Chem 115
Feb 12, 2008

Masses and Moles

Note: Facilitated study groups start this week Mondays 4:30-5:30 , Fridays 3:00-4:00
Both FSGs are in Wheatley 2nd floor, room 127

Group Work Notes: correct answers (as well as wrong answers) are listed on the Chem 115 site.

Why do you need to know how to name compounds?
-to tell if a compound is ionic or molecular (or acid) and you will know what properties to expect
-to speak the 'chemistry' language
-to tell the difference between different compounds
-to be able to solve chemistry problems and derive information from the names
-the ability to predict things about the compound

Definitions
-Cation- a positively charged ion
-Anion- a negatively charged ion (although the book uses this terminology lecture for the most part will not in favor of calling them simply a negative ion and a positive ion)

Common Mistakes

-When naming an Ionic compound do not use prefixes
-When you have a negative single element ion change the ending to ide for example sulfur becomes sulfide
-You can not name an ionic compound with molecular naming rules
-Compounds do not have a charge, therefore you cannot determine the charge of ions and elements within a molecular compound
-A compound containing only nonmetals is molecular -- use prefixes
-Some elements have two letters to symbolize them, the second letter MUST be lower case or it will be read as a whole new element
-Positive ions are listed first, negative ions second (unless you are talking about acids)

Moles
Moles-a measure of particles

- can not be measured in a lab, it must be derived
- it is a tool we use to better handle the extremely large number of particles in everything we talk about, it represents a number the way 'a dozen' or Pi do
- one mole of particles always contains the same number of particles, regardless of the identity of the particles
- 1 mole = 6.022×10^{23} particles

Molar Mass
-using the ‘atomic mass’ of an element (found on your periodic table) you can calculate the amount of particles in a given amount of substance.
-different kinds of particles have different masses
-to find the mass of a compound find the atomic mass of all the elements present (make sure to account for elements that appear in a compound more than once! like H_2O, count the mass of H twice.)

A lovely diagram of mole and mass conversions are in the lecture notes but know that that is what you are dealing with. This is just another conversion and can be used in the same way your more everyday conversions are used.