2.5 C5 Covalent

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Science 9- Chemistry Topic 2.5 - Concept 5: Names and formulas of covalent compounds reflect their molecular structure. (Read pages 168-171)

Binary covalent compound – a compound made up of two elements, which are non-metal.

e.g. SF_6 = Sulfur hexa fluoride and CO = Carbon mon oxide

carbon dioxide = CO_2 and hydrogen peroxide = H_2O_2 (special case!!)

Prefixes used to name binary covalenet compounds.

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

Naming Compounds

Steps	CO	PI_3	N_2O_4
1. Name the leftmost element in the formula first.	Carbon	Phosphorus	di Nitrogen
2. Name the second element, making sure the name ends with the suffix - ide.	oxide	Iodide	tetraOxide
3. Add a prefix to each element's name to indicate the number of atoms of each element in a molecule of the compound. *If the first element would get the prefix mono, do not include that prefix.	Carbon monoxide	Phosphorus triodide	dinitrogen tetraoxide

Writing Formulas

Steps	Diphosphorus pentaoxide (prefixes 2, 5)	Nitrogen monoxide (1)
1. Write the element symbols in the order the appear in the name.	P O	N O
2. Add subscript based on the prefixes used in the name.	P_2O_5	NO

*Do you need to balance their charges? no you don't

Exceptions

- Compounds starts with Hydrogen.
  - E.g. HCl = Hydrogen Chloride *not hydrogen monochloride*
  - H_2S = Hydrogen Sulfide *not dihydrogen monosulfide*
- Compounds containing Hydrogen and Carbon are Oxygen.
  - e.g. C_2H_6 = Ethane; C_2H_5OH = Ethanol; $C_6H_{12}O_6$ = Glucose

*H_2O = _____

NH_3 = _____

Practice Problems: Chemical Formula Writing

Chemical Name	Name Describes	Chemical formula
nitrogen monoxide	1 nitrogen atom 1 oxygen atom	NO
		SiO_2
boron monoxide		
di phosphorus pentaoxide	2 Phosphorus 5 Oxide	P_2O_5
tellurium dibromide		
		CO_2
dinitrogen tetraoxide		
		SeF_2
carbon disulfide		
		$AsBr_4$
arsenic trioxide		
		S_2O_5
sulfur dioxide		
		CS_2
xenon trioxide		
		BrO_2
tetra-arsenic decaoxide		
		BN
chlorine monoxide		
		XeF_4
dinitrogen monoxide		
		OF_2
sulfur hexachloride		
		PCl_5