

Lecture Outline from 9/19

Types of simple reactions:

Combination: 2 substances become 1.

Decomposition: 1 substance decomposes into 2.

Combustion: Hydrocarbons reacting with oxygen to form carbon dioxide and water.

Formula Weights: sum of atomic weights of each atom in the chemical formula.

$\# \text{ atoms of } X * \text{ atomic weight of } X + \# \text{ atoms of } Y * \text{ atomic weight of } Y + \# \text{ atoms of } Z * \text{ atomic weight of } Z + \dots$

Review Atomic Weight

Percentage Composition: Percent of an element by mass in a molecule.

$\frac{\# \text{ atoms of } X * \text{ Atomic Weight of } X}{\text{Chemical Formula Weight}}$

Avogadro's Number: A special (large) counting unit: 6.022×10^{23}

Mole: amount of matter that contains as many objects as the number of atoms in 12 g of ^{12}C .
That is 6.0221421×10^{23} atoms. Abbreviated *mol*.

Molar Mass: mass of a single atom (or molecule) in amu is numerically equal to the mass in grams of a mole of atoms (or molecules).