graduated cylinder, to what fractional unit of volume does the smallest scale mark correspond?

Read and record the volume of liquid contained in each graduated cylinder. Make your readings to the level of precision permitted by each of the cylinders.

Check your readings of the liquid levels with the instructor before proceeding, and ask for assistance if your readings differ from those provided by the instructor.