**Experiment NO. 3**

**Determination of Nickel as Dimethyl glyoxime complex.**

**Introduction**

It is considered one of the most older Organic precipitation and The optimum of them .

It is a weak acid (CH3C = NOH) 2 and dissolves slightly in water and gives one ion of hydrogen when ionized:



This Detector is dissolved in alcohol so alcohol solution is used Specially to precipitate nickel quantitatively.

Ni+2 is precipitated by unites with two molecules of DMG and releasing two of hydrogen ions that is equivalent with an increase of ammonium hydroxide according to the following reaction:



The precipitate is red color and its solubility in water very low.

we can dry it in (110-120 ° C) but is dissolves in dilute mineral acids .

Hydrogen released at the Reagent Union with nickel due to increased solubility of precipitate .

**Materials**

**1- Sample containing nickel.**

**2 - Dilute ammonia solution.**

**3 - Diluted hydrochloric acid.**

**Procedure**

1. Carefully weigh (0.1 g) of Nickel in the beaker of 400 ml with a glass rod and Dissolves in the least amount of distilled water and stirring the solution To the dissolve.
2. Add (2 mL) of dilute hydrochloric acid (1: 1) and add distilled water to 75 ml.
3. Heat the solution on the heater and add (25 )ml of the precipitate agent (DMG) hot solution. Add the dilute ammonia solution quickly as a dropes with a ontinuous stirring until is fully precipitation.
4. Put the beaker with its content on the heater for a quarter of an hour until a red precipitate appears.
5. Prepare filtration device , and weigh the empty filter paper,

then filtered the solution and wash it with cold water.

1. Dry the paper with the precipitate and then weigh it and calculate the percentage of Nickel.

**Calculation**





**Questions of discussion**

1. What are DMG properties? And why it is used as a precipitating factor ?
2. What are Ni (DMG)2 specifications?
3. What is the effect of the acidic function on the Ni (DMG)2 complex?
4. What is the effect of chloride ion on precipitation?
5. What is the chemical composition of the Ni (DMG)2 precipitate?