CHEQ 1094: LABORATORY TECHNIQUES III: STANDARDIZATION

Date: _____ ***Name: _____*** ***Lab Day/Time: _____***

Objective

To learn the techniques of titration and standardization, and use them to determine the concentration of an unknown acid solution.

Procedure

As in the Chem 1094 lab manual, pages _____

Observations

Data

Table 1. Part I: Standardization of Base

	Run 1	Run 2
Mass of boat and solid acid		
Mass of boat after solid acid emptied from it		
Mass of solid acid emptied into flask		
Initial buret reading		
Final buret reading		
Volume of NaOH solution used		
Colour of solution at final buret reading		

Table 2. Part II. Analysis of unknown acid

	First try	Second try
Volume of unknown acid pipetted into flask		
Initial buret reading		
Final buret reading		
Volume of NaOH solution used		
Colour of solution at final buret reading		

Calculations

Part I: Standardization of Base

1. Calculate the moles of solid acid sample used for each trial. (Molar mass of solid acid is 204.22 g/mole)

2. Give the equation for the reaction between the acid and base.

3. Based on the mole ratio from the equation, calculate the moles of NaOH required to reach the endpoint.

4. Calculate the volume of NaOH used for each trial (in L).

5. Calculate the molarity (M) in moles/L of the NaOH solution.

Part II: Analysis of the unknown acid solution

1. Based on Part I calculations, state the average molarity of the NaOH solution.

2. State the volume of NaOH used in each trial in Part II.

3. Calculate the number of moles of NaOH required to reach the endpoint in each trial.

4. Based on the mole ratio from the equation, find the moles of acid neutralized in each trial.

5. State the volume of the unknown acid used in each trial.

6. Calculate the concentration of the acid in moles/L for each trial.

7. Find the average concentration of the acid in the two trials.

Summary of Results

	First trial	Second trial	Average
Molarity of NaOH			
Molarity of Unknown Acid			

Conclusion

Questions

Attach any assigned questions.