

COVALENT BONDING !!

We have learned a bit about ionic bonds. These are chemical compounds in which ions (charged atoms) are attracted to each other. Remember that one ion is positive and one ion is negative. These are often bonds between metals and non-metals.

Another type of bond is a **covalent bond**. These bonds occur when a non-metal bonds with a non-metal and the electrons on the outermost shell (the valence shell) are shared. When two atoms bond in this way, we refer to the substance as a *molecule*.

How to name a molecule or covalent compound

Prefix Names of Covalent Compounds

Covalent compounds are named differently than are ionic compounds. Many covalent compounds have common names such as "methane", "ammonia" and "water." BUT these compounds have other names as well...Let's look at how to name them:

Using the example of N_2O :

1. Determine how many of each element are in the molecule

ex. TWO nitrogens , and ONE oxygen

2. Now use the greek prefix to indicate how many there are of each atom*

ex. Dinitrogen AND monoxogen**

***NOTE: that mono + oxide becomes monoxide, and not monoxide*

3. Change the ending of the last (most negative) element to -ide (just like in ionic compounds)

ex. Dinitrogen monoxide

**An exception to the rule is that if there is only one of the first compound, it does not use the "mono" prefix. Ex. CO is Carbon monoxide not ~~monocarbon monoxide~~*

Here are the greek prefixes you will need to know for naming covalent compounds

Number	Greek Prefix	Number	Greek Prefix
1	mono	6	hexa
2	di	7	hepta
3	tri	8	octa
4	tetra	9	nona
5	penta	10	deca

Try these:

Common name: Water H_2O _____
Methane CH_4 _____
Ammonia NH_3 _____

Write the formulas for the following covalent compounds:

- 1) antimony tribromide _____
- 2) hexaboron silicide _____
- 3) chlorine dioxide _____
- 4) hydrogen iodide _____
- 5) iodine pentafluoride _____
- 6) dinitrogen trioxide _____
- 7) ammonia _____
- 8) phosphorus triiodide _____

Write the names for the following covalent compounds:

- 9) P_4S_3 _____
- 10) O_2 _____
- 11) SeF_6 _____
- 12) Si_2Br_6 _____
- 13) SCl_4 _____
- 14) CH_4 _____
- 15) B_2Si _____
- 16) NF_3 _____

Naming Covalent Compounds Solutions

Write the formulas for the following covalent compounds:

- 1) antimony tribromide $SbBr_3$
- 2) hexaboron silicide B_6Si
- 3) chlorine dioxide ClO_2
- 4) hydrogen iodide HI
- 5) iodine pentafluoride IF_5
- 6) dinitrogen trioxide N_2O_3
- 7) ammonia NH_3
- 8) phosphorus triiodide PI_3

Write the names for the following covalent compounds:

- 9) P_4S_3 tetraphosphorus pentasulfide
- 10) O_2 oxygen
- 11) SeF_6 selenium hexafluoride
- 12) Si_2Br_6 disilicon hexabromide
- 13) SCl_4 sulfur tetrachloride
- 14) CH_4 methane
- 15) B_2Si diboron silicide
- 16) NF_3 nitrogen trifluoride