

Chapter 6 Chemical Names and Formulas

Molecular Vs. Ionic Compounds

Molecular compounds – generally composed of two or more nonmetals. Tend to have low melting and boiling points, dissolve easily, generally poor conductors of electricity. Its' representative unit is the molecule.

Ionic compounds – composed of ions. (Ions are atoms or groups of atoms that carry a charge. Ions form when an atom or group of atoms lose or gain electrons.) Ionic compounds are generally composed of a metal cation (+ion) and a nonmetal anion (- ion) in that order. Tend to have high melting points and are generally good conductors of electricity. Its' representative unit is the formula unit.

Chemical Nomenclature – a chemical formula shows the kinds and numbers of atoms in the smallest representative unit of the substance.

Monatomic (single atom) – He, Ne

Diatomic molecules have two atoms of the same element and use a subscript of 2 to show this.

Br₂ I₂ N₂ Cl₂ H₂ O₂ F₂

Binary Molecular Compounds – composed of two nonmetals. Prefixes are used. (P. 159) mono-1, di-2, tri-3, tetra-4, penta-5, hexa-6, hepta-7, octa-8, nona-9, deca-10.

To write the name of a binary molecular formula:

1st name is the name of the first element with the prefix for its' subscript (mono is omitted)

2nd name is the name of the second element with and -ide ending and with the prefix for its' subscript.

Ex. CO₂ : Carbon dioxide
SO₃ : Sulfur trioxide
Cl₂O₈ : Dichlorine octoxide
XeF₄ : Xenon tetrafluoride

NO CHARGES USED
NO METALS
NO CRISS CROSS
NO REDUCING

Naming and Writing Ionic Compounds

Since made up of a cation (+ ion) and an anion (- ion), you must learn all the lists of possible ions and their names.

1st name = name of cation; **2nd name** = name of anion.

Representative elements – use column on periodic chart to help remember charges.

IA = 1+, IIA = 2+, IIIA = 3+, VA = 3-, VIA = 2-, VIIA = 1- (for the most part: IB = 1+, IIB = 2+)

To **name** these ions, the positive ions are just the name of that element, but to name the negative ions you must change the ending to **-ide**.