**Bonding**Unit 5 Page 9

**Learning Target:**

**I** **can** name covalent compounds using International Union of Pure and Applied Chemistry (IUPAC) nomenclature rules.

**Criteria for Success:**

**I can** write the formula of a binary covalent compound given its name or write the binary covalent compound from its formula.

**Nomenclature of Covalent Compounds**

**A.** Covalent compounds are named by adding \_\_\_\_\_\_\_\_\_\_\_\_ to the element names.

**1.** The compounds named in this way are \_\_\_\_\_\_\_\_\_\_\_\_ covalent compounds.

**a.** ‘Binary’ means that only \_\_\_\_\_\_ types of atoms are present.

**b.** ‘Covalent’ (in this context) means both elements are \_\_\_\_\_\_\_\_\_\_\_.

**2.** A \_\_\_\_\_\_\_\_ is added to the name of the first element in the formula **if** more than one atom of it is present. (The less electronegative element is typically written first.)

**3.** A \_\_\_\_\_\_\_\_ is always added to the name of the \_\_\_\_\_\_\_\_\_\_\_ element in the formula. The second element will use the form of its name ending in ‘ide’.

**B.** When writing formulas of covalent compounds use the \_\_\_\_\_\_\_\_\_\_ in the names that indicate the number of atoms of each element present.

**1.** If no prefix is present on the name of the first element, there is only \_\_\_ atom of that element in the formula (its subscript will be an “invisible” 1).

**2.** A prefix will always be present on the name of the second element. The second element will use the form of its name ending in \_\_\_\_\_.

|  |  |
| --- | --- |
| **Subscript** | **Prefix** |
| 1 |  |
| 2 |  |
| 3 |  |
| 4 |  |
| 5 |  |

|  |  |
| --- | --- |
| **Subscript** | **Prefix** |
| 6 |  |
| 7 |  |
| 8 |  |
| 9 |  |
| 10 |  |

\*Drop –a and –o endings before “oxide”

**Guided Practice**

1. bromine trioxide

2. tetrarsenic decoxide

3. dinitrogen trioxide

4. nitrogen triiodide

5. sulfur hexafluoride

6. phosphorus trichloride

7. carbon monoxide

8. diphosphorus pentoxide

9. dihydrogen monoxide

10. tetraphosphorous decoxide

1. CO2

2. CCl4

3. PCl5

4. SeF6

5. As2O5

6. XeF6

7. SO3

8. N2S4

9. NI3

10. P2O5

**Independent Practice**

1. dinitrogen monoxide

2. sulfur trioxide

3. iodine trichloride

4. phosphorus pentabromide

5. carbon tetraiodide

6. phosphorus trichloride

7. dinitrogen trioxide

8. disulfur dichloride

9. carbon diselenide

10. dinitrogen pentoxide

11. P4S3

12. CBr4

13. N2O

14. SeF6

15. B2Cl4

16. AsF5

17. BF3

18. P4S3

19. Cl2O7

20. CO