AP CHEMISTRY CHAPTER 12 OUTLINE

CHEMICAL KINETICS

12.1: REACTION RATES

See Table 12.1 on page 554

Average rates vs Instantaneous rates

12.2: RATE LAWS: AN INTRODUCTION

Forward reactions and reverse reactions

Rate = k[NO2]n

Rate Law

Rate Constant

Order (of the reactant)

Types of Rate Laws

Differential Rate Law (the rate law)

Integrated Rate Law

Summary of Rate Laws

12.3: DETERMINING THE FORM OF THE RATE LAW

(See Table 12.3 and figure 12.3 on page 560)

2N2O5(aq) → 4NO2(aq) + O2(g)

Methods of Initial Rates: An example using information from Table 12.4, page 561

NH4+(aq) + NO2-(aq) → N2(g) + 2H2O(l)

Overall reaction order

12.4: THE INTEGRATED RATE LAW

First-Order Rate Laws

Half-Life of a First-Order Reaction

Second –Order Rate Laws

Differences between the half-life for first and second order reactions

Zero-Order Rate Laws

 RATE LAWS: A SUMMARY

12.5: REACTION MECHANISM

Intermediate

Rate determining step

12.6: A MODEL FOR CHEMICAL KINETICS

Collision Model

Activation Energy

Activated complex or transition state

Molecular orientation

12.7: CATALYSIS

Enzymes

Catalyst

Heterogeneous catalysts

Homogeneous catalysts