CHEMISTRY CHAPTER 7 NOTEPACKET: CHEMICAL REACTIONS

7.1: DESCRIBING REACTIONS

A. Chemical Equations

1. Using Equations to Represent Reactions

2. Conservation of Mass

B. Balancing Equations

Examples

Na + H2O → NaOH + H2

Al + Cl2 → AlCl3

C3H8 + O2 → CO2 + H2O

Ba(NO3)2 + Na3PO4 → Ba3(PO4)2 + NaNO3

C6H14 + O2 → CO2 + H2O

C. The Mole and what it represents

1. Converting grams to moles and moles to grams
2. How many grams are there in 5.25 moles of phosphorus?
3. How many moles are there in 15.5 g of sodium?
4. Molar masses of compounds
5. Calculate the molar mass of carbon dioxide
6. Calculate the molar mass of Li2CO3

D. Chemical Calculations

1. How many moles of water are present in 25.2 g water?

2. How many g of NaNO3 in 0.575 mol of NaNO3?

1. What does an equation tell us?
2. Using mole ratios
3. How many moles of oxygen are produced when 2.50 moles of water are decomposed?

2H2O → 2H2 + O2

1. How many moles of KClO3 are needed to produce 7.75 moles of O2?

2KClO3 → 2KCl + 3O2

7.2: TYPES OF REACTIONS

A. Classifying Reactions

1. Synthesis Reactions

2. Decomposition Reactions

3. Single Replacement Reactions

4.Double Replacement Reactions

1. Combustion Reactions

B. Reactions that transfer electrons

1. Oxidation
2. Reduction

7.3: ENERGY CHANGES IN REACTIONS

A. Chemical Bonds and Energy

1. Breaking Bonds
2. Forming Bonds

B. Exothermic and Endothermic Reactions

1. Exothermic Reactions
2. Endothermic Reactions

C. Conservation of Energy

D. Reaction rates

E. Factors Affecting Reaction Rates

1. Temperature

2. Surface Area

3. Stirring

4. Concentration

5. Catalysts