

Pipette Calibration

Materials:

- Ideally a small screw cap bottle although a weigh boat will work
- Pipettes
- Beaker of diH₂O (tap water will NOT work)
- Sensitive scale that reads to at least 3 decimal points

Procedure:

1. Add a small amount of diH₂O to the bottle and place it on the scale. Record the weight of the bottle + diH₂O.
2. Pick the two most commonly used measurements for each pipette tested. For example, when testing a 100uL pipette, test the pipette at both 100uL and 50uL.
3. Set the pipette to the first measurement. Pipette the amount from the beaker of diH₂O into the bottle on the balance. Record the increase in weight.
4. Repeat Step 3 at least 5 times, recording the weight after each addition of diH₂O. Do not tare the balance in between aliquots.
5. Repeat Steps 3 and 4 using the second measurement.

Calculations:

1. Take the average of the difference between the five measurements. Record this number.
2. Also perform a Standard Deviation calculation on the 5 data points. Record this number as well.
3. The following table shows the acceptable deviation in average for each size pipette:

Pipette Size	uL deviation allowed
1000uL	+/- 5uL
200uL	+/- 2uL
100uL	+/- 2uL
10uL	+/- 1uL

4. In addition, +/- 1 Standard Deviation is allowed. If a pipette falls outside of these parameters, it needs to go in for cleaning and re-calibration.

Example Excel Table with Calculations:

Pipette #3	100uL	0	
		0.097	0.097
		0.195	0.098
		0.293	0.098
		0.393	0.1
		0.49	0.097
		Avg	0.098
		SD	0.001225