

Prelab Question – Experiment 2: Chemical Equilibrium, Week 2

The initial concentration of NCS^- is $[\text{NCS}^-]_0 = 2.50 \times 10^{-3} \text{ M}$, and the initial concentration of Fe^{3+} is $[\text{Fe}^{3+}]_0 = 3.50 \times 10^{-3} \text{ M}$. The equilibrium concentration of the FeNCS^{2+} complex is $[\text{FeNCS}^{2+}]_{\text{eq}} = 1.45 \times 10^{-3} \text{ M}$. From these data, calculate:

- a) The equilibrium concentration of NCS^-
- b) The equilibrium constant, K_f , for the reaction (*recall*: $K_f = [\text{products}]/[\text{reactants}]$)