

Full Form- IUPAC(International Union of Pure and Applied Chemistry)



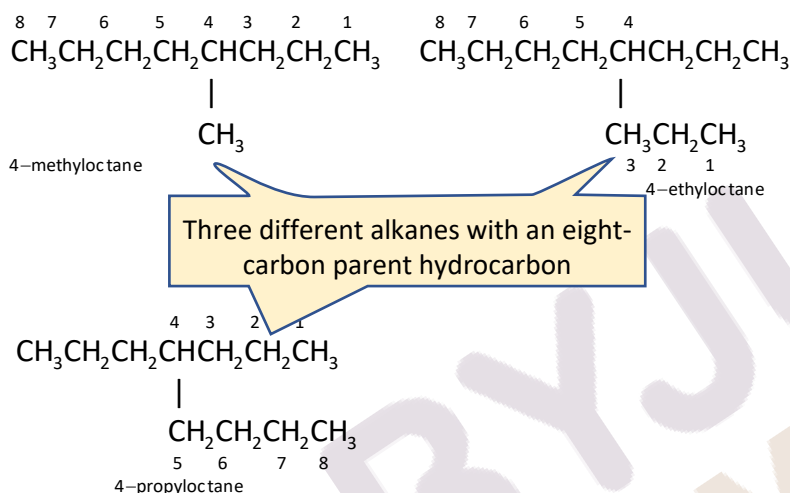
Full Form- IUPAC (International Union of Pure and Applied Chemistry)

Introduction:

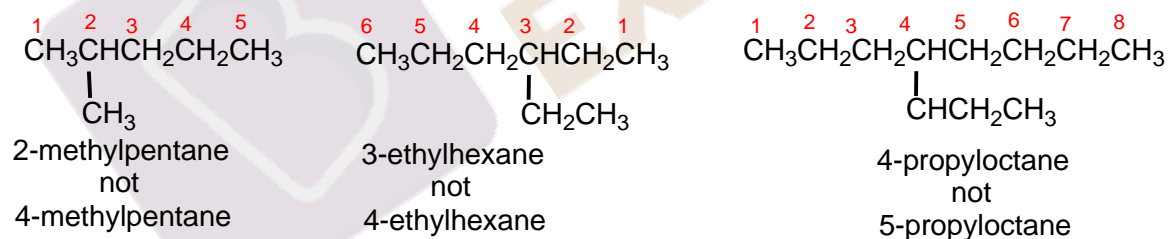
In Chemical nomenclature, the IUPAC nomenclature of organic chemistry is used to name organic compounds. It is generally a set of logical rules that are used by organic chemists. By knowing these rules, one is easily able to write a unique name for every distinct compound.

Naming of Alkanes:

1. First determine the longest continuous carbon chain. This chain is known as the parent hydrocarbon. The number of carbon atoms present in the longest chain become the alkane's suffix. For example, a chain having eight C atoms will be known as an octane. It is not necessary that the longest chain will be in a straight line. An example is:

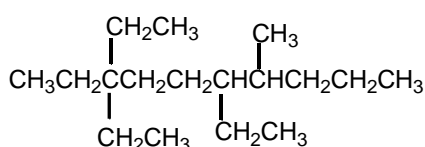
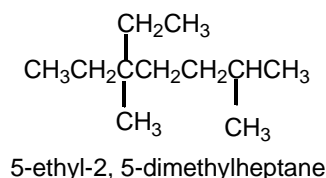
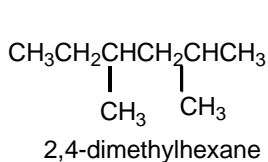


2. The name of an alkyl substituent will be placed in front of the parent hydrocarbon name with a number which indicates the carbon atom to which it is attached. The carbons in the parent chain are numbered in such a way that the substituent gets the lowest possible number. An example is:

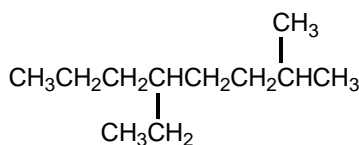


3. In the presence of more than one substituent, these will be listed in an alphabetical order with each substituent preceded by the appropriate number.

If the same substituents are present (two or more), the prefixes "di," "tri," and "tetra" are used to indicate the identical substituents the compound contains. The numbers indicate the locations of the identical substituents are listed together, separated by commas. There will be no spaces on either side of a comma.

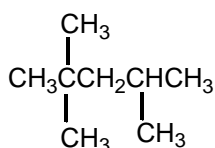


3,3,6-triethyl-7-methyldecane



5-ethyl-2-methyloctane

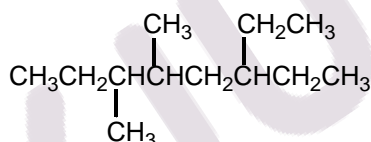
4. While numbering, if in either direction leads to the same lowest number for one of the substituents, the chain will be numbered in such a way that gives the lowest possible number to the remaining substituents.



2,2,4-trimethylpentane

not

2,4,4-trimethylpentane because 2 < 4

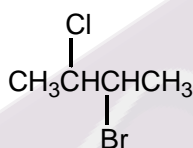


6-ethyl-3,4-dimethyloctane

not

3-ethyl-5,6-dimethyloctane because 4 < 5

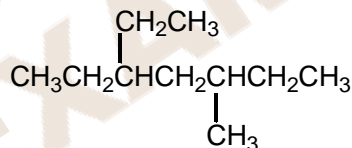
5. If in both directions, same substituent numbers are obtained, then the first group listed receives the lower number.



2-bromo-3-chlorobutane

not

3-bromo-2-chlorobutane

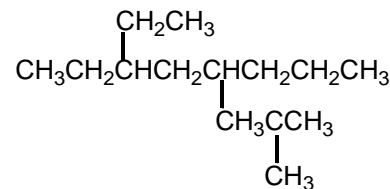
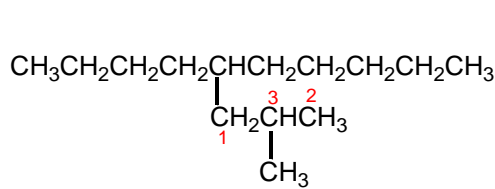
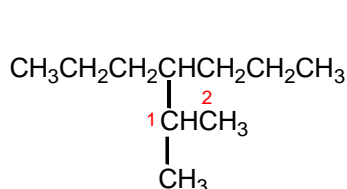


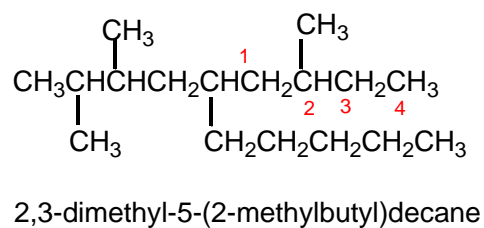
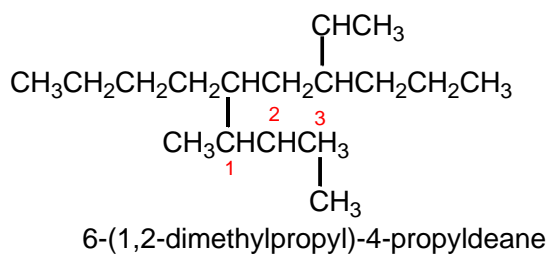
3-ethyl-5-methylheptane

not

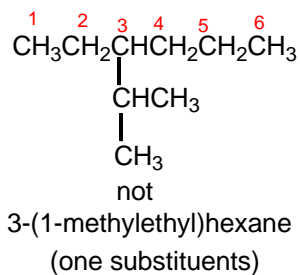
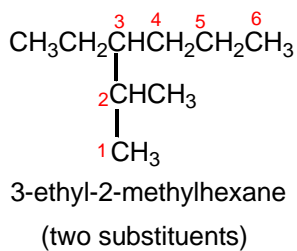
5-ethyl-3-methylheptane

6. To name the branched substituents, first do the numbering of alkyl substituents present at the carbon attached to the parent hydrocarbon. For these compounds, parenthesis is used. The number present in this parenthesis indicates the position on the substituent, while the number present outside it indicates the position on the parent hydrocarbon.





7. If a compound contains two or more chains of the same length, the parent hydrocarbon will be the chain having the greatest number of substituents.



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