



Functional group and position isomers

Answer all the questions below then check your answers

1. Define the term structural isomer.
2. Explain what is meant by chain isomerism.
3. Explain what is meant by position isomerism.
4. Explain what is meant by functional group isomerism.
5. Propene and cyclopropane both have the molecular formula C_3H_6 .
 - (a) State the type of structural isomerism shown.
 - (b) Explain your answer.
6. Draw and name the two position isomers of dichloropropane, $C_3H_6Cl_2$.
7. Explain why 1,2-dichloroethane and 1,1-dichloroethane are position isomers.
8. Ethanol and dimethyl ether have the same molecular formula.
 - (a) State the type of structural isomerism shown.
 - (b) Explain why their chemical properties are different.

Answers

1. Structural isomers are compounds with the same molecular formula but different structural formulae.
2. Chain isomerism occurs when compounds have the same molecular formula but different arrangements of the carbon skeleton.
3. Position isomerism occurs when compounds have the same functional group and carbon skeleton, but the functional group is in a different position on the carbon chain.
4. Functional group isomerism occurs when compounds have the same molecular formula but different functional groups.
5. (a) Functional group isomerism.
(b) Propene is an alkene containing a C=C functional group, whereas cyclopropane is a cycloalkane with no C=C bond. They have the same molecular formula but different functional groups.
6. The two position isomers are 1,1-dichloropropane and 1,2-dichloropropane.
7. Both compounds have the same molecular formula and the same functional groups, but the chlorine atoms are in different positions on the carbon chain.
8. (a) Functional group isomerism.
(b) Ethanol is an alcohol and dimethyl ether is an ether. Chemical properties depend on the functional group present.