

IUPAC NAME SYSTEM

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IUPAC nomenclature rules

Prefix(es)

Other substituents
(functional groups
and/or radicals)

Root

Parent structure
(the main chain or cycle)

Suffix

Principal
functional
group

General rules for IUPAC nomenclature:

- The **IUPAC** name of any organic compound essentially consists of three parts:
 1. word root;
 2. suffix;
 3. prefix.
- Thus, a complete IUPAC name of an organic compound consists of the following parts:
 - **Secondary prefix + Primary prefix + Word root + Primary suffix + Secondary suffix**

Number of Carbons	Prefix
1	meth-
2	eth-
3	prop-
4	but-
5	pent-
6	hex-
7	hept-
8	oct-
9	non-
10	dec-

IUPAC Rules

- **Rule 1:** Find the longest continuous chain of carbon atoms, and use the name of this chain as the base name of the compound.
- **Rule 2:** Number the longest chain, beginning with the end of the chain nearest a substituent.
- **Rule 3:** Name the groups attached to the longest chain as alkyl groups. Give the location of each alkyl group by the number of the main chain carbon atom to which it is attached.
- Write the alkyl groups in alphabetical order regardless of their position on the chain.

IUPAC NOMENCLATURE



The presence of certain functional groups in the organic compound is indicated by secondary suffix. For example:

Class of organic compound	Functional group	Secondary suffix
Alcohols	-OH	-ol
Aldehydes	-CHO	-al
Ketones	RCOR	-one
Sulphonic acids	-SO ₃ H	-sulphonic acid
Carboxylic acids	-COOH	-oic acid
Esters	-COOR	Alkyl.....oate
Acid chlorides	-COCl	-oyl chloride
Acid amides	-CONH ₂	-amide
Nitriles (Cyanides)	-C≡N	-nitrile
Isocyanides	-N≡C	-carbylamine
Amines	-NH ₂	-amine