



Ionic formulae

Positive ions (cations)				Negative ions (anions)			
Name	Formula	Name	Formula	Name	Formula	Name	Formula
Hydrogen	H ⁺	Copper (II)	Cu ²⁺	Chloride	Cl ⁻	Sulfate	SO ₄ ²⁻
Sodium	Na ⁺	Magnesium	Mg ²⁺	Bromide	Br ⁻	Carbonate	CO ₃ ²⁻
Silver	Ag ⁺	Zinc	Zn ²⁺	Fluoride	F ⁻	Hydrogen carbonate	HCO ₃ ⁻
Potassium	K ⁺	Lead	Pb ²⁺	Iodide	I ⁻		
Lithium	Li ⁺	Iron (II)	Fe ²⁺	Hydroxide	OH ⁻		
Ammonium	NH ₄ ⁺	Iron (III)	Fe ³⁺	Nitrate	NO ₃ ⁻		
Barium	Ba ²⁺	Aluminium	Al ³⁺	Oxide	O ²⁻		
Calcium	Ca ²⁺			Sulfide	S ²⁻		

1. When two ions with the same amount of charge, such as Na⁺ and Cl⁻, are joined, the formula is simply written as NaCl rather than Na₁Cl₁. Use this example to help you write formula for the following compounds.

- (a) Hydrogen chloride _____ (c) Silver hydroxide _____
 (b) Zinc oxide _____ (d) Copper carbonate _____

2. Match the name of each compound with its formula.

- (a) Magnesium oxide NaOH
 (b) Zinc sulfate PbO
 (c) Sodium hydroxide ZnSO₄
 (d) Ammonium sulfide MgO
 (e) Lead oxide (NH₄)₂S

3. Write the formula for each of the following. (Remember to put brackets around polyatomic ions like SO₄²⁻ if more than one is needed.)

- (a) Aluminium oxide _____ (c) Lead nitrate _____
 (b) Iron (III) chloride _____ (d) Ammonium oxide _____

4. Answer these questions in your book.

- (a) Explain why the formula for sodium chloride is NaCl whereas for magnesium chloride it is MgCl₂.
 (b) Explain in terms of the charges on the ions why the formula for iron (III) oxide is Fe₂O₃.
 (c) X is an element between the atomic numbers 11 and 17 on the periodic table and it forms a compound with the hydroxide ion that has the formula X(OH)₂. Determine what element X is and explain your reasoning.