SCH4U - Electrochemistry Cheat Sheet

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Definition

Equilibrium = the point in a chemical reaction where the reactants and the products are formed and broken at the same rate

Equilibrium Constant (K or Keq) = the numerical value defining the equilibrium law for a system at a given temperature (changes with temperature)

Vocabulary

Equilibrium = the point in a chemical reaction where the reactants and the products are formed and broken at the same rate

Dynamic equilibrium = a balance between the forward and backward rates that are occurring simultaneously

Equilibrium law = mathematical description of a chemical system at equilibrium

Equilibrium constant (K or Keq) = the numerical value defining the equilibrium law for a system at a given temperature (changes with temperature)

Heterogeneous equilibrium = products and reactants are in at least 2 different states; pure solids/liquids are not included in Keq formula

Variables Affecting Chemical Equilibrium

Le Châtelier's Principle: When a chemical system at equilibrium is disturbed by a change in property, the system responds in a way that opposes the change

Concentration/T-emperature	[conc]/T = shift to consume
	[conc]/T = shift to replace

If you add more reactant/heat to a system, the system will consume it to make more product, and vice versa

The Reaction Quotient

Represented by the variable "Q"	Helps to determine the position of the equilibrium of a system using therate law for the system and comparing it with the Keq
If Q < Keq	[products] < [reactants] Reaction has not reached ⇌ yet; reaction needs to shift right
If Q = Keq	[products] = [reactants] Reaction has not reached equilibrium yet; no shift will occur
If Q > Keq	[products] > [reactants] Reaction has not reached ⇌ yet; reaction needs to shift left