

Buret Operation Guide

Minneapolis Community and Tech. College Chemistry

The buret is a device that is used to dispense a liquid, the **titrant**, into a flask or beaker containing a different solution, the **titer**. Before use, the buret must be rinsed with the titrant solution to remove contamination that may be the result of prior use and/or dishwasher residue.

Note also the position of the buret's valve handle. When perpendicular to the body of the buret, the valve is off. The burets in the figure at right are turned off.

Rinse the buret by first closing the valve and then adding approximately 2-4 mL of titrant solution (record the bottle number). Now tilt the buret (almost horizontal) and allow the titrant solution to run in the direction of the open end. Just as the solution approaches the open end, *spin the buret between your fingers*. Don't let the solution run out of the buret's open end onto your fingers!! This action permits the titrant solution to rinse the entire inner surface of the buret. Discard the rinse solution as instructed. Using the same procedure, rinse the buret a second time.

Now, fill the buret using a small plastic funnel (valve off). Run out enough liquid to remove any bubbles that may be trapped in the tip. Record the initial reading to 2 decimal digits (see figure at right). **The buret does not have to begin at zero** as we subtract the initial and final readings to determine the volume of titrant solution dispensed. When in line with the body of the buret, the valve is on. Be sure the valve is *off* before filling the buret.

Note that burets are read from the top down UNLIKE graduated cylinders that read from the bottom up. Don't make the mistake of reading the first buret (figure at above) as 1.73 mL. *The correct reading should be 0.27 +/- 0.01 mL.*

Slowly add titrant solution until you near the endpoint, signaled by a faint color change (pink for phenolphthalein) that lasts for progressively longer times.

Watch for bubbles that may be hiding in the valve assembly. If you see one, it must NOT be allowed to flow out the buret's tip! You may be able to continue by slowing down the flow of titrant. If the bubble is allowed to pass, the titration will be in error and must be performed again.

Look for a color change early on as the titrant solution first encounters the solution in the beaker or flask below. Failure to see a color change means you forgot to add the indicator!

Note: During a titration, the meniscus must always fall on the buret's graduated scale! Don't let the meniscus drop below the 25 mL mark or you will have to repeat the trial!

Two methods may be used to add the last, small amounts of titrant near the endpoint.

1. Quickly turn the valve 180 degrees from one off position to the next. When performed quickly enough only a small amount will be added to the beaker. PRACTICE THIS TECHNIQUE PRIOR TO DETERMINING YOUR ENDPOINT.
2. Slowly open the valve and allow a small droplet to form at the end of the buret. Rinse this droplet from the tip of the buret using a small amount of water into the beaker below. The small amount of water should have no effect on your result. **WHY?**

