

## Editorial on Alkanes and Nomenclature

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### EDITORIAL

#### Organic Alkanes and Nomenclature

It is hard to assign each structure its own common name, such as isobutane, because the number of constitutional isomers increases drastically as the number of carbons increases. When it comes to identifying organic compounds, a systematic process based on particular rules is required. We shall study about IUPAC nomenclature in this book. It's also the systematised nomenclature that's been extensively embraced over the world. In 1892, a commission for the International Union of Pure and Applied Chemistry created IUPAC nomenclature, which has been continuously reviewed by the commission since then.

#### IUPAC Nomenclature of Alkanes

Determine which carbon chain is the parent chain by looking at the length of the longest continuous carbon chain. The parent name (or surname) of the alkane is determined by this chain.

The parent chain is the longest chain with the most "branches" if two choices of the same length are available. The term "substitute" will now be used as the official designation for "branch."

Starting at the end nearest to any substituents, number the chain to ensure the lowest possible number of substituent locations.

Change the "-ane" suffix to "-yl" and use these numbers to denote the location of the substituent groups.

If an alkyl substituent group appears more than once, use the prefixes di, tri, tetra, penta, and hexa for each type of alkyl group (meaning 2, 3, 4, 5, and 6 correspondingly).

List the substituent groups in alphabetical order (using the name of the substituent group from step 3, ignoring the prefixes from step 4, but including "iso" and "cyclo").

Make your name a single word. "-" separates numbers from letters, while "," separates numbers.

#### Three-carbon branched alkyl groups

Propane is the source of both 3-carbon branched alkyl groups. Because there are two sorts of hydrogens in propane, primary (1°) and secondary (2°), there are two types of alkyl groups depending on which H is removed.

#### Four-carbon branched alkyl groups

Butane provides two of the four 4-carbon branched alkyl groups, while isobutane provides the other two (or 2-methylpropane).

#### IUPAC name of branched alkyl groups

The IUPAC rules can also be used to identify branched alkyl groups. To do so, they are regarded as if they were a compound in and of themselves. To minimize confusion, begin numbering from the point of attachment to the parent chain, and number the branches the same as previously. When the name of the whole molecule is written, the complicated substituent name is placed in parentheses.

The component of isobutyl that connects directly to the parent chain has three carbons, thus it's called "propyl." Because there is additional CH<sub>3</sub> on propyl's second carbon, the entire group is referred to as "2-methylpropyl."

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