

CHEMISTRY 1105

EXPERIMENT: OXIDATION/REDUCTION

DATE _____ NAME _____ STATION # _____

Part 1:

Objective: To determine the oxidation state of copper ions by volumetric analysis.

Procedure:

Observations:

Data:

Molarity of Potassium Dichromate: _____

Concentration of Cu solution: _____

Volume of Cu solution pipetted: _____

	Run 1	Run 2	Run 3	Run 4
Initial burette vol. (mL)				
Final burette vol. (mL)				
Vol. of $K_2Cr_2O_7$ used (mL)				
End Point colour				

Precision Calculation: Choose three runs whose values are closer to each other, and find the % difference between runs (see page 31 of lab manual for the formula)

Calculations: (See page #48) (Show **one sample calculation** and write answers for other two precise runs and then average the final answer of the precise runs)

Conclusion:

Question #1: What would be the effect on the value of **n** (specify whether it would be higher, lower or unchanged from what it should be) **and why** if:

1. The burette containing the standard dichromate solution had a large air bubble in its tip that was later dislodged during a titration?

2. The dichromate solution became contaminated with some Fe^{2+} impurities after it was removed from the stock bottle?

PART 2:

Objective: To determine the percent iron in an unknown iron sample using volumetric analysis.

Procedure:

Observations:

Data:

Unknown #: _____

Mass of vial and sample: _____

Mass of vial & 3/4 sample: _____

Mass of vial & 1/2 sample: _____

Mass of vial & 1/4 sample: _____

Mass of empty vial: _____

	Run 1	Run 2	Run 3	Run 4
Mass of sample (g)				
Initial burette vol. (mL)				
Final burette vol. (mL)				
Vol. of $K_2Cr_2O_7$ used (mL)				
End Point colour				
Volume/ Mass Ratio				

Precision Calculation: Choose three runs whose **Volume/ Mass ratio** values are closer to each other, and find the % difference between runs using Volume/Mass ratio (see page 31 of lab manual for the formula)

CALCULATIONS (See page 48 of lab manual) (Show **one sample calculation** and write answers for other two precise runs and then average the final answer of the precise runs)

