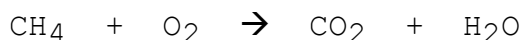


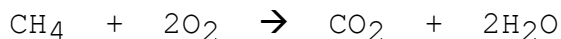
BareBones Review

Chapter 12 - Stoichiometry

1. Mass is always conserved in a chemical reaction.
2. The coefficients in a chemical equation show a mole to mole ratio
3. To convert between the number of atoms (or molecules) and moles, you should use Avogadro's number.
4. Conversions between mass and moles uses molar mass as a conversion factor.
5. One mole of any gas at STP *always* occupies 22.4 L.
6. STP is Standard Temperature (0° C) and Pressure (1 atm)
7. YOU NEED TO KNOW HOW TO BALANCE EQUATIONS. Practice on the following equation which shows the complete combustion of methane to produce carbon dioxide and water.



7. The equation $2\text{S} + 3\text{O}_2 \rightarrow 2\text{SO}_3$ means that 2 moles of S react with 3 moles of O_2 and produces 2 moles of SO_3 . Also, in that reaction, if 4 moles of S were used up during the reaction, it would mean that 4 moles of SO_3 would be produced. That is because the ratio of moles is a 1:1 ratio.



8. In the equation above (now balanced) you need to know how to do molar ratio problems. For instance, suppose a chemist collected 32 grams of water from the combustion of methane. How many grams of methane were combusted?

The setup for the equation would be

$$\frac{X}{16\text{g}} = \frac{32 \text{ g. H}_2\text{O}}{2(18\text{g})}$$

You need to be able to do the same kinds of ratios with volume and Avogadro's number, also.

9. Equal volumes of all gases under the same conditions of pressure and temperature contain the same number of particles.
10. The first step in any stoichiometric problem is balancing the equation.
11. A whole number that appears in front of a formula in a balanced chemical equation is a coefficient.
12. Calculations of quantities in chemical reactions is called stoichiometry.
13. In using balanced equations to solve mass-mass problems, the mass of each reactant is first converted to moles.
14. The term that represents the sum of the atomic masses of the atoms in 1 mole of a compound is **called** molar mass
15. In a chemical reaction, the total mass of the products compared to the total mass of the reactants is always the same.