

5. Preparation & standardization of ceric ammonium sulphate- By Ms. Lipsa Samal

AIM:

To determine the Normality of given sample of 0.1 M Ceric ammonium sulphate.

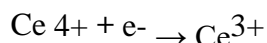
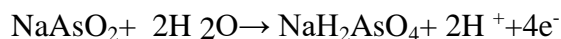
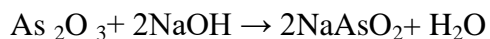
REQUIREMENTS:

Apparatus: Burette, Conical flask, Pipette,

Reagents: Ceric ammonium sulphate, Sulphuric acid, Arsenic trioxide, Sodium hydroxide, Sulphuric acid

PRINCIPLE:

Ceric ammonium sulphate is titrated with Arsenic trioxide solution (Primary standard) in presence of sodium hydroxide, and osmic acid solution.



PROCEDURE:

Preparation of 0.1 M Ceric ammonium sulphate

Dissolve 65 g of ceric ammonium sulphate with the aid of gentle heat in a mixture of 30 ml of sulphuric acid and 500ml of water. Cool, filter dilute to 1000ml with water.

Standardization of 0.1 M Ceric ammonium sulphate

Weigh accurately 0.2g of arsenic trioxide previously dried at 105⁰ C for 1 hour and transferred to a 500ml conical flask. Wash the inner walls of the flask with 25 ml of 8% w/v solution of sodium hydroxide solution. Dissolve the content and add 100 ml of water. Add 30 ml of dilute sulphuric acid, 0.15 ml of osmic acid, 0.1 ml of ferroin sulphate and titrate with ceric ammonium sulphate until the pink colour changes to pale blue

Each ml of ceric ammonium sulphate is equivalent to 0.004946 g of arsenic trioxide.

$$\text{Molarity of ceric ammonium sulphate} = \frac{W \times RM}{V \times E}$$

Observation table –

Sl. NO	Content of the Flask	Burette Reading (ml)				Indicator
		Initial reading	Final reading	Difference	Precision	
1	0.2 gm arsenic trioxide + 25 ml of 8% w/v NaOH + 30 ml of dilute H ₂ SO ₄ + 0.15 ml of osmic acid	0.0	33.9	33.9		Ferriin sulphate
2	0.2 gm arsenic trioxide + 25 ml of 8% w/v NaOH + 30 ml of dilute H ₂ SO ₄ + 0.15 ml of osmic acid	0.0	34.0	34.0	34.0	Ferriin sulphate
3	0.2 gm arsenic trioxide + 25 ml of 8% w/v NaOH + 30 ml of dilute H ₂ SO ₄ + 0.15 ml of osmic acid	0.0	34.0	34.0		Ferriin sulphate

Calculation :

$$\text{Molarity of ceric ammonium sulphate} = \frac{W \times RM}{V \times E}$$

W=Weight of arsenic trioxide

RM=Required molarity

E = Equivalent weight factor

V = Volume of ceric ammonium sulphate

$$\text{Molarity of ceric ammonium sulphate} = \frac{0.2 \text{ gm} \times 0.1 \text{ M}}{34 \text{ ml} \times 0.004946}$$

REPORT: The strength of ceric ammonium sulphate is0.1 M