

Homologous Series and Functional Groups

Chapter 4: Carbon and its Compounds · Topic 2

Key Concept

For example, the alcohol homologous series (methanol, ethanol, propanol...) all share the -OH functional group, giving them similar chemical reactions despite differing chain lengths. Other common functional groups include the carboxylic acid group (-COOH, found in vinegar/acetic acid) and the aldehyde group (-CHO). Because members of a homologous series share a functional group, they undergo similar types of chemical reactions, though the specific rate or vigour of the reaction may vary with molecular size.

Quick Revision Notes

- A homologous series shares the same functional group and general formula, differing by a CH_2 unit.
- A functional group determines a compound's characteristic chemical behaviour.
- The alcohol series (-OH group) includes methanol, ethanol, propanol.
- Compounds in the same series undergo similar chemical reactions due to their shared functional group.

Practice Questions

- 1 Name the functional group present in ethanol.
- 2 Explain why members of a homologous series show similar chemical properties.
- 3 Give one example of a homologous series and its shared functional group.