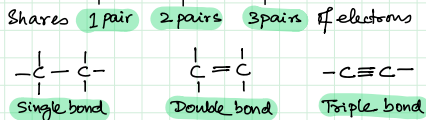


(ii) Formation of single, double & triple covalent bonds

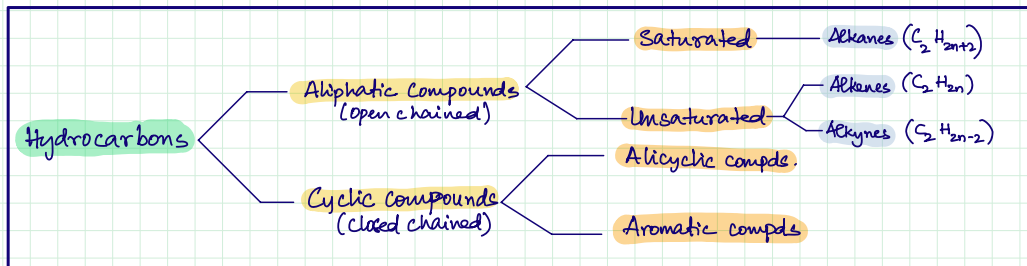


Isomerism (Iso = same ; meros = parts)

Compounds having same molecular formula but different structural formula are known as Isomers & the phenomenon is called Isomerism.

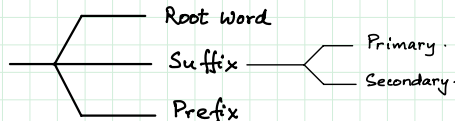
Types of Organic Compounds

Hydrocarbons — Compounds made up of ONLY Carbon & Hydrogen

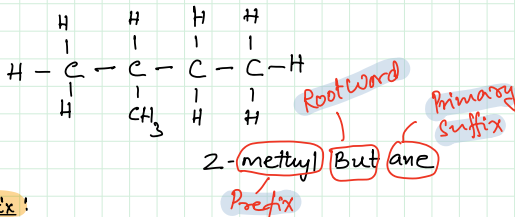


IUPAC Nomenclature (1957)

- Name of Organic Compound has 3 parts



- Root Word** - Based on number of C atoms in the longest chain selected.



Number of carbon atoms		Root Word (Greek name)
One carbon atom	C ₁	Meth
Two carbon atoms	C ₂	Eth
Three carbon atoms	C ₃	Prop
Four carbon atoms	C ₄	But
Five carbon atoms	C ₅	Pent
Six carbon atoms	C ₆	Hex
Seven carbon atoms	C ₇	Hept
Eight carbon atoms	C ₈	Oct
Nine carbon atoms	C ₉	Non
Ten carbon atoms	C ₁₀	Dec

- Suffix**:

Primary Suffix: Represents nature of bond b/w carbon atoms. and it follows the root word.

C—C [single bond] -ane

C=C [double bond] -ene

C≡C [triple bond] -yne

Secondary Suffix: Indicates particular functional group attached to the C-chain.

Ex

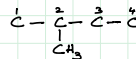
Functional Group

- OH
- CHO
- COOH
- X [F, Cl, Br, I]

Secondary Suffix

- ol
- al
- carboxylic acid
- fluoro, chloro, bromo, iodo

- Prefix** - Denotes additional substituents, alkyl or functional group & its position in the C-chain



Prefix would be 2-methyl

-di, tri, tetra, etc are used for 2, 3 & 4 groups of the same type.

ALKANES

INTRO

SOURCES

ISOMERISM

METHANE & ETHANE

Occurrence

Structure

Lab Preparation

Other methods
of preparation

Physical prop.

Chemical prop

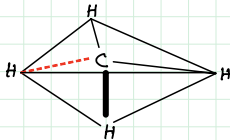
Uses

METHANE (CH_4)

- Methane is called **Marsh gas** since it is formed at the bottom of marshes.
- Methane is found in coal (90%) and is also called **fire damp**.
- Methane is considered a **Greenhouse gas** and absorbs the heat radiation reflected from the earth.
- Methane is an important source of fuel.

Structure of Methane molecule

- CH_4 molecule is shaped like a tetrahedron



Preparation of Methane/ethane

- From sodium ethanoate — Lab method for CH_4
- From sodium propanoate — Lab method for C_2H_6
- From iodomethane — CH_4
- From bromoethane — C_2H_6

Physical properties of CH_4

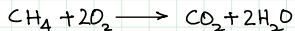
- (i) Colourless & odourless gas
- (ii) Mpt = -183°C , B.pt = -162°C
- (iii) Negligibly soluble in water; but soluble in organic solvents.

Chemical properties of C_2H_6

- CH_4 undergoes Combustion as well as Substitution reactions

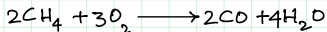
1. Combustion reaction

- (i) Complete combustion — In sufficient supply of air.



- Methane burns in air with a bluish non-sooty flame

- (ii) Combustion in incomplete combustion of air



- (iii) With still less oxygen, CH_4 burns to form soot (a form of carbon)

