

Organic Chemistry 17.3

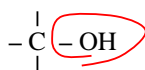
Naming Functional Groups

Functional Groups

A group of atoms that are responsible for the characteristic chemical behavior of the structure.

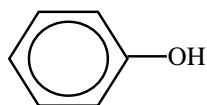
Alcohols	Ethers
Aldehydes	Ketones
Carboxylic Acids	Esters
Amines	

Alcohols



CH ₃ OH	methanol	don't drink
CH ₃ CH ₂ OH	ethanol	drinkable
CH ₃ CH ₂ CH ₂ OH	propanol	rubbing alcohol
CH ₃ CH ₂ CH ₂ CH ₂ OH	butanol	
CH ₃ CH ₂ CH ₂ CH ₂ CH ₂ OH	pentanol	

Alcohols



phenol

Naming Alcohols

When an alcohol has more than two carbons, the location of the -OH group must be specified.

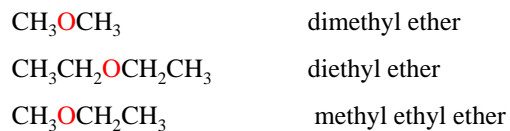
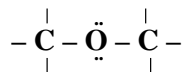
CH ₃ - CH ₂ - OH	ethanol
CH ₃ - CH ₂ - CH ₂ - OH	1-propanol
$\begin{array}{c} \text{OH} \\ \\ \text{CH}_3 - \text{CH} - \text{CH}_3 \end{array}$	2-propanol

Naming Alcohols

When an alcohol has more than two carbons or more than two -OH groups, the location of the -OH group(s) must be specified.

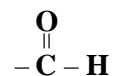
$\begin{array}{c} \text{OH} \\ \\ \text{CH}_3 - \text{CH}_2 - \text{CH} - \text{CH}_3 \end{array}$	2-butanol
$\begin{array}{c} \text{OH} \quad \text{OH} \\ \quad \\ \text{CH}_3 - \text{CH} - \text{CH}_2 - \text{OH} \end{array}$	1,2-propanediol
$\begin{array}{c} \text{OH} \\ \\ \text{HO} - \text{CH}_2 - \text{CH} - \text{CH}_2 - \text{OH} \end{array}$	1,2,3-propanetriol

Ethers



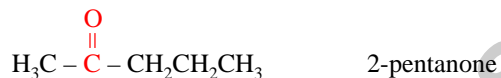
Ethers are bent around the Oxygen at 104.5°

Aldehydes



The functional group is always at the end of the carbon chain.

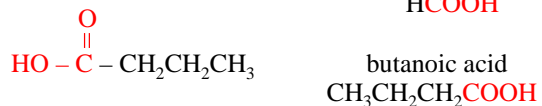
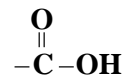
Ketones



The functional group is always in the middle of the carbon chain.

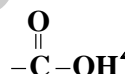
Trigonal planar around the red carbon

Carboxylic Acids

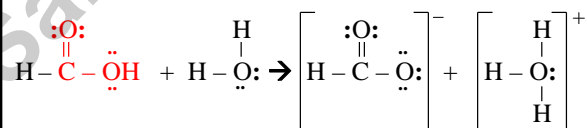


The functional group is always at the end of the carbon chain.

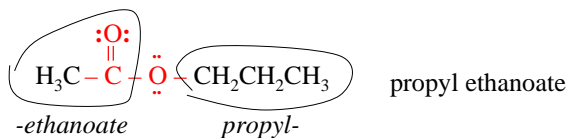
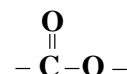
Carboxylic Acids



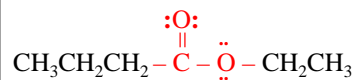
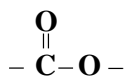
This is the hydrogen that falls off in an acid base reaction.



Esters

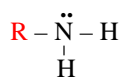


Ex) Naming Esters

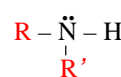


Amines

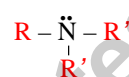
Primary



Secondary



Tertiary

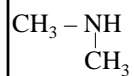


The alkyl groups (R, R', and R'') can be the same or different.

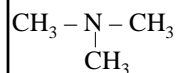
Naming Amines



aminomethane



N-methylaminomethane

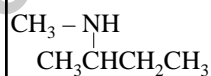


N,N-dimethylaminomethane

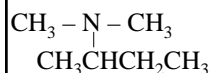
Naming Amines



2-aminobutane



N-methyl-2-aminobutane



N,N-dimethyl-2-aminobutane

Ex) Naming Amines

