

Determination of Concentration of Silver Nitrate by Mohr's Method



General Aim

Determine the concentration of silver nitrate using the standard solution of sodium chloride.

Method

Mohr's method.

Learning Objectives (ILOs)

- Understands Mohr's method.
- Analyze silver nitrate solution by following Mohr's method.

Theoretical Background/Context

Precipitometry: It is a volumetric method of analysis that involves the formation of a practically insoluble salt using a precipitating agent.

Solubility product (K_{sp}): In a saturated solution of a sparingly soluble electrolytes, the product of molar concentration of ions each raised to a power equal to the number of ions produced is constant at room temperature and pressure.

$$K_{sp} \text{ of } A_nB_m = [A]^n[B]^m$$

N.B: Substance with low K_{sp} precipitate first.

Conditions required for a precipitometry reactions:

1. The precipitate must be practically insoluble.
2. Rapid precipitation.
3. Ease of detection of the endpoint.

Principle of Work

- Direct argentometry.
- In neutral or slightly alkaline medium, sodium chloride is titrated with silver nitrate (AgNO₃) forming silver chloride precipitate using n-chromate as indicator.



- After precipitation of all chloride, the first drop excess of AgNO₃ will react with n-chromate forming
- Ag₂CrO₄ reddish brown precipitate. (endpoint)