

Chemistry 1210: Spectrophotometric Analysis of Fe²⁺ using 1,10-phenanthroline

Date: _____

Name: _____

Objective: To determine the percent by mass of Fe²⁺ in 1, 10 – phenanthroline using spectral analysis.

Procedure: As on pages 18 - 19 in Chem 1210 lab manual.

Observations:

Data: [Stock Fe²⁺]: _____ Unknown # : _____

Mass of boat + sample: _____

Mass of boat: _____

Mass of Unknown sample: _____

Sample	% Transmittance/Absorbance			Concentration of Fe ²⁺ (mg/L)
	Run 1	Run 2	Average	
Diluted 1.00ml of stock				
Diluted 3.00mL of stock				
Diluted 5.00mL of stock				
Unknown				

Calculations:

1. Calculate the concentration of Fe^{2+} in the unknown final solution in mg/L.

2. Calculate the %Fe by mass in the unknown solid sample.

Graph – Attach Beer’s law plot.

Results :

Slope	y-intercept	mg/L Fe in diluted Unknown final solution	%Fe in Unknown #_____

Question – Hydroxylamine hydrochloride is a reducing agent. What was the purpose of adding it to the iron solutions? (Consider the stability of the Fe^{2+} ion.)