The Law of Mass Action states that the rate of a chemical reaction is directly proportional to the concentrations of the reactants. For the reversible reaction A + B ⇌ C + D, the forward reaction rate (Vf) is proportional to the concentrations of A and B: Vf ∝ [A][B] or Vf = Kf[A][B], where Kf is the forward reaction rate constant. Similarly, the backward reaction rate (Vb) is proportional to the concentrations of C and D: Vb ∝ [C][D] or Vb = Kb[C][D], where Kb is the backward reaction rate constant. At equilibrium, the forward and backward rates are equal: Vf = Vb. This leads to the equation Kf[A][B] = Kb[C][D], which can be rearranged to give the equilibrium constant: K eq = [C][D] / [A][B] = Kf / Kb.