**CHE 1031: Naming compounds review**

**Basics:**

Knowing how to name compounds and to write their formulas gives you the language of chemistry.

Remember:

* A compound is ionic if it is composed of a metal and one or more nonmetals.
* A compound is molecular if it contains only nonmetals

*The first thing you must determine about a compound is if it is ionic or molecular!*

**Exercise 1:**

Can you complete the table without looking at notes?

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Formula** | **Name** | **Ionic or Molecular?** | **Binary\*? (yes/no)** | **Transition metal?** **(yes/no)** |
| NaCl | sodium chloride |  |  |  |
| KCl | potassium chloride |  |  |  |
| CaCl2 | calcium chloride |  |  |  |
| LiI | lithium iodide |  |  |  |
| Al2O3 | aluminum oxide |  |  |  |
| Mg3P2 | magnesium phosphide |  |  |  |
| Ag3N | silver (I) nitride |  |  |  |
| Cu2S | copper (I) sulfide |  |  |  |
| CuS | copper (II) sulfide |  |  |  |
| PbBr2 | lead (II) bromide |  |  |  |
| PbBr4 | lead (IV) bromide |  |  |  |
| BaCO3 | barium carbonate |  |  |  |
| Al2(CO3)3 | aluminum carbonate |  |  |  |
| CsNO3 | cesium nitrate |  |  |  |
| Sr(NO3)2 | strontium nitrate |  |  |  |
| Mg3(PO4)2 | magnesium phosphate |  |  |  |
| Sn3(PO4)4 | tin (IV) phosphate |  |  |  |
| CO | carbon monoxide |  |  |  |
| CO2 | carbon dioxide |  |  |  |
| SO3 | sulfur trioxide |  |  |  |
| N2O4 | dinitrogen tetroxide |  |  |  |
| P4Cl10 | tetraphosphorous decachloride  |  |  |  |

\* Binary compounds have only two types of atoms.

**Exercise 2:**

1. What is the ending for the names of binary ionic compounds? What is the first word in the name of a binary ionic compound?

2. Is there any indication in the formula about how many of each type of atom are present in an ionic compound? If yes, how is this number indicated? Is there any indication in the name about how many of each type of atom are present in an ionic compound? If yes, how is this number indicated?

3. Is there any indication in the formula about how many of each type of atom are present in a molecular compound? If yes, how is this number indicated? Is there any indication in the name about how many of each type of atom are present in a molecular compound? If yes, how is this number indicated?

4. Look at the ionic compounds that are not binary. Do these compounds contain more than one type of metal or more than one type of nonmetal?

5. What is the most common ending for the non-binary ionic compounds?

**Exercise 3:**

Using a periodic table and a list of polyatomic ions, try to name the following compounds.

HINT—first identify the compounds as molecular or ionic

|  |  |  |
| --- | --- | --- |
| **Compound** | **Molecular or Ionic?** | **Name** |
| 1. K2O |  |  |
| 2. SrS |  |  |
| 3. Cs3N |  |  |
| 4. Cs3NO3 |  |  |
| 5. AlI3 |  |  |
| 6. SO2 |  |  |
| 7. OCl2 |  |  |
| 8. IF4 |  |  |
| 9. Ag2SO4 |  |  |
| 10. AlPO4 |  |  |
| 11. Mg(HCO3)2 |  |  |
| 12. PCl5 |  |  |
| 13. H2O |  |  |
| 14. NaClO4 |  |  |