

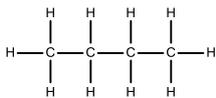
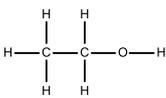


ORGANIC DEFINITIONS & FORMULAE

Some definitions

Term	Definition
Addition reaction	Reaction where a molecule joins to an unsaturated molecule to produce a saturated molecule.
Aliphatic	Organic compounds containing C chains and branches.
Aromatic	Organic compounds containing one or more benzene ring(s).
Carbocation	A positive ion with the positive charge on a C atom.
Cyclic	Organic compounds containing C rings (not aromatic rings) <i>also called alicyclic</i>
Dehydration	Elimination of water.
Dehydrogenation	Elimination of hydrogen.
Electrophile	Lone pair acceptor.
Elimination reaction	Reaction where a molecule is lost from a saturated molecule to form an unsaturated molecule.
Free radical	Species with an unpaired electron.
Functional group	The atom or group of atoms that is responsible for most of the chemical reactions of a molecule.
Homologous series	A family of compounds with the same general formula and similar chemical properties. In a series, each member differs by the addition of a CH ₂ group and there is a gradual change in physical properties.
Hydration	Addition of water.
Hydrocarbon	Molecule containing hydrogen and carbon only.
Hydrogenation	Addition of hydrogen.
Hydrolysis	A reaction involving the breaking of bonds due to reaction with water.
Nucleophile	Lone pair donor.
Organic chemistry	Study of compounds containing carbon.
Saturated	Molecule containing no double bonds.
Stereoisomers	Molecules with the same molecular and structural formulae but a different spatial arrangement of atoms.
E-Z isomers	<i>Type of stereoisomerism:</i> molecules which have different arrangement of groups around C=C
Optical isomers	<i>Type of stereoisomerism:</i> molecules which are non-superimposable mirror images
Structural isomers	Molecules with the same molecular formula but different structures.
Chain isomers	<i>Type of structural isomerism:</i> Structural isomers that differ by having a different carbon chain.
Position isomers	<i>Type of structural isomerism:</i> Structural isomers that differ by having the functional group in a different position.
Functional group isomers	<i>Type of structural isomerism:</i> Structural isomers that differ by having a different functional group.
Substitution reaction	Reaction where an atom/group replaces another atom/group.
Unsaturated	Molecule containing double bond(s).

Types of formula

Type of formula	What it is	e.g. butane	e.g. ethanol
Molecular formula	Formula that gives the actual number of atoms of each element in one molecule.	C_4H_{10}	C_2H_6O
Empirical formula	Formula that gives the simplest ratio of atoms of each element in a compound.	C_2H_5	C_2H_6O
General formula	This shows the number of atoms of each element in a substance which has n carbon atoms. All the molecules in a homologous series have the same general formula	C_nH_{2n+2}	$C_nH_{2n+1}OH$ or $C_nH_{2n+2}O$
Structural formula	This shows how the atoms are joined together in a molecule.	$CH_3CH_2CH_2CH_3$ or $CH_3-CH_2-CH_2-CH_3$	CH_3CH_2OH or CH_3-CH_2-OH
Displayed formula	This shows all the bonds and atoms in a molecule.		
Skeletal formula	This uses lines to represent bonds. Each point represents a C atom. H atoms and bonds to H atoms are not usually shown (unless part of a functional group, e.g. alcohol, aldehyde). Other atoms (e.g. O, N, F, Cl, Br, I, S) are shown.	