

Organic Chemistry - Some Basic Principal Techniques

★ IUPAC Names of Some Unbranched Saturated Hydrocarbons

Name	Molecular Formula
Methane	CH_4
Ethane	C_2H_6
Propane	C_3H_8
Butane	C_4H_{10}
Pentane	C_5H_{12}
Hexane	C_6H_{14}
Heptane	C_7H_{16}
Octane	C_8H_{18}
Nonane	C_9H_{20}
Decane	$\text{C}_{10}\text{H}_{22}$

★ Common names of some Organic compounds

Compound	Common Name
CH_4	Methane
$\text{H}_3\text{CCH}_2\text{CH}_2\text{CH}_3$	n-butane
$(\text{H}_3\text{C})_2\text{CHCH}_3$	Isobutane
$(\text{H}_3\text{C})_4\text{C}$	Neopentane
$\text{H}_3\text{CCH}_2\text{CH}_2\text{OH}$	n-propyl alcohol
HCHO	Formaldehyde
$(\text{H}_3\text{C})_2\text{CO}$	Acetone
CHCl_3	Chloroform
CH_3COOH	Acetic acid
C_6H_6	Benzene
$\text{C}_6\text{H}_5\text{OCH}_3$	Anisole
$\text{C}_6\text{H}_5\text{NH}_2$	Aniline
$\text{C}_6\text{H}_5\text{COCH}_3$	Acetophenone
$\text{CH}_3\text{OCH}_2\text{CH}_3$	Ethyl Methyl Ether

Some functional Groups & Classes of Compounds

Class of compounds	Functional group structure	IUPAC group prefix	IUPAC group suffix
Alkanes	—	—	-ane
Alkenes	$>C=C<$	—	-ene
Alkynes	$-C\equiv C-$	—	-yne
Arenes	—	—	—
Halides	$-X$ (X = F, Cl, Br, I)	halo-	—
Alcohols	-OH	hydroxy-	-ol
Aldehydes	-CHO	formyl, oxo	-al
Ketones	$>C=O$	oxo-	-one
Nitriles	$-C\equiv N$	cyano	nitrile
Ethers	-R-O-R-	alkoxy	—
Carboxylic acids	-COOH	carboxy	-oic acid
Carboxylic ions	$-COO^-$	—	-oate
Esters	-COOR	alkoxycarbonyl	-oate
Acyl halides	$-COX$ (X = F, Cl, Br, I)	halocarbonyl	-oyl Halide
Amines	$-NH_2$, $>NH$, $>N$	amino-	-amine
Amides	$-CONH_2$, $-CONHR$, $-CONR_2$	-carbonyl	-amide
Nitro compounds	$-NO_2$	nitro	—
Sulphonic acids	$-SO_3H$	sulpho	sulphonic acid