Report Sheet, Experiment 3

Report Sheet

*SPECTROPHOTOMETRIC Determination of an Equilibrium Constant*

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## DATA

A.   Set of Standard Solutions
1.   Molar concentration $Fe(NO_3)_3$ __0.200 M__
2.   Molar concentration NaSCN __0.00200 M__

| .Standard Solutions | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| a. Volume NaSCN (mL) | 0.00 mL | 2.00 L | 4.00 mL | 6.00 mL | 8.00 mL |
| b. Moles SCN⁻ (MxV) | 0 | $4 \times 10^{-3} M$ | $6 \times 10^{-3} M$ | 0.012 M | 0.016 M |
| c. [SCN⁻] IN 100 mL solution | 0 | $4 \times 10^{-3} M$ | $8 \times 10^{-3} M$ | $12 \times 10^{-5}$ | $16 \times 10^{-5}$ |
| d. [FeSCN²⁺] | 0 | $4 \times 10^{-5} M$ | $8 \times 10^{-5}$ | $12 \times 10^{-5}$ | $16 \times 10^{-5}$ |
| e. Absorbance, A | 0 | 0.111 | 0.265 | 0.425 | 0.612 |

(=M₂V₂) 2.8,

2.0 Weji

f. Construct a standardization curve for A **Vs** [FeSCN²⁺]

B.   Set of Equilibrium Solutions
1.   Molar concentration $Fe(NO_3)_3$ __0.00200 M__
2.   Molar concentration NaSCN __0.00200 M__
3.   Solutions

| | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| a. Volume $Fe(NO_3)_3$ (mL) | 5.00 mL | 5.00 mL | 5.00 mL | 5.00 mL | 5.00 mL |
| b. Moles $Fe^{3+}$, initial | $1 \times 10^{-5}$ | $1 \times 10^{-5}$ | $1 \times 10^{-5}$ | $1 \times 10^{-5}$ | $1 \times 10^{-5}$ |
| c. Volume NaSCN (mL) | 1.00 mL | 2.00 mL | 3.00 mL | 4.00 mL | 5.00 mL |
| d. Moles SCN⁻, initial | $2 \times 10^{-6}$ | $4 \times 10^{-6}$ | $6 \times 10^{-6}$ | $8 \times 10^{-6}$ | $10 \times 10^{-6}$ |
| e. Absorbance | 0.148 | 0.297 | 0.444 | 0.547 | 0.720 |