

Chemistry

Naming Compounds

Some Compounds have widely accepted common names: Ex: H_2O = Water,
 NH_3 =Ammonia

Some acids and bases have special names. See Table 5.7 p. 182

If your compound is not one of these specially named compounds, then proceed below.

First Determine if the compound is **Ionic or Covalent**

Ionic Compounds are composed of:	Covalent Compounds are composed of:
<ul style="list-style-type: none"> • Metal + Nonmetal • Anything with a Polyatomic Ion 	<ul style="list-style-type: none"> • Nonmetal + Nonmetal • Hydrocarbons- have specific names

After you determine if the compound is **Ionic or Covalent**, follow the rules below to name it.

Naming Ionic Compounds:	Naming Covalent Compounds:
<p>Do Not use Prefixes (ex: mono, di, tri, etc.) Ratios of elements in ionic compounds are implied by oxidation numbers of elements (ex: $NaCl$ is called Sodium Chloride. It is a 1:1 ratio because Na^+ and Cl^-)</p>	<p>Use Prefixes (mono-, di-, tri-, etc.) to denote the ratio of elements in a compound (Ex: N_2O_5 is in a ratio of 2:5, so we call it Dinitrogen Pentoxide)</p>
<p>Name the last element in a compound with the suffix -ide (ex: Sodium Chloride)</p>	<p>Name the last element in a compound with the suffix -ide (Carbon Dioxide)</p>
<p>Use Roman Numerals to denote the charges on transition metals (ex: FeS is named Iron (II) Sulfide since in this compound, Iron has a 2+ oxidation number) Ie: Fe^{2+} and S^{2-} have combined</p>	<p>Do Not write the prefix mono- on the first atom in a compound (Ex: CO_2 is written Carbon Dioxide)</p>
<p>Do Not change the name of polyatomic ions (ex: NH_4NO_3 is called Ammonium Nitrate)</p>	<p>Hydrocarbons have specific names that you need to memorize (Ex: C_2H_6 is ethane, C_3H_8 is propane, etc.)</p>

<p>To name Hydrates:</p> <ul style="list-style-type: none"> • First name ionic compound • Write prefix (to denote the number of formula units of hydrate) + hydrate • Ex: $(\text{NH}_4)_2\text{SO}_3 \cdot \text{H}_2\text{O}$ is called Ammonium Sulfite Monohydrate 	
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Writing Formulas

First Determine if the compound is **Ionic or Covalent**



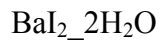
After you determine if the compound is **Ionic or Covalent**, follow the rules below to write the formula.



Formulas for Ionic Compounds	Formulas for Covalent Compounds
Charges of ions in an ionic compound must equal zero (0).	Use the name of the compound to write the formula.
Ex: Sodium Chloride = NaCl Because: Na^+ and Cl^- combine in a 1:1 ratio $1(1+) + 1(1-) = 0$	Ex: Silicon D ioxide = SiO_2
Ex: Ammonium Sulfite = $(\text{NH}_4)_2\text{SO}_3$ Because: NH_4^+ and SO_3^{2-} combine in a 2:1 ratio $2(1+) + 1(2-) = 0$	Ex: D initrogen P entoxide = N_2O_5
Ex: Manganese (III)Oxide = Mn_2O_3 Because: Mn^{3+} and O^{2-} combine in a 2:3 ratio $2(3+) + 3(2-) = 0$	<ul style="list-style-type: none"> • Saturated Hydrocarbons have specific ratios of Carbon to Hydrogen atoms • The number of Hydrogens can be found by multiplying the number of Carbons by 2 and adding 2 • Ex: Heptane = C_7H_{16} • Equation: $\#C(2) + 2 = \#H$ • Ie: $7(2) + 2 = 16$
For Hydrates: First balance the charges on the ionic compound, and then write the number of formula units for the water	

molecule

Ex: Barium Iodide Dihydrate =



Because: Ba^{2+} and I^- combine in a 1:2 ratio

$$1(2+) + 2(1-) = 0$$

AND

We have 2 formula units of Water per
formula unit of Barium Iodide