

Ionic Naming and Formula Writing Notes

Steps for Writing Ionic Compound Names

1. Write the cation (positive ion) first. This will be a metal unless ammonium (NH_4^+) is the cation.
2. Write the name of the anion (negative ion) second. This will be either a nonmetal or a polyatomic ion.
3. When you write the name of the nonmetal anion, change the end of the element name to "ide". Ex: carbon becomes carbide, phosphorus becomes phosphide, and hydrogen become hydride and so forth. The "ide" in the name indicates it is an ion and not an atom!
4. Transition metals and some other metals can have more than one charge. Those elements must be named with a Roman numeral inside parentheses following the name of the metal. Example: Fe^{2+} is iron (II) and Fe^{3+} is iron (III)

Practice, Practice, Practice!

Steps for Writing Ionic Formulas from Names

1. Determine the ions from the name. Make sure to write the positive ion first with element symbol and charge followed by the negative ion element symbol and charge.
2. If the charges on the ions are equal but opposite, they cancel each other out and subscripts are not needed in the formula. Example: Calcium Oxide: Ca^{2+} and O^{2-} results in the formula being CaO .
3. If the charges are not equal, you must crisscross the charges to obtain the subscripts in the formula. Doing this insures the charges are balanced and the formula is neutral.
Example: Calcium Chloride: Ca^{2+} Cl^-
 Ca Cl_2 The formula is CaCl_2
4. Put polyatomic ions in parentheses! When you crisscross the charge, always write the subscript outside the parentheses.
5. Reduce subscripts when possible.

Example to work in class: lead (IV) oxide

Practice, Practice, Practice!!