University of Ahel AL-Bait
College of pharmacy
Practical of analytical chemistry / First stage
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Lab8

Gravimetric Analysis

Gravimetry encompasses all techniques (method) in which the signal is a

mas or change in mass, There are many type of gravimetric method :-

1- precipitation gravimetry method

2- electro gravimetry method

3- volatilization gravimetry method

4- particulate gravimetry method

 The most methods is the first one(precipitation gravimetry) which is based

on the formation of an insoluble compound following the addition of a

precipitating reagent, or **precipitant,** to a solution of the analyte .

Experiment N0. (8)

Determination of Nickle by Di methyl glyoxime (DMG H$_2$)

Dimethyglyoxime is a chemical compound described by formula $CH_3(NOH)$

 $C(NOH) CH_3$. is a solid , colorless ,derivative of the diketone diacetyl (also

known as 2,3- butane Dione) . DMG H$_2$ is used in the analysis of nickel . Its

coordination complexes are of theoretical interest as models for enzymes and

 as catalysts . Many related ligand can be prepared from other diketones .

The Requirement Materials

1- $NiS0_4(NH_4)_26H_2O$ (sample).

2-(DMG H$_2$) solution 1% .

3- NH_4OH (diluted solution)

4- HCl (diluted solution)   **.**

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Procedure :

1- Weigh about (o.3-0.4)gm from $NiSO_4(NH_4)_2 6H_2O$, dissolve with D.W in a beaker .

2- Add to the mixture (5ml) from diluted hydrochloric acid (1:1) then diluted the mixture with D.W to(200 ml)

3- Heat the mixture to 80^0C on a water bath or a hot plat .

4- Add excess 20 ml of di methyl glyoxime , then add NH_4OH (1:1) with good stirring until red precipitate appear . The odor of NH_3 indicates that the medium is alkaline .

5- Leave the precipitate of Ni – dimethyl glyoximate for half an hour to complete the precipitate.

6- Filter the mixture by using Clean , dry and weigh filter paper .

7- Wash the precipitate with hot distilled water several times .

8- Dry the precipitate with crucible in the oven at $110 – 120\ ^0C$ for 20 min, then weigh it .

9- Calculate the % Ni in the sample .

$$Gf._{Ni+2} = A.\ wt._{Ni+2} / M.\ wt._{Ni(C4H7O2N2)2}$$

$$= 0.20319$$

$$\%\ Ni = (\ wt.ppt * Gf_{Ni+2} / wt.\ sample\ ) * 100$$