

Naming & Formula Writing for Type 1 Ionic Compounds

What is a type 1 Compound?

- These compounds are binary, in that they are made up of two types of elements
- It is made up of a metal from columns 1, 2 or 13 and a nonmetal.
- These metals have only one charge or oxidation state.
- Group 1 metals have a +1 charge.
- Group 2 metals have a +2 charge.
- Group 13 metals have a +3 charge.

Steps for naming:

- Write the name of the metal.
- Write the root of the nonmetal and add the -ide suffix.

Examples of Naming:

- NaCl sodium chloride
- Al₂S₃ aluminum sulfide

Correctly name the following compounds.

1. NaBr Sodium Bromide
2. Li₂O Lithium Oxide
3. NaCl Sodium Chloride
4. KI Potassium Iodine
5. CaS Calcium Sulfide
6. MgO Magnesium Oxide
7. CsF Cesium Flouride
8. AlCl₃ Aluminum Chloride
9. MgI₂ Magnesium Iodine
10. Rb₂O Rubidium Oxide
11. SrI₂ Strontium Iodine
12. K₂S Potassium Sulfide

Steps for formula writing for type one compounds:

- Writing the symbol and oxidation state (or charge) for the metal
- Writing the symbol and oxidation state (or charge) for the nonmetal
- If the two charges add up to zero, you are finished with writing the formula
- If the two charges do not add up to zero, criss-cross the charges thus creating subscripts

Examples of Formula Writing:

- Calcium Oxide $\text{Ca}^{2+}\text{O}^{2-}$ (+2 and -2 = zero) answer: CaO
- Aluminum Oxide $\text{Al}^{3+}\text{O}^{2-}$ (+3 and -2 \neq zero) answer: Al_2O_3

Note: *Subscripts* stand for the oxidation number or charge on the ion to their left.

Subscripts tell how many of each type of element are in the compound.

Correctly write the formulas for the following compounds.

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| 13. Sodium ⁺¹ Iodine ⁻¹ | NaI |
| 14. Magnesium ⁺² Fluoride ⁻¹ | MgF ₂ |
| 15. Strontium ⁺² Chloride ⁻¹ | SrCl ₂ |
| 16. Aluminum ⁺³ Sulfide ⁻² | Al ₂ S ₃ |
| 17. Lithium ⁺¹ Bromide ⁻¹ | LiBr |
| 18. Calcium ⁺² Nitride ⁻³ | Ca ₃ N ₂ |
| 19. Barium⁺² Oxide⁻² | Ba₂O₂ BaO |