

[1.4] - Naming Covalent Compounds

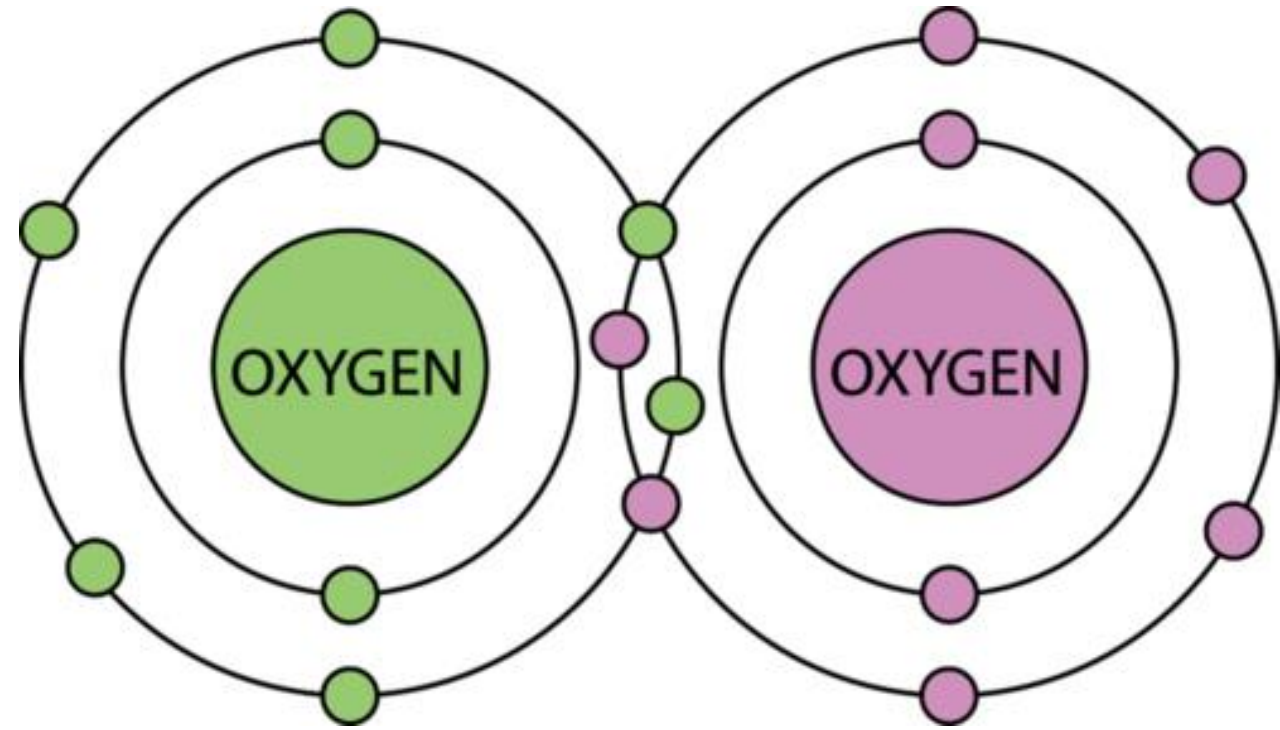


Covalent Compounds

- Covalent compounds contain:

NON-METAL + **NON-METAL**

- Involves a sharing of electrons
- **Both non-metals share electrons to be stable**



Naming Covalent Compounds

When naming covalent compounds, you must use these prefixes based on the number of atoms of each element:

Number of atoms	Prefix
1	Mono
2	Di
3	Tri
4	Tetra
5	Penta
6	Hexa
7	Hepta
8	Octa
9	Nona
10	Deca

Basic Definitions

Prefix

- A WORD placed BEFORE the atom name.
- Represents the number of atoms. ONLY for COVALENT compounds
- Example: Disulphur trioxide (S₂O₃)



Subscript

- A NUMBER placed AFTER and under the element or group of atoms.
- Represents the number of atoms/groups of atoms in the compound (both ionic and covalent).
- Example: S₂O₃



Naming Covalent Compounds

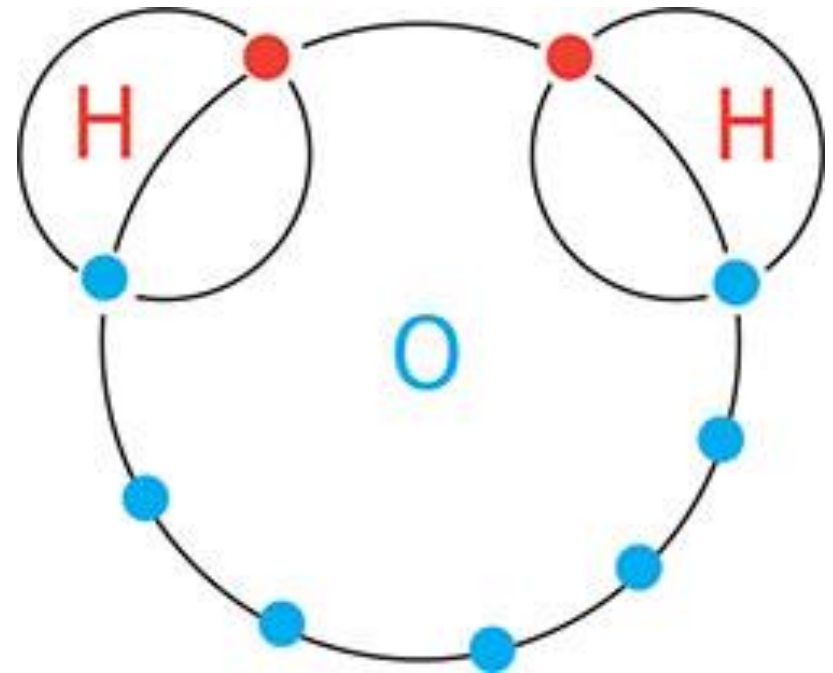
1. Write the symbol for each element
2. Add subscripts to show how many atoms of each element are present in the compound
3. Do not reduce the subscripts



Naming Covalent Compounds

Important Rules:

1. Place the prefix before the element based on the number of atoms in the formula. However, do not put “mono” if the first element has one atom
2. Take out the last vowel in “mono”, “tetra” and “penta” before oxide. (Monoxide, tetroxide, pentoxide)



Naming Covalent Compounds

Important Rules:

1. Place the prefix before the element based on the number of atoms in the formula.

However, **do not put “mono” if the first element has one atom**

E.g. **CO** is written as carbon monoxide but **NOT** ~~monocarbon monoxide~~.

2. Drop the last vowel of **MONO** & **TETRA** & **PENTA** before **oxide**.

E.g. **mono** + oxide → **monoxide** but di + iodine → diiodine

tetra + oxide → **tetroxide** tri + iodine → triiodine

penta + oxide → **pentoxide** hexa + oxide → hexaoxide etc.

3. Change the ending of the second non-metal to “ide”.

Practice:

1) P_2O_5 _____

2) CCl_4 _____

3) N_2O_4 _____

4) N_2O _____

5) S_2F_{10} _____

6) NI_3 _____

Writing Formulas for Covalent Compounds

Rules:

1) Write the symbol for each element.

Note: The more metallic element is written first (metallic characteristics increases towards the left and bottom of the periodic

table). However, you do not need to decide which one comes first since the order is given to you.

2) Add subscripts to show how many atoms of each element are present in the compound.

3) DO NOT REDUCE the SUBSCRIPTS

Examples:

1) diiodine hexachloride _____

2) tetraphosphorous decasulphide _____

2) trinitrogen pentabromide _____

3) disulphur trioxide _____

HOMEWORK

Practice Problem # 1

Name the following compounds:

1. OF_2 : _____

2. CCl_4 : _____

3. I_2Cl_6 : _____

4. SO_2 : _____

5. S_2F_{10} : _____

6. NI_3 : _____

Practice Problem #2

Write the chemical formula for the following:

1. Sulphur hexafluoride: _____
2. Dinitrogen tetrasulphide: _____
3. Phosphorus pentachloride: _____
4. Sulphur dioxide: _____
5. Tetraphosphorus decasulphide: _____
6. Trinitrogen pentabromide: _____