Notes: Naming Simple Covalent Compounds: Non-Metals bonded to Non-Metals

Can’t predict formula with the charges (Criss-Cross Method does not work)

Must know either formula or name!

Use Greek Prefixes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Mono – 1  | Di – 2  | Tri – 3 | Tetra – 4 | Penta – 5 |
| Hexa – 6 | Hepta – 7 | Octa – 8  | Nona – 9  | Deca – 10  |

Ex: Name N2O4

1. Recognize that both elements are NON-METALS

2. Consider the number of atoms of each non-metal

-2 nitrogen atoms

-4 oxygen atoms

3. Use prefixes and end last element with “IDE” Remove the “a” or “o” of a prefix before vowels in elements…. Keep the “I” i.e. tetr (a) oxide

Name: Dinitrogen tetroxide

*Note: If the first element only has 1 atom then “mono” is not written*

CO would be Carbon Monoxide

Ex. 2 Write chemical formula: Dichlorine monoxide

1. Recognize that both elements are non-metals
2. Use the prefixes to determine number of each atom

2- chlorine atoms and 1 - oxygen atom

1. Chemical Formula:

Some Covalent Compounds have common names

|  |  |  |
| --- | --- | --- |
| **Formula** | **Common Name** | **Prefix Name** |
| CH4 | methane | carbon tetrahydride |
| NH3 | ammonia | nitrogen trihydride |
| H2O | water | dihydrogen monoxide |
|  |  |  |

Try Some: Name or Give Formula!

|  |  |
| --- | --- |
| Nitrogen monoxide |  |
| SiO2 |  |
| Boron monoxide |  |
| P2O3 |  |
| Carbon disulphide |  |
| S2O5 |  |

## Diatomic Molecules:

H2, N2, O2, F2, Cl2, Br2, and I2--are only found in nature in pairs (i.e., bound to themselves). All are gases at room temperature except bromine which is a liquid.

There are a few useful tricks for memorizing which elements are diatomic. One is the mnemonic "HOFBrINCl" (pronounced "hof-brink-el"), which, as you'll notice, includes the atomic symbols of all of the diatomic elements. Another way to remember makes use of the periodic table, highlighting the "royal seven" elements (there are 7 diatomic elements in total, which look like a 7 on the periodic table. Hydrogen makes a crown.)



When naming these diatomic molecules, we don't say "dihydrogen" or "dioxygen." Instead, we name the element, i.e. "hydrogen" or "hydrogen gas."