

How to Write Chemical Formula?



Valency 1 (Mono-valent Ions)

Metals (Cations +)

Sodium $\rightarrow \text{Na}^+$
Potassium $\rightarrow \text{K}^+$
Silver $\rightarrow \text{Ag}^+$
Copper (I)* $\rightarrow \text{Cu}^+$

Non-Metals

Hydrogen $\rightarrow \text{H}^+$
Hydride $\rightarrow \text{H}^-$
Chloride $\rightarrow \text{Cl}^-$
Bromide $\rightarrow \text{Br}^-$
Iodide $\rightarrow \text{I}^-$

Polyatomic Ions

Ammonium $\rightarrow \text{NH}_4^+$
Hydroxide $\rightarrow \text{OH}^-$
Nitrate $\rightarrow \text{NO}_3^-$
Hydrogen carbonate
 $\rightarrow \text{HCO}_3^-$

Watch out! Copper has more than one valency!

Valency 2 (Di-valent Ions)

Metals (Cations 2+)

- ⊕ Magnesium $\rightarrow \text{Mg}^{2+}$
- ⊕ Calcium $\rightarrow \text{Ca}^{2+}$
- ⊕ Zinc $\rightarrow \text{Zn}^{2+}$
- ⊕ Iron (II)* $\rightarrow \text{Fe}^{2+}$
- ⊕ Copper (II)* $\rightarrow \text{Cu}^{2+}$
- ⊕ Barium $\rightarrow \text{Ba}^{2+}$
- ⊕ Lead (II)* $\rightarrow \text{Pb}^{2+}$

Polyatomic Ions (Anions 2-)

- ⊖ Carbonate $\rightarrow \text{CO}_3^{2-}$
- ⊖ Sulphite $\rightarrow \text{SO}_3^{2-}$
- ⊖ Sulphate $\rightarrow \text{SO}_4^{2-}$



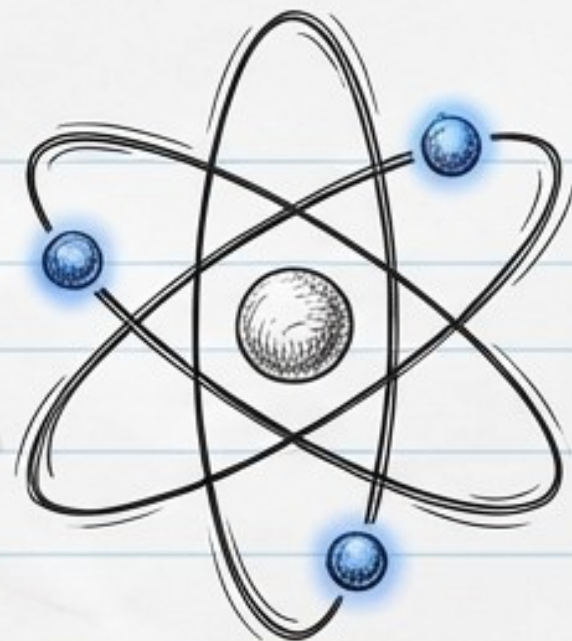
Look closely
at the oxygen
numbers!
SO₃ vs SO₄!

Non-Metals (Anions 2-)

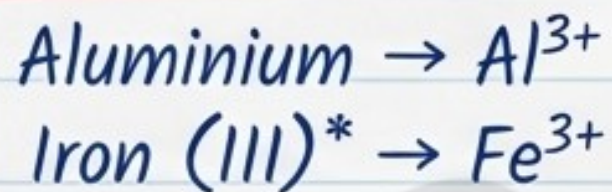
- ⊖ Oxide $\rightarrow \text{O}^{2-}$
- ⊖ Sulphide $\rightarrow \text{S}^{2-}$



Valency 3 (Tri-valent Ions)



Metals (Cations 3+)



3

Non-Metals (Anions 3-)

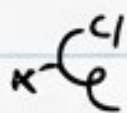
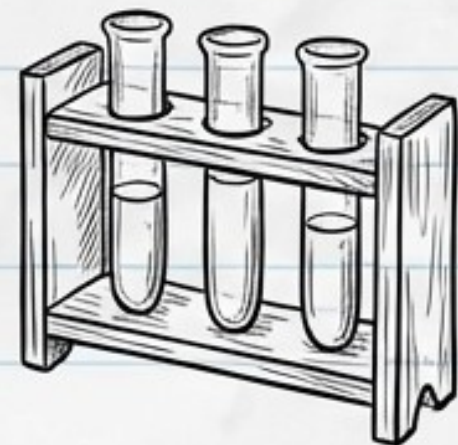


Polyatomic Ions (Anions 3-)



Pro-Tip:

Rule: Roman numerals in brackets show the valency for elements with multiple states (like Iron II vs Iron III)!



← lll