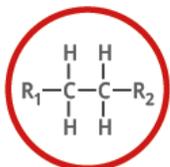


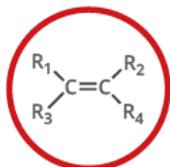
FUNCTIONAL GROUPS IN ORGANIC CHEMISTRY

FUNCTIONAL GROUPS ARE GROUPS OF ATOMS IN ORGANIC MOLECULES THAT ARE RESPONSIBLE FOR THE CHARACTERISTIC CHEMICAL REACTIONS OF THOSE MOLECULES. IN THE GENERAL FORMULAE SHOWN BELOW FOR EACH FUNCTIONAL GROUP, 'R' REPRESENTS THE REST OF THE MOLECULE, AND 'X' REPRESENTS ANY HALOGEN ATOM.

● HYDROCARBONS
 ● SIMPLE OXYGEN HETEROATOMICS
 ● HALOGEN HETEROATOMICS
 ● CARBONYL COMPOUNDS
 ● NITROGEN-BASED
 ● SULFUR-BASED
 ● AROMATIC



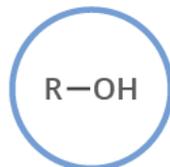
ALKANE
Naming: -ane
e.g. ethane



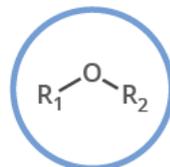
ALKENE
Naming: -ene
e.g. ethene



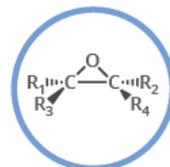
ALKYNE
Naming: -yne
e.g. ethyne



ALCOHOL
Naming: -ol
e.g. ethanol



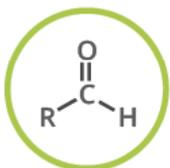
ETHER
Naming: -oxy -ane
e.g. methoxyethane



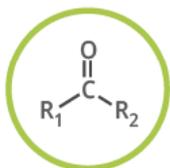
EPOXIDE
Naming: -ene oxide
e.g. ethene oxide



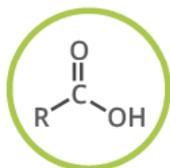
HALOALKANE
Naming: halo-
e.g. chloroethane



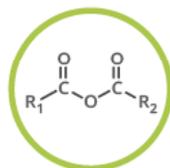
ALDEHYDE
Naming: -al
e.g. ethanal



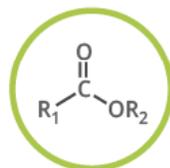
KETONE
Naming: -one
e.g. propanone



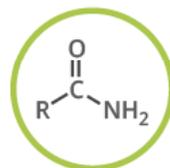
CARBOXYLIC ACID
Naming: -oic acid
e.g. ethanoic acid



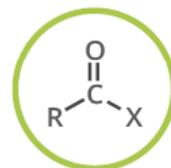
ACID ANHYDRIDE
Naming: -oic anhydride
e.g. ethanoic anhydride



ESTER
Naming: -yl -oate
e.g. ethyl ethanoate



AMIDE
Naming: -amide
e.g. ethanamide



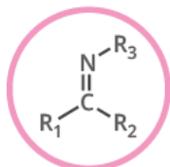
ACYL HALIDE
Naming: -oyl halide
e.g. ethanoyl chloride



AMINE
Naming: -amine
e.g. ethanamine



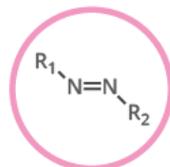
NITRILE
Naming: -nitrile
e.g. ethanenitrile



IMINE
Naming: -imine
e.g. ethanimine



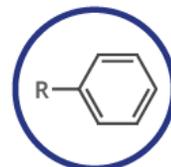
ISOCYANATE
Naming: -yl isocyanate
e.g. ethyl isocyanate



AZO COMPOUND
Naming: -azo-
e.g. azoethane



THIOL
Naming: -thiol
e.g. methanethiol



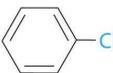
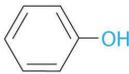
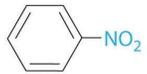
ARENE
Naming: -yl benzene
e.g. ethyl benzene



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<http://www.compoundchem.com/2014/01/24/functional-groups-in-organic-compounds/>

Class	General Formula	Example	Common Name (Systematic Name)	Common Suffix/Prefix (Systematic)
Hydrocarbons				
Alkanes	RH	CH ₃ CH ₃	ethane	-ane
Alkenes	RR'C=CR''R'''	H ₂ C=CH ₂	ethylene (ethene)	-ene
Alkynes	RC≡CR'	HC≡CH	acetylene (ethyne)	(-yne)
Arenes	ArH ^a		benzene	-ene
Halogen-Containing Compounds				
Alkyl halides	RX	CH ₃ CH ₂ Cl	ethyl chloride (chloroethane)	halide (halo-)
Aryl halides	ArX ^a		chlorobenzene	halo-
Oxygen-Containing Compounds				
Alcohols	ROH ^a	CH ₃ CH ₂ OH	ethyl alcohol (ethanol)	-ol
Phenols	ArOH ^b		phenol	-ol
Ethers	ROR'	H ₃ CH ₂ COCH ₂ CH ₃	diethyl ether	ether
Aldehydes	RCHO		acetaldehyde (ethanal)	-aldehyde (-al)
Ketones	RR'C=O		acetone (2-propanone)	-one
Carboxylic acids	RCO ₂ H		acetic acid (ethanoic acid)	-ic acid (-oic acid)
Carboxylic Acid Derivatives				
Esters	RCO ₂ R'		methyl acetate (methyl ethanoate)	-ate (-oate)
Amides	RCONHR'		N-methylacetamide	-amide
Nitrogen-Containing Compounds				
Amines	RNH ₂ , RNHR', RNR'R''	CH ₃ CH ₂ NH ₂	ethylamine	-amine
Nitriles	RC≡N	H ₃ CC≡N	acetonitrile	-nitrile
Nitro compounds	ArNO ₂ ^a		nitrobenzene	nitro-

^aR indicates an alkyl group ^bAr indicates an aryl group.

<https://2012books.lardbucket.org/books/principles-of-general-chemistry-v1.0/s28-01-functional-groups-and-classes-.html>