Butyl Group Encyclopedia Article

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The butyl group corresponds to the group C_4H_9. The name comes from butyric acid, an acid that has the smell of rancid butter. This fact gives rise to its name, i.e., butyl comes from the Latin word *butyrum*, meaning butter.

There are two possible arrangements of the atoms in the butyl group, which means there are two isomers: n-butyl and isobutyl. With n-butyl, all four **carbon** atoms lie in a straight chain, i.e., $CH_3CH_2CH_2CH_2$-; in the case of isobutyl, there are three carbon atoms in a straight chain with the remaining one being joined to the central carbon **atom**, i.e., $(CH_3)_2CHCH_2$.

The butyl group is found in a number of organic compounds, e.g., n-butyl [$CH_3CH_2CH_2CH_2OH$] and isobutyl [$(CH_3)2CHCH_2OH$] **alcohol**, n- butylamine [$CH_3CH_2CH_2CH_2NH_2$] and isobutyamine [$(CH_3)2CHCH_2NH_2$], and n-butyl aldehyde [$CH_3CH_2CH_2CH_2CHO$] and isobutyl aldehyde [$(CH_3)2CHCH_2CHO$. The characteristics of these groups are determined mainly by the **functional group**. The presence and size of the butyl group modifies such physical properties as the melting and boiling points of chemical compounds.

Butyl rubber is a synthetic rubber made by co-polymerizing 2-methylpropene and methyl-1,3-diene. This rubber can be vulcanized (treated under **heat** and pressure with **sulfur** to improve elasticity and strength). It has been extensively used in the manufacture of inner tubes for cars and bicycles.