

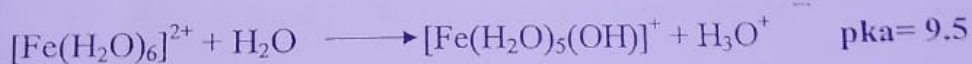
Studying oxidation state of Fe(II)

A. Preparation of aqueous solution of ferrous

Prepare ferrous solution by dissolving (0.5 gm) of ferrous ammonium sulfate hexahydrate $\text{FeSO}_4(\text{NH}_4)_2\text{SO}_4 \cdot 6\text{H}_2\text{O}$ (0.1 N) in distilled water and add to this solution a drops of dilute Sulfuric acid H_2SO_4 , use this solution as a source of ferrous in water, notice the color of product solution is green that is color refer to $[\text{Fe}(\text{H}_2\text{O})_6]^{2+}$ ion.

B. Acidity of aqueous solution of ferrous

Dissolve (0.5 gm) of ferrous sulphate FeSO_4 in distilled water and tested the PH of solution by using paper examination runway we observe that the solution is weak acid because of weak ionization according of the following equation:-



To certain that the solution its weak acidic adds to it a drop of Sodium carbonate Na_2CO_3 we observe precipitate of ferrous carbonate.

C. Oxidation of ferrous ion

Ion of ferrous hydrate $[\text{Fe}(\text{H}_2\text{O})_6]^{2+}$ not stable thermodynamically toward oxygen of air (compare the value of $E_{\text{FeO}_4^{2-}/\text{Fe}^{3+}} = 1.29$ by value $E_{\text{Fe}^{3+}/\text{Fe}^{2+}} = 0.77$), but this oxidation is very weak.

transfer about (5 ml) of ferrous ion solution into four test tubes and try ferrous oxidation using oxidizing agents following:-

Hydrogen peroxide H_2O_2 , Potassium permanganate $\text{K}_2\text{Cr}_2\text{O}_7$, Water Bromide $\text{Br}_2(\text{aq})$, Water Iodide $\text{I}_3^-(\text{aq})$.