

Volumetric and Gravimetric Lab Techniques

The following techniques are likely to impact the precision and accuracy of your laboratory data. Lower than accepted level of precision and accuracy will lower your lab grade!

When You Measure Volumes...(Volumetric Data)

1) All precision volumetric glassware such as pipettes, burettes and volumetric flasks must be prepared in two steps before the first use:

- a) First, Wash the glassware with a reasonable portion of rinse water.
 - b) Secondly, rinse the glassware with the same solution to be used in the experiment with three reasonable portions of the solution.
- 2) Be sure not to heat these glassware as they are mostly calibrated at 20 °C.
- 3) When using a burette record volumes to two digits after the decimal (xx.xx)
- Note: Always check the precision of the glassware and read the volume to the highest precision possible. Usually, we estimate once in between the closest graduations printed/inscribed on the glassware.

When You Measure Masses... (Gravimetric Data)

NOTE: Never move the analytical balances. They are calibrated and leveled and moving them will change these settings and lowers the accuracy of your measurements.

- 1) Always zero the balance (tare) with all panel doors shut before placing the object inside the balance pan.
- 2) Be sure that your object is not too large for the balance. Large objects can damage a sensitive balance or cause a balance to report an inaccurate weight.
- 3) Place the object on the center of the balance pan.
- 4) Wait for the digital readout to stabilize (few seconds) and until the symbol “g” appears on the digital readout.
- 5) If your object was heated let it cool to room temperature before weighing. Otherwise its mass will be unstable during weighing. Let the hot object on a ceramic tile and then take the tile (and the object) to the balance.
- 6) Do not handle the object with your bare fingers. Use a folded paper towel to wrap around the object in order to make a paper handle or carry. The moisture and oils on your skin can change the mass of the object. You can use a clean and dry pair of tongs to handle the object if is more convenient to do so.