

**Lab: Acid-Base Titration**

Name:

Block:

For Students:	For Teacher:
Lab performed:	Pre-lab completion: <input type="checkbox"/> Yes <input type="checkbox"/> No
Lab due:	Lab Submitted: <input type="checkbox"/> On Time <input type="checkbox"/> Late

**Introduction:**

Titration is a very important laboratory technique which is used to determine the concentration of a wide variety of chemical substances. A standard solution (one of known molarity) is titrated against (reacted with) another solution in such a manner that the concentration of the second solution may be calculated from the results.

The second solution is added to a known volume of the first solution by means of a burette, which allows the volume of solution delivered to the reaction vessel to be accurately determined.

A chemical indicator is used to show when the reaction is complete.

After reading through the procedure, list the chemicals in the space below.

- Standardized solution:
- Unknown concentration solutions:
- Indicator:

**Pre-lab calculation:**

Calculate the approximate mass of sodium hydroxide needed to make a 250.0 mL of 0.50M NaOH solution in the space below:

---

**Objectives:**

1.

2.

**Procedure:**

**Experimental Results:**

Mass of NaOH actually used to make standardized solution: \_\_\_\_\_

[NaOH]:

**Titration: Vinegar (Acetic acid) \_\_\_\_\_ mL**

	Trial 1	Trial 2	Trial 3	Trial 4 (if necessary)	Trial 5 (if necessary)
Initial reading of burette (mL)					
Final reading of burette (mL)					
Total Volume of NaOH used					
Notes:					

**Analysis of Results:**

**Titration #1:**

1. Write out the balanced formula equation for the titration reaction of  $\text{CH}_3\text{COOH}_{(aq)}$  with  $\text{NaOH}_{(aq)}$ .
  
2. Calculate the average volume of NaOH used.
  
3. Calculate the molarity of the acetic acid solution.

4.

a. What is the pH of your titration at equivalence point?

b. Based on this pH, is phenolphthalein the most ideal indicator to use? Explain

5. Sketch a titration curve before, during, and if you were to continue your titration. Make sure to label your axes

