

**PREPARATION AND ANALYSIS OF AN AMMINE NICKEL(II) CHLORIDE COMPOUND**

NAME

OBJECTIVE:

<u>OBSERVATIONS:</u>
<u>PART A</u>
<u>PART B</u>
<u>PART C</u>
<u>PART E</u>

DATA:

PART A      Mass of  $\text{NiCl}_2 \cdot 6\text{H}_2\text{O}$  used \_\_\_\_\_ g

                  Mass of dried product      \_\_\_\_\_ g

PART B      Mass of  $\text{NiCl}_2 \cdot 6\text{H}_2\text{O}$  used \_\_\_\_\_ g

PART C      Mass of ammine nickel compound used \_\_\_\_\_ g

PART D

Standard Solutions	Abs / %T	Abs / %T	Abs / %T	Average Absorbance
5.00mL				
10.00mL				
20.00mL				
25.00mL				
Nickel ammine Solution(part c)				

PART E

Sample	Mass sample + boat	Mass boat	Mass sample	V <sub>init</sub>	V <sub>final</sub>	Vol used
1						
2						
3						
4						

CALCULATIONS:

PART A

Theoretical Yield

Actual Yield

Part B

Concentration of Ni<sup>2+</sup> in Stock Solution

Concentration of standard solutions

Part D Slope of Beer's Law plot \_\_\_\_\_

Y intercept \_\_\_\_\_

Calculate % nickel by mass in nickelammine complex

Calculate molar mass of nickelammine complex

Part E

Calculate % by mass of ammonia in nickelammine complex (one sample)

Titration	% ammonia	Average(of those < 1% ) (of each other )
1		
2		
3		
4		

Calculate millimoles of  $\text{Ni}^{2+}$ /gram of nickelamine complex.

Calculate millimoles of  $\text{NH}_3$ /gram of nickelamine complex.

The mole ratio  $\text{NH}_3/\text{Ni}^{2+}$  is \_\_\_\_\_ Closest whole number ratio is \_\_\_\_\_

Use the whole number mole ratio and EXPERIMENTAL molar mass (part D) to determine the likely molecular formula for the nickelamine complex.

QUESTION 2,3,4 in lab manual page 37.