

#3 - Techniques on the Use of a Volumetric Flask



Figure 11: A 100.0 mL Volumetric flask

A volumetric flask is calibrated to contain one specified volume. It is used to prepare standard solutions and for the dilution of solutions. Volumetric flasks are cleaned and thoroughly rinsed but rarely do they need to be dried. When the meniscus touches the mark that is etched on the neck of the flask, the calibrated volume is contained in the volumetric flask.

When preparing a solution with a solid solute, the solid should not be emptied directly into the volumetric flask. First, dissolve the solid in a beaker using about half to two-thirds of the volume of the final solution. Second, quantitatively transfer the solution to the volumetric flask. Details of preparing a standard solution and quantitative transfer are covered in *Technique #7*.

The volume measured in a volumetric flask is recorded to four significant figures (i.e. – 100.0 mL).

Steps to make a Dilution using a Volumetric Flask

1. Pipet the solution to be diluted into the volumetric flask directly.
2. Add distilled water to fill the flask about half to two-thirds full.
3. Swirl the flask to mix the solution.
4. Bring the level close to the mark and allow time for drainage. Then use a Pasteur pipette to make the final addition (Figure 12). The eye should be level with the meniscus and the mark to make a correct reading for the volume (Figure 13).



Figure 12: Pasteur pipette