ANALYTICAL CHEMISTRY LAB

Determination of Chloride by Mohr method

The first stage-First semester

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Precipitation Titration

Mohr's method used to determines the chloride ion concentration of a solution by titration with silver nitrate($AgNO3$) . A soluble chromate salt (K2CrO4) is added as the indicator. This produces a yellow color solution as the silver nitrate solution is slowly added, a precipitate of silver chloride formed.

$$Ag(aq) + Cl(aq) \rightarrow AgCl(s)$$
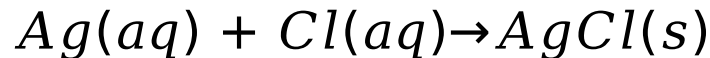
This method use chromate as an indicator, chromate forms a precipitant with Ag ions, but this precipitant has a greater solubility than that of (AgCl) therefore (AgCl) is formed first and after all (Cl) ions is consumed.The end point of the titration occurs when all the chloride ions are precipitated, then additional silver ions react with the chromate ions of indicator, potassium chromate, to form a red brown precipitant of silver chromate.

$$2Ag(+) (aq) + CrO 4(-2) (aq) \rightarrow Ag 2 CrO 4 (s)$$
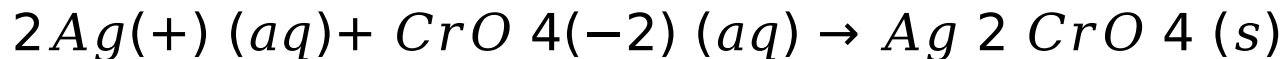
Purpose of this experiment

- Determination the concentration of silver in precipitation method

- Chemicals and tools

NaCl, AgNO3, K2CrO7 as indicator, distilled water, burette, pipette, stand, clump, brush, conical flask, spatula, funnel, volumetric flask, washing bottle, beaker, dropper, balance, watch glass.

Experimental part

- 1-Fill the burette with (0.1) N of AgNo3.
- 2- Take (5) ml of NaCl sample by pipette and put it in a conical flask.
- 3- Add (5) drops of K2CrO7 indicator to the to the conical and mix well
- 4- Titrate with AgNo3 until the appearance of red-brown precipitate.
- 5- Repeat the titration 3 times and take the average

Calculation

▸ Calculate the concentration of Chloride ion in normality by using the law:

($N \times V$)AgNO3 = ($N \times V$)NaCl

(Average = V1 + V2 + V3 /3)