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Period: 2nd

Date: 10/4/23

### 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
- Al<sub>2</sub>S<sub>3</sub> aluminum sulfide

Correctly name the following compounds.

1. NaBr sodium bromide
2. Li<sub>2</sub>O lithium oxide
3. NaCl sodium chloride
4. KI potassium iodide
5. CaS calcium sulfide
6. MgO magnesium oxide
7. CsF cesium fluoride
8. AlCl<sub>3</sub> aluminum chloride
9. MgI<sub>2</sub> magnesium iodide
10. Rb<sub>2</sub>O rubidium oxide
11. SrI<sub>2</sub> strontium iodide
12. K<sub>2</sub>S potassium sulfide

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Steps for formula writing for Type one compounds:

- Write the symbol and oxidation state (or charge) for the metal.
- Write 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:  $\text{CaO}$
- aluminum oxide  $\text{Al}^{3+}\text{O}^{2-}$  (+3 and -2  $\neq$  zero)  $\text{Al}_2\text{O}_3$  answer:  $\text{Al}_2\text{O}_3$

Note: *Superscripts* 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.

13. sodium iodide  $\text{NaI}$

14. magnesium fluoride  $\text{MgF}_2$

15. strontium chloride  $\text{SrCl}_2$

16. aluminum sulfide  $\text{Al}_2\text{S}_3$

17. lithium bromide  $\text{LiBr}$

18. calcium nitride  $\text{Ca}_3\text{N}_2$

19. barium oxide  $\text{BaO}$