

CHEMISTRY DAILY PLAN

Class:

Date:

Subject: *Nomenclature of Alkanes*

Time:

Because of the large number of possible saturated hydrocarbons, some systematic way for naming these compounds become necessary. Rules for naming organic compounds have been arranged by the International Union of Pure and Applied Chemistry (IUPAC). These rules are now in use throughout the world.

But Firstly Names of Alkyl:

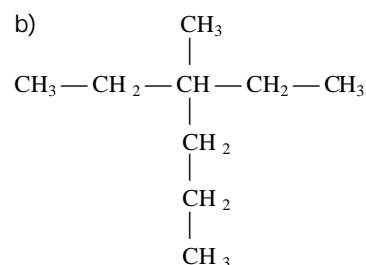
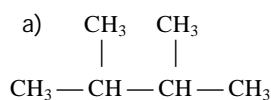
If we remove one hydrogen from an alkane, we obtain an alkyl group. These alkyl groups have names that end in -yl. Names of the first five alkyls are:

Name of Alkane	Molecular Formula	Molecular Formula of Alkyl	Name of Alkyl
Methane	CH ₄	$\frac{3}{4}$ CH ₃	Methyl
Ethane	C ₂ H ₆	$\frac{3}{4}$ C ₂ H ₅	Ethyl
Propane	C ₃ H ₈	$\frac{3}{4}$ C ₃ H ₇	Propyl
Butane	C ₄ H ₁₀	$\frac{3}{4}$ C ₄ H ₉	Butyl
Pentane	C ₅ H ₁₂	$\frac{3}{4}$ C ₅ H ₁₁	Pentyl

The Rules of the IUPAC System

1. First select the longest continuous chain of carbon atoms. The number of carbons in this chain gives the parent name of the alkane.
2. Give the numbers to the carbon atoms of the continuous chain, beginning at the end nearest the branching.
3. Write the names of the substituents, with their numbers.
4. If there are two same substituents, use di, tri for three, tetra for four.
5. At the end of the name of substituents, write the name of alkane from the longest carbon chain.

Example: What are the IUPAC names of the following compounds?



Example: Draw structural formula for the following compound:

- a) 2,2,3,3-tetramethyl hexane.
- b) 2,2,4-trimethyl pentane
- c) 3,3-dimethyl-4-ethyl hexane