Week 10

**The gravimetric determination of Copper**

The reaction represented as :

**2Cu2++HSO3- +H2O = 2Cu++HSO4- +2H +**

**Cu++SCN- = CuSCN**

**The essential experimental conditions are:**

* *slight acidity* of the solution with respect to hydrochloric acid or sulphuric

acid, since the solubility of the precipitate increases with decreasing pH

* the presence of a *reducing agent,* such as ammonium  
  hydrogensulphite, to reduce copper(II) to copper(I);
* a *slight excess of ammonium thiocyanate,* since a large excess increases the  
  solubility of the copper(I) thiocyanate due to the formation of a complex

P**rocedure:**

**1**- Transffer a 100ml of CuSO4.5H2O into 400ml beacker

**2**-Add 15 ml of 2N H2SO4

**3**- Add 25 ml of 5% Ammonium Hydrogen Sulphite(reducing agent) to reduce copper(II) to copper(I). heat nearly to boiling,

**4**-Add10% ammonium thiocyanate(NH4CN) solution, slowly and with constant stirring, from a burette until present in *slight* excess. The precipitate of copper(I) thiocyanate allow to stand for 20 minutes.

**5**- Filter through a weighed filtering crucible

**6**- wash the precipitate few times with a cold solution ammonium thiocyanate and finally several times with 20 per cent ethanol to remove ammonium thiocyanate.

**7**- Dry the precipitate at 110-120 °C.

**8**- Weigh as CuSCN.