

CHEM 11 Writing Formulas and Naming Compounds

Compounds can be classified as either _____ or _____

Part I. How to Name that Formula

| Ionic | |
|--|---|
| <p>1. binary compounds (ex. KI or MgO) write [metal] [nonmetal “-ide”]</p> <p>***For transition metals, include the charge on the metal using Roman numerals ex. SnCl₂ and SnCl₄</p> <p>2. compounds with polyatomic anions [metal][polyatomic ion “-ate” or “-ite”] (ex. KClO₄ or MnCr₂O₇)</p> <p>3. compounds with [NH₄⁺] write [NH₄⁺][nonmetal “-ide”]</p> | |
| Covalent | |
| <p>1. binary compounds (ex. P₂O₅) write [first element] [second element “-ide”]</p> <p>then, determine if prefixes are needed to give number of atoms in formula *do not use “mono-“ to start name (ex. NO and N₂O)</p> | <p><u>Prefixes</u></p> <p>Mono- Di- Tri- Tetra- Penta- Hexa- Hepta- Octa- Nona- Deca-</p> |

Part 2. How to Write that Formula

When given the name of a compound, you may be able to “translate” it to symbols easily, especially for covalent compounds.

ex. carbon tetraiodide tetraselenium tetranitride

For ionic compounds, the name may or may not give you enough information to complete the formula. You’ll need to use the combining capacity to get the right formula.

ex. iron(III) bromide or calcium iodide

And, if you want to write a formula “from scratch” for any combination of elements, you’ll need to use combining capacity to how many of each to combine.

ex. you want to write a formula for a compound of B/F or Cs/O

Part III. Acids and Oxyacids and their polyatomic anions

An acid is a type of compound that is represented by formulas with one or more hydrogen at the front.

Binary acids are made up of only hydrogen and one other element. Ex. _____ . These are named like ionic compounds unless we are told they are dissolved in water.

Oxyacids are oxygen-rich compounds with one or more hydrogen atoms usually placed at the beginning of the formula. An example is _____. They form anions when they lose one or more hydrogen atoms. Most of the polyatomic anions on your list come from oxyacids. Notice that there are several similar formulas and names.

Ex. ClO_4^- ClO_3^- ClO_2^- ClO^- (look on list of polyatomic ions)