Unit 10 Kinetics

Reaction rate is $[A]_{final}-[A]_{initial}$ /Δ time or

$$reaction\ rate = \frac{[A]_{final} - [A]_{initial}}{(t_{final} - t_{initial})}$$

units are usually M/s

Activation energy, E_a -minimum energy that colliding particles must have in order to undergo a reaction.

Enthalpy change (ΔH)- positive for an endothermic reaction and negative for an exothermic reaction.

Factors Affecting Reaction Rates include concentration, pressure, surface area, temperature, and catalysts.

Rate of reaction $k_{[A]}$ is $\dfrac{\Delta[A]}{\Delta t}$ = $\dfrac{[A]_{final}-[A]_{initial}}{t_{final} - t_{initial}}$

Unit 11 Equilibrium

$aA+bB \rightleftharpoons cC+dD$
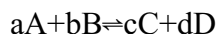
$$K_{eq} = \frac{[C]^c\,[D]^d}{[A]^a\,[B]^b}$$

Le Châtelier's Principle- when a chemical system that is at equilibrium is disturbed by a stress, the system will respond by attempting to counteract that stress until a new equilibrium is established. These factors may include concentration, temperature, pressure (gases only), and catalysts.

Solubility product constant, K_{sp} - equal to the mathematical product of the ions, each raised to the power of the coefficient of the ion in the dissociation equation.

$$K_{sp} = [C]^c\,[D]^d$$