

Science 9

Names and Formulas of Compounds

Formula and Naming of Ionic Compounds

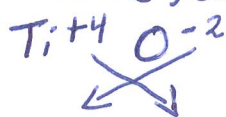
Ionic Compounds - composed of positive and negative ions

Name - first part indicates the positive (metal), second part indicates the negative (non-metal)

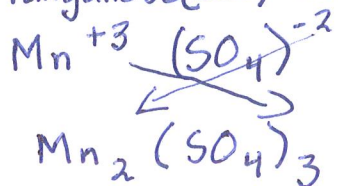
-second part name ends with " *ide* " unless a polyatomic ion

Formula 1) identify chemical symbol for each
2) write down charge (roman numeral for multivalent metals)
3) criss-cross charges
4) subscript to lowest terms

Ex. Titanium (IV) oxide



Ex. Manganese (III) sulfate



Covalent Compounds - composed of two non - metal elements

Name - prefixes are used to indicate number of atoms of each element
- page 67 for prefixes (do not use mono for first element)

Formula 1) the name tells you the formula or
2) same rules as for ionic formulas

Ex. Chlorine dioxide



Ex. Dinitrogen pentoxide



How do you represent a binary covalent compound?

A **binary covalent compound** contains two non-metal elements joined together by one or more covalent bonds. Like ionic compounds, binary covalent compounds can be represented with both a name and a chemical formula.

1. **Name:** When naming a binary covalent compound, prefixes are used to indicate how many atoms of each element are present. The second element's name ends with the suffix "-ide." For example, dinitrogen trioxide has two atoms of nitrogen and three atoms of oxygen. No prefix is used if there is just one atom of the first element. For example, carbon dioxide. The table below provides the first ten prefixes used to name binary covalent compounds. ✓

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

2. **Chemical formula:** When writing the chemical formula, subscripts are used to indicate the number of atoms present. For example, dinitrogen trioxide has the chemical formula N_2O_3 . The exact number of atoms is always shown in the formula. For example, hydrogen peroxide is written as H_2O_2 , not HO. Unlike the formula for an ionic compound, the subscripts do not always represent the smallest whole number formula.

✓ Reading Check

A certain element has 5 atoms in a binary covalent compound. Which prefix is used to name this element?
