

CHAPTER 12

General Organic Chemistry

Estimation of halogen:

Carius method:

A known weight of the organic compound is heated with excess of fuming HNO_3 & few crystals of AgNO_3 in a sealed tube is carius tube. So, silver halides are formed.

Percentage of chlorine

$$= \frac{35.5}{143.5} \times \frac{\text{Weight of AgCl}}{\text{Weight of organic compound}} \times 100$$

$$\text{Percentage of Bromine} = \frac{80}{188} \times \frac{W_{\text{AgBr}}}{W_{\text{OC}}} \times 100$$

$$\text{Percentage of Iodine} = \frac{W_{\text{AgI}}}{W_{\text{OC}}} \times \frac{127}{235} \times 100$$

Estimation of sulphur:

A known weight of organic compound is heated fuming HNO_3 in a carius tube where sulphur acid thus formed is precipitated as BaSO_4 by adding excess of BaCl_2 solution.

Percentage of sulphur

$$= \frac{\text{Weight of BaSO}_4}{\text{Weight of organic compound}} \times \frac{32}{233} \times 100$$

Estimation of phosphorous:

- A known weight of the organic compound is heated with fuming HNO_3 in a carius tube phosphorus present in the organic compound is oxidised to H_3PO_4 .
- H_3PO_4 is precipitated as ammonium phosphomolybdate

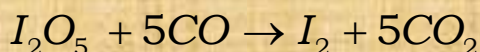
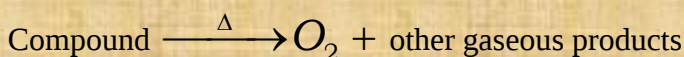
$\left[(\text{NH}_4)_3 \text{PO}_4 \cdot 12\text{MoO}_3 \right]$ by adding ammonia and ammonium molybdate.

Percentage of phosphorous:

$$= \frac{31}{1877} \times \frac{\text{Wght.of ammonium phosphomolybdate}}{\text{Wght.of organic compound}} \times$$

Estimation of oxygen:

- A known weight of organic compound is decomposed by heating in a stream of nitrogen gas.
- The mixture of gaseous products including oxygen thus formed is passed over red hot coke when all the oxygen is converted into carbonmonooxide.
- This mixture is then passed through warm iodine pentoxide (I_2O_5), carbon monoxide is oxidised to carbon dioxide & liberates iodine.



Percentage oxygen

$$= \frac{\text{Weight of } CO_2}{\text{Weight of organic compound}} \times \frac{16}{44} \times 100$$

