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Editorial

An Editorial Note on Alcohol in Organic Chemistry

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Editorial

Any of a class of organic compounds that include one or more hydroxyl (OH) groups linked to an alkyl group's carbon atom (hydrocarbon chain). The alkyl group in ethanol (or ethyl alcohol) is the ethyl group, which is CH_2CH_3.

An alcohol is an organic molecule having an aliphatic carbon atom bearing the hydroxyl (OH) functional group. We frequently express alcohols by the general formula ROH, where R is an alkyl group, because OH is the functional group of all alcohols. Alcohol is found in abundance in nature. The active element in alcoholic beverages is ethyl alcohol (ethanol), although it is merely one of a group of chemical molecules known as alcohols. In addition to cholesterol and carbs, the family includes other well-known compounds. The first two members of the homologous series of alcohols are methanol (CH_3OH) and ethanol (CH_3CH_2OH).

Alcoholic nomenclature

Common names for alcohols with one to four carbon atoms often include the name of the alkyl group followed by the word alcohol:

Alcohols are named by adding -ol to the end of the parent alkane name, according to the International Union of Pure and Applied Chemistry (IUPAC). Some basic IUPAC standards for naming alcohols are as follows:

1. The parent molecule is an alkane with the same number of carbon atoms as the longest continuous chain (LCC) of carbon atoms containing the OH group. From the end closest to the OH group, the chain is numbered.
2. The OH group's location is indicated by a number prefixed to the parent hydrocarbon's name, and the parent alkane's -e ending is substituted by the suffix -ol. (The carbon atom bearing the OH group is labelled C1 in cyclic alcohols, but the 1 is not used in the name.) Substituents are identified and numbered in the same way that alkanes are.
3. Suffixes like -diol and -triol are used when more than one OH group exists in the same molecule (polyhydroxy alcohols). The parent alkane's -e ending is preserved in these circumstances.

Alcohols are classified in several ways

Some of the features of alcohols are determined by the amount of carbon atoms connected to the OH group's particular carbon atom. On this basis, alcohols can be divided into three categories:

- A primary (1°) alcohol is one in which the OH group's carbon atom (in red) is joined to another carbon atom (in blue). RCH_2OH is the general formula.
- A secondary (2°) alcohol is one in which the OH group's carbon atom (in red) is linked to two other carbon atoms (in blue). R_2CHOH is the general formula.
- The carbon atom (in red) with the OH group is connected to three additional carbon atoms in a tertiary (3°) alcohol (in blue). R_3COH is the general formula.

Uses of Alcohols

Alcohols can be used in a variety of ways. The following are a few examples:

- Alcohol is drunk as a beverage with a concentration of 30-40% ethanol by volume.
- These are made from a solution of ethylene glycol dissolved in water and are used as an anti-freezing agent.
- Ethanol (alcohol) is utilised as an antiseptic.
- Some alcohols, such as methanol, are utilised as fuels in internal combustion engines.
- In the medical field, a number of them are utilised as preservation for laboratory specimens.

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