

A Short Notes on Functional Groups

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COMMENTARY

Organic chemistry is dominated by the "functional group approach," which states that organic molecules are made up of: Functional groups (FGs) are introduced or superimposed upon an inert hydrocarbon skeleton.

The functional group technique "works" because the features and reaction chemistry of a given functional group (FG) can be astoundingly independent of environment.

As a result, knowing the chemistry of a few generic functions is enough to predict the chemical behaviour of thousands of real organic molecules.

Organic compounds are also named using the functional group approach:

- 2-hexanone
- 2-hexanol
- 2-chlorohexane

When functions are divided by $-CH_2-$ groups, they take on new personalities. As a result, a carboxylic acid's carbonyl, $C=O$, and hydroxy, OH , are not "alcohol-plus-ketone."

A few thoughts on the functional group methodology

The functional group technique is totally empirical, which means it is based on trial and error rather than theory.

The functioning groups' role

In organic chemistry, a functional group is a group of atoms or bonds within a material that is responsible for the compound's

specific chemical reactions. The same functional group will behave similarly if they go through the same process.

It goes through similar reactions regardless of which chemical it is a part of. Functional groups are also crucial in organic compound naming; by combining the names of the functional groups with the names of the parent alkanes, compounds can be recognized.

The atoms of a functional group are connected by covalent bonds to one other and to the remainder of the molecule. The first carbon atom to attach to the functional group is the alpha carbon; the second is the beta carbon; the third is the gamma carbon, and so on. A functional group can also be classed as primary, secondary, or tertiary depending on whether it is attached to one, two, or three carbon atoms.

Reactivity and functional groups

Functional groups have a vital role in guiding and influencing chemical reactions. Because alkyl chains are usually nonreactive, it's difficult to lead site-specific reactions; unsaturated alkyl chains with functional groups have more reactivity and specificity. Substances are regularly functionalized with certain groups for a specific chemical reaction. Functionalization is the process of adding functional groups to a molecule by chemical synthesis. Standard synthesis processes can attach any organic material to the surface.

Functional groups can also be used to covalently link functional molecules to chemical device surfaces. Functionalization is utilised in materials science to achieve desirable surface attributes, and functional groups can also be used to covalently attach functional molecules to chemical device surfaces are surrounded.

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