Cambridge, MA

Module 2: Synthesis of Coordination Compounds and Kinetics

Pre-Lab questions.

1.- Describe briefly the Crystal Field Theory.

2.-What is a Coordination Compund?

3.-Describe some properties of $[Co(NH_3)_4(CO_3)]NO_3$ and its structure.

4.-Write down the reaction that you are agoing to do in the Lab.

5.-What is the crystal field stabilization energy?

6.-Calculate the crystal field stabilization energy for a tetrahedral cobalt(II) complex. Cobalt(II) is a d7 ion.Hint: There is no low-spin tetrahedral (ML_4) complex.

Extra.

7.-Cyanide solution (12.73 mL) was treated with 25.00 mL of Ni^{2+} solution (containing excess Ni^{2+}) to convert the cyanide into tetracyanonickelate(II):

$$4CN^- + Ni^{2+} \rightarrow Ni(CN)_4^{2-}$$

Excess Ni^{2+} was then titrated with 10.15 mL of 0.01307 M EDTA. $Ni(CN)_4^{2-}$ does not react with EDTA. If 39.35 mL of EDTA were required to react with 30.10 mL of the original Ni^{2+} solution , calculate the molarity of CN^- in the 12.73 mL sample.

"You must be the change you wish to see in the world."
Mahatma Gandhi

5.35 / 5.35U Introduction to Experimental Chemistry

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