13.2 Qualitative analysis of organic compounds (detection of N, S, and halogens by Lassaigne's test)

Detection of foreign elements

Preparation of Sodium extract or Lassaigne's extract:

1. Detection of Nitrogen
2. Detection of Sulphur
3. Detection of halogen

1) For the detection of foreign elements (N, halogens and S) in organic compounds, why is sodium fusion carried out? 2

Why is an organic compound fused with sodium metal before testing for foreign elements? 1

2) Explain why sodium extract is alkaline in nature. 1

Why is an aqueous solution of sodium extract alkaline? 2

3) What is the composition of the sodium extract if the organic compound contains nitrogen? 1

4) Give Lassaigne's test for nitrogen. 4

Write a short note on the detection of nitrogen in organic compounds. 5

Write a short note on Lassaigne's test for nitrogen. 5

5) How would you detect the presence of sulphur in the organic compound? 2

6) How would you detect the presence of nitrogen and sulphur together in the organic compound? 2

7) Write a short note on the detection of sulphur and halogens in organic compounds. 4

8) Why is Lassaigne's extract boiled with concentrated nitric acid while testing for the halogens? 2

9) Write a short note on the detection of foreign elements in the organic compounds. 5

10) An organic compound present in the chemistry laboratory was found to contain a foreign element. The foreign element is found in the second period of the periodic table and has 3 p electrons in this shell. Identify the element and write all the required reactions for its detection through the Na extract method. 3

11) Elements like N, S, P, Cl, etc., which are present in a few organic compounds, are called foreign elements. Their presence is detected by Lassaigne's extract method.

a. Why is Lassaigne's extract prepared for the detection of foreign elements?

b. Explain the process of preparation of Lassaigne's extract.

c. What reaction occurs during the preparation of Lassaigne's extract, if both nitrogen and sulphur are present in the organic compound?

d. How is the presence of chlorine detected in Lassaigne's extract? Give pertinent equations.

1+2+1+1

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