

Homolytic fission: each electron in the shared pair leaves with an atom that formed the covalent bond.

Heterolytic fission: the most electronegative atom takes the electrons in the covalent bond.

The stem used in each name represents the number of carbon atoms present.

Alkanes: ($C_nH_{(2n+2)}$)

The numbering of a side chain is based on counting from the end that makes the numbering the smallest. Side chains are listed in alphabetical order.

The algebraic formula for a homologous series is called a **general formula**. For Ex: alkenes - C_nH_{2n} .

The **structural formula** tells us about the atoms bonded to each carbon atom in a molecule. For example: Butene - $CH_3CH=CHCH_3$.

Naming organic compounds

Representing organic molecules

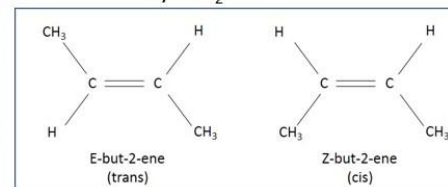
A **displayed formula** tells us about all the bonds within a molecule. Individual hydrogen atoms are also represented.

Skeletal formula is a simplified version of displayed formula where all the carbon-hydrogen bonds are represented but the symbols of carbon and hydrogen are removed.

Functional groups

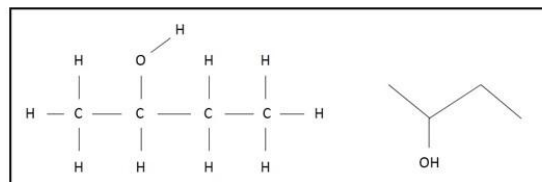
The compounds of a functional group exhibit common chemical properties.

Homologous series: same functional group but with each successive member differing by $-CH_2$



Introduction to organic chemistry

Reaction mechanisms



butan-2-ol

Structural Isomerism

Compounds with the same molecular formula but different structural formula are called **structural isomers**. Types:

In **positional isomerism**, the position of the functional group varies in each isomer.

In **functional group isomerism**, different functional groups are present for the same molecular formula.

Chain isomers differ in the structure of their carbon 'skeleton'.

Stereoisomerism

Stereoisomerism

Same molecular and structural formula but a different arrangement of atoms in 3D space. Two identical groups attached to one end of the restricted double bond i.e. to one C atom means no E-Z isomers will be formed. Groups with the highest atomic numbers are given the highest priority.