

Covalent (Molecular) Nomenclature

Covalent compounds are when atoms are sharing electrons.

Covalent nomenclature is between _____.

1. Check to see if it's between NONMETAL and NONMETAL.
2. List the least electronegative element first.
3. Use prefixes to indicate # of atoms. Omit mono- prefix on the FIRST element.
4. Change the ending of the second nonmetal to -ide

Class Examples:

SO SO₂ SO₃

CCl₄ N₂O SF₆

arsenic trichloride

dinitrogen pentoxide

tetraphosphorus decoxide

carbon monoxide

diphosphorous pentoxide

dichlorine heptoxide

****DO NOT REDUCE THE FORMULA OF A MOLECULAR COMPOUND**

In addition – there are 7 diatomic elements – they do not exist as a single atom in nature. They occur in pairs or diatomic molecules (two alike atoms held together by a nonpolar covalent bond). These would still be said by their elemental name but the formula would be written with a subscript of 2.

YOU MUST MEMORIZE THESE! They are **Br₂, I₂, N₂, Cl₂, H₂, O₂, F₂**

Common names you need to know: water is _____

ammonia is _____

Correct the mistakes in the following covalent names:

NO mononitrogen monoxide

N₂O₅ nitrogen pentoxide

NH₃ nitrogen trihydride

I₂ diiodide

Correct the mistakes in the following covalent formulas:

carbon dioxide C₂O₂

fluorine F

sulfur heptoxide SO₆

xenon tribromide XeF₃

Numerical Prefixes	
Number	Prefix
1	<i>Mono-</i>
2	<i>Di-</i>
3	<i>Tri-</i>
4	<i>Tetra-</i>
5	<i>Penta-</i>
6	<i>Hexa-</i>
7	<i>Hepta-</i>
8	<i>Octa-</i>
9	<i>Nona-</i>
10	<i>Deca-</i>

HOMEWORK: Covalent Nomenclature and MIXED Nomenclature

I. Write the correct formula for each of the following covalent compounds.

1. dichlorine monoxide

4. silicon dioxide

2. chlorine trifluoride

5. carbon monoxide

3. phosphorus pentachloride

6. dinitrogen pentoxide

II. Write the correct name for each of the following covalent (molecular) compounds.

7. N_2O_4 _____

10. SiF_4 _____

8. PCl_3 _____

11. P_5O_{10} _____

9. N_2O _____

12. H_2O _____

III. The following section contains a mixture of 5.1, 5.2, and 5.3 lectures. This is all the nomenclature that we have learn this entire unit mixed into this section. In order to help you name the compounds, first IDENTIFY if the problem is either an IONIC or COVALENT compound. Second, once you have identify the compound, follow the rules to name that compound correctly.

____ 13. $NaCl$ _____

____ 17. NF_3 _____

____ 14. S_2O_4 _____

____ 18. $AgNO_3$ _____

____ 15. $Cr_2(SO_4)_4$ _____

____ 19. Cd_2O_3 _____

____ 16. NH_3 _____

____ 20. Mg_3N_2 _____

IV. Same instruction as above, but convert chemical name to chemical formula.

____ 21. Carbon tetrabromide _____

____ 24. Calcium nitrate _____

____ 22. Vanadium (II) oxide _____

____ 25. Bromine _____

____ 23. Lithium fluoride _____

____ 26. Nickel (I) chloride _____