Unit 1.2: Structure of Matter

Outline

I. Classification of Matter
   a. Pure Substance
      i. Element
         1. Atom
            a. Atomic mass
            b. Atomic mass unit
            c. Mole (mol)
               i. Avogadro’s number
               ii. Molar mass
      ii. Compound
         1. Molecular
            a. Binary molecular
            b. Molecular Mass
         2. Ionic
            a. Ion
               i. Cation
               ii. Anion
               iii. Monatomic
               iv. Polyatomic
            b. Ionic Compound Formula
               i. Formula mass
      iii. Molecule
         1. Diatomic
         2. Polyatomic
      iv. Mass Relationships in substances
         1. Percent Composition by mass
            a. Equation:
         2. Experimentally determining formulas
            a. Empirical formula
               i. Combustion analysis
               ii. Hydrate
            b. Molecular formula
               i. Allotrope
   b. Mixture
      i. Homogeneous
      ii. Heterogeneous

II. Mass Spectrometry
   a. Mass spectrometer
      i. Three steps:
         1.
         2.
         3.
      ii. Reading mass spectra:
         1. X-axis
         2. Y-axis
         3. Number of peaks