**When atoms combine**

* metal + metal = alloy
* metal + nonmetal = ionic compound
* nonmetal + nonmetal = covalent compound or ionic compound

**Interactive Table 2.3.1: Naming Covalent Compounds**

1. The first word in the compound name is the name of the first element in the compound

 formula. If the compound contains more than one atom of the first element, use a prefix

 (Table 2.3.2) to indicate the number of atoms in the formula.

 CS2 First word in compound name: carbon

 N2O4 First word in compound name: dinitrogen

2. The second word in the compound name is the name of the second element in the formula

 that has been changed to end with -*ide*. In all cases, use a prefix (Table 2.3.2) to indicate

 the number of atoms in the formula.

 CS2 Second word in compound name: disulfide

 N2O4 Second word in compound name: tetraoxide

3. The compound is named by combining the first and second words of the compound

 name. CS2 carbon disulfide

 N2O4 dinitrogen tetraoxide



| **Selected Hydrocarbons with the Formula C*n*H2*n*+2** |
| --- |
| **Hydrocarbon** | **Name** |
| CH4 | Methane |
| C2H6 | Ethane |
| C3H8 | Propane |
| C4H10 | Butane |
| C5H12 | Pentane |
| C6H14 | Hexane |
| C8H18 | Octane |
| C10H22 | Decane |

**Ions and Ionic Compounds**

**Monatomic Ions**



**Polyatomic Ions**

| **Ion** | **Name** |  | **Ion** | **Name** |
| --- | --- | --- | --- | --- |
| NH4+ | Ammonium |  | NO2– | Nitrite |
| OH– | Hydroxide | NO3– | Nitrate |
| CN– | Cyanide | ClO– | Hypochlorite |
| CH3CO2– | Acetate | ClO2– | Chlorite |
| SO32– | Sulfite | ClO3– | Chlorate |
| SO42– | Sulfate | ClO4– | Perchlorate |
| HSO4– | Hydrogen sulfate (bisulfate) | CO32– | Carbonate |
| S2O32– | Thiosulfate | HCO3– | Hydrogen carbonate (bicarbonate) |
| PO43– | Phosphate | C2O42– | Oxalate |
| HPO42– | Hydrogen phosphate | Cr2O72– | Dichromate |
| H2PO4– | Dihydrogen phosphate | CrO42– | Chromate |
| SCN– | Thiocyanate | MnO4– | Permanganate |
| OCN– | Cyanate |  |  |
|  |  |  |  |  |