

Name
AP Chemistry
Covalent Compounds

Objectives:

- I. How do covalent bonds form?
 - a. Students will be able to indicate if a chemical formula is of a covalent nature.
 - b. Students will be able to provide the name and formula of a covalent substance.

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| <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>Prefix + Name</p> <p>└───┬───┘</p> <p>First Atom</p> </div> <div style="text-align: center;"> <p>Prefix + root + ide</p> <p>└───┬───┘</p> <p>Second Atom</p> </div> </div> | |
| Mono = 1 | Hexa = 6 |
| Di = 2 | Hepta = 7 |
| Tri = 3 | Octa = 8 |
| Tetra = 4 | Nona = 9 |
| Penta = 5 | Deca = 10 |

Note:
Mono is dropped on the first atom only

Indicate the name of the covalent compound.

1. CO mono Carbon monoxide → carbon monoxide
2. CO₂ Carbon dioxide
3. SO₂ Sulfur dioxide
4. SO₃ Sulfur trioxide
5. N₂O dinitrogen monoxide
6. NO Nitrogen monoxide
7. N₂O₃ dinitrogen trioxide
8. NO₂ Nitrogen dioxide
9. N₂O₄ dinitrogen tetroxide ← NO₂
10. N₂O₅ dinitrogen pentoxide

empirical

Analytical questions pertaining to covalent molecules.

1. Fructose is analyzed showing a ratio of C:H:O as 1:2:1, but the actual formula appears to be C₆H₁₂O₆.
 - a. What is the empirical formula? C₆H₁₂O₆ C₁H₂O
 - b. The molecular formula?

2. Which of the problems (1-10) is the empirical formula not the same as the empirical? C₆H₁₂O₆

3. Why are ionic compounds always empirical where covalent can be both?

Just a stack of +/-, so simplest ratio works well. Covalent uses a molecule. So, we like to tell exact # in the molecule.