Department of biology

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Analytical Chemistry

Stage (-1-)

LEC- (8)

Gravimetric Analysis

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Introduction

Gravimetric analysis is a quantitative analytical method based on converting an analyte into a pure, stable solid and then weighing it accurately. This method is highly precise and is used to determine the mass or percentage of a substance in a sample.

Applications of Gravimetric Analysis:

1-Determining the percentage composition of an analyte in a sample

2-Accurate chemical analysis in laboratories

Main Steps of Gravimetric Analysis:

1-Dissolving the sample

2-Precipitating the analyte as a solid

3-Filtering and washing the precipitate to remove impurities

4-Drying the precipitate to obtain accurate mass

5-Calculating the mass or percentage using:

% = Precipitate mass / Sample mass × 100

Q1/A 1.20 g sample produced 0.240 g of precipitate.

Calculate the percentage of the precipitate.

$\%=\frac{0.240}{1.20}x100$

%=

Q2/0.180 g of precipitate was obtained, representing 15% of the sample.

Calculate the sample mass.

$$15\% = \frac{0.18}{Mass\ of sample} x100$$

$$Mass\ of sample = 1.20g$$

Q3/A 2.50 g sample has a precipitate percentage of 12%.

Calculate the mass of precipitate.

$$12\% = \frac{\text{Precipitate mass}}{2.50} x100$$

Precipitate mass=0.3g