Cheatography

Organic Chemistry 101 Cheat Sheet

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Definitions

Organic Molecules

Molecules containing carbon atoms.

Hydrocarbons

Compounds containing only *C* (Carbon) and *H* (Hydrogen).

Saturated

No double or triple bonds; not able to bond to any further atoms.

Unsaturated

Counting double or triple bonds; able to bond to further atoms.

Functional Group

The group of atoms that identifies what homologous series a molecule originates from.

Homologous Series

a group of organic compounds with the same functional group and similar structure, physical and chemical properties.

Catenation

linkage of atoms of the same element into longer chains through covalent bonds.

Isomer

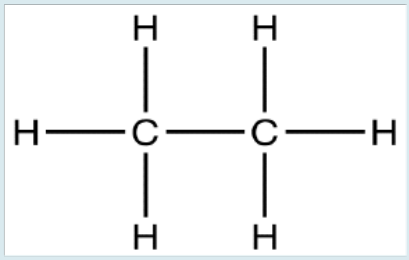
Compounds with the same molecular formula but different structural formula.

Prefixes

1	**-meth**
2	**-eth**
3	**-prop**
4	**-but**
5	**-pent**
6	**-hex**
7	**-hept**
8	**-oct**

Drawing Formulae

STRUCTURAL FORMULA



CONDENSEDSTRUCTURAL FORMULA

$CH_3\text{-}CH_3$

Structural Formula - shows all bonds between atoms.

Condensed Structrural Formula - atoms written in groups, giving the structure unambiguously, but not showing all the bonds

The Homologous Series

Homologous series	General formula	Functional group	Exaple	Suffix
Alkanes	C_nH_{2n+2}	only C—H and C—C single bonds	ethane	-ane
Alkenes	C_nH_{2n}	carbon-carbon double bond	ethene	-ene
Alkynes	C_nH_{2n-2}	carbon-carbon triple bond	ethyne	-yne
Alkyl halides/ Haloalkanes	$C_nH_{2n+1}X$ (X = F, Cl, Br, I)	X = halogen atom bonded to a saturated C atom	chloroethane	
Alcohols	$C_nH_{2n+1}OH$	hydroxyl group bonded to a saturated C atom	ethanol	-ol
Aldehydes	$C_nH_{2n}O$	formyl group (carbonyl group with – H at the same C-atom)	ethanal	-al
Ketones	$C_nH_{2n}O$	carbonyl group between 2 C atoms	propanone	-one
Carboxylic acid	$C_nH_{2n}O_2$	carboxyl group = carbonyl + hydroxyl	ethanoic acid	-oic acid
Esters	$C_nH_{2n}O_2$	carbonyl group with — O at the same C-atom	methyl ethanoate	-oate

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