

THE ANALYTICAL BALANCE AND LABORATORY TECHNIQUES

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

Object

The object of this experiment was to make up and dilute a solution of copper sulfate using accurate volumetric techniques, and to accurately determine the concentration of an unknown acid by titration.

Procedure

As in Chem 1110 lab manual, pp. _____

Observations

Data

Table1. Part II: Use of the Analytical Balance and Dilution of the Solution

Mass of $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ and boat (g)	
Mass of emptied boat (g)	
Therefore mass of $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ in solution (g)	
Absorbance	

Table 2. Part III: Titration Data

[NAOH]: _____	Run 1	Run 2	Run 3
Initial buret reading (mL)			
Final buret reading (mL)			
Therefore volume NaOH used (mL)			
End point colour and shade			

Calculations

Calculate the percent difference between your first and second, first and third, and second and third runs in the space below.

In the space below, calculate the molarity of the copper solution you gave to the lab instructor for evaluation.

In the space below, calculate the molarity of the unknown acid solution. Only one sample run need be shown in detail, although the calculations must be done for all three runs (show the results only for each step of the calculations for the other two runs).

Results

Table 3. Summary of Results

[Cu(NH₃)₄²⁺]:	
Average [HCl]	
Which of runs 1,2 and 3 did you use to calculate the average [HCl]?	

Discussion

Give one possible source of error beyond your reasonable control in the experiment, and state how and why this would affect your results.

Questions

Attach any questions assigned by your lab instructor.