

Concept- 04 : Nomenclature of Organic Compounds

TOPIC – 01 : IUPAC Nomenclature

Nomenclature on assigning names to different organic compound is executed with the help of recommendations given by IUPAC. IUPAC stands for the International Union of Pure and Applied chemistry that formulates rules for naming organic compounds. Along with the IUPAC Provided names, some organic compounds also have common names.

IUPAC Nomenclature

According to the guidelines set by IUPAC, the nomenclature of compounds must follow these steps :

1. **The longest chain Rule** : The parent hydrocarbon must be identified and subsequently named. The parent chain the belonging to the Compound in question is generally longest chain of carbon atoms, be it in a form of a straight chain a chain of any other shape.
2. **The lowest set of locants** : The carbon atoms belonging to the parent hydrocarbon chain must be numbered using natural numbers and beginning from the end in which the lowest number is assigned to the carbon atom which carries the substituent.
3. **Multiple instances of the same substituent** : Prefixes which indicate the total number of the same substituent in the given organic compounds are given, such as di, tri etc.

2	→	di
3	→	tri
4	→	tetra
5	→	penta
6	→	hexa

4. **Naming of different substituents** : In the organic Compounds containing multiple substituents, the corresponding substituents are arranged in alphabetical order of names in the IUPAC nomenclature of organic compounds in question.

5. **The naming of different substituents present at the Same position** : In the scenario wherein two different substituent groups are present at the same position of the organic compound, the substituents are named in ascending alphabetical ascending order.

6. **Naming Complex substituents** : Complex substituents of organic Compounds having branched structures must to be named as substituted alkyl groups whereas the carbon which is attached to the substituent group is numbered as one. These branched and complex substituents must be written in brackets in the IUPAC nomenclature of the Corresponding Compounds.

The format of the IUPAC name of the compound can be written as :

Locant + Prefix + Root + Locant + Suffix