

Naming and Writing Formulas for Chemical Compounds

Science 10

- IUPAC (International Union of Pure and Applied Chemistry) - organization that formulates recommendations on names and formulas for compounds.



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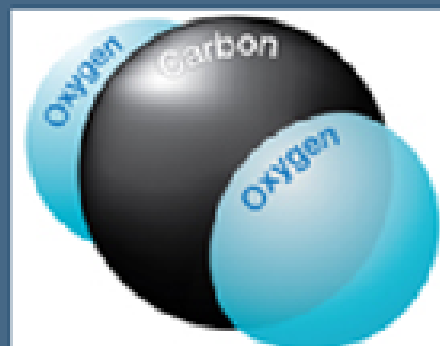
International Union of
Pure and Applied
Chemistry

Chemical Nomenclature

Communication between chemists

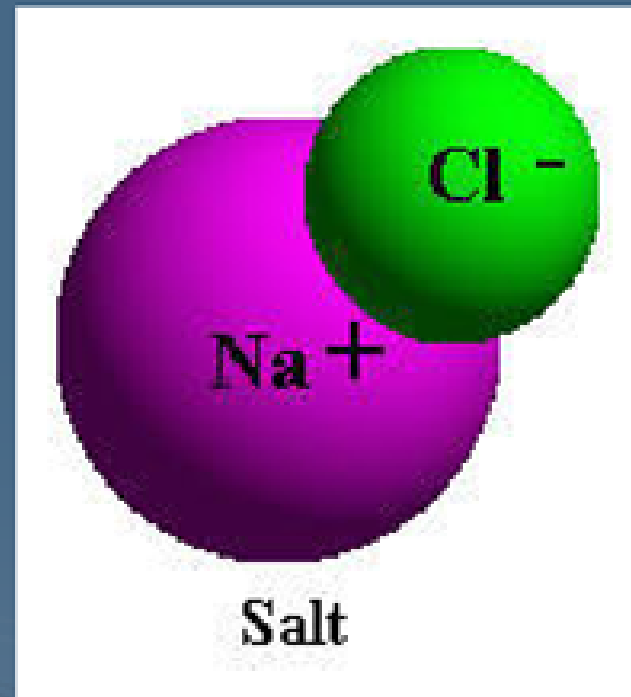


Relation between the compound's name and its structure



Nomenclature: Universal rules and regulations for naming chemical compounds

- Binary Compounds – Compounds that have 2 different elements.
- Ex.: NaCl, MgCl₂ (but not: NaOH)
 - Binary or no?
 - LiH *Yes*
 - CaSO₄ *No*
 - Al₂O₃ *Yes*
 - NaOH *No*
 - NaSO₄ *No*



Rule #1: Binary, Ionic Compounds

➤ *The rules:* for naming compounds.

- Name the first element
 - This is always the metal (cation)
 - The name stays as it appears on your periodic table
- Name the second element
 - This is always the non-metal (anion)
 - The name will be similar to that on the periodic table with the ending -ide

- *The two element names are put together with a space in the middle*
- *We ignore any numbers in the name – they are only there to make the charges equal*

Ions of Non-metals

Element	Ion	Symbol
fluorine	fluoride	F ⁻
chlorine	chloride	Cl ⁻
bromine	bromide	Br ⁻
iodine	iodide	I ⁻
oxygen	oxide	O ²⁻
sulphur	sulphide	S ²⁻
selenium	selenide	Se ²⁻
nitrogen	nitride	N ³⁻
phosphorus	phosphide	P ³⁻

Example

➤ KBr

- First = Potassium
- Second = Bromide
- Name: Potassium Bromide

➤ CaF_2

- First = Calcium
- Second = Fluoride
- Name: Calcium Fluoride

You Try

1. $MgCl_2$

Magnesium Chloride

2. CaO

Calcium Oxide

3. Li_2O

Lithium Oxide

4. NaF

Sodium Fluoride

Writing a Chemical Formula

If you're given the name, can you write the formula?

- **Rules:** Al^{3+} O^{2-} Al_2O_3
- **First:** Write the symbol and charge for the first element *metal*
 - **Second:** Write the symbol and charge for the second element *non-metal*
 - **Third:** use the criss-cross rule to make the formula

You Try

Write the formula's for:

- *calcium oxide* CaO
- *potassium sulphide* K_2S
- *beryllium nitride* Be_3N_2
- *magnesium fluoride* MgF_2