# The Vinegar Mix-up Titration Worksheet

## **Standardization Data Table**

	Trial 1	Trial 2	Trial 3
Mass, KHP, g			
Final Volume of NaOH in the buret, mL			
Initial Volume of NaOH in the buret, mL			
Volume of NaOH added, mL			

Molarity NaOH (average) \_\_\_\_\_ M

# **Unknown Concentration Data Table**

#### Unknown Letter \_\_\_\_\_

	Trial 1	Trial 2	Trial 3	
Volume of Acid, mL				
Final Volume of NaOH in the buret, mL				
Initial Volume of NaOH in the buret, mL				
Volume of NaOH added, mL				
Concentration of Unknown (average) M				
Concentration of Unknown (average)	%			

## Unknown Concentration Data Table (optional)

#### Unknown Letter \_\_\_\_\_

	Trial 1	Trial 2	Trial 3	
Volume of Acid, mL				
Final Volume of NaOH in the buret, mL				
Initial Volume of NaOH in the buret, mL				
Volume of NaOH added, mL				
Concentration of Unknown (average) M				
Concentration of Unknown (average)	%			

## Post-Lab Questions and Calculations

1. From the standardization data, calculate the molarity of the sodium hydroxide solution for each trial. Average the values and enter the average in the Standardization Data Table.

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2. From the unknown concentration data, calculate the molarity of the vinegar solution for each trial. Average the values and enter the average in the Unknown Concentration Data Table.

3. From the unknown concentration data, calculate the percentage of vinegar in the sample from the average molarity. Enter the average percent in the Unknown Concentration Data Table.

4. Why must the KHP samples be dried? If they are not dried, how would the results change (high or low)?

5. Why must NaOH be standardized? Why can't an exact solution of NaOH be prepared?