

Chemistry: Equilibrium and Acids

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Equilibrium is a state where the forward and reverse reactions occur at the same rate. It is a dynamic equilibrium, meaning that the reactions are still occurring, but the concentrations of the reactants and products remain constant. The equilibrium constant, K_c , is a measure of the extent of the reaction. It is calculated as the ratio of the concentrations of the products to the concentrations of the reactants, each raised to the power of its stoichiometric coefficient.

For the reaction: $2H_2 + O_2 \rightleftharpoons 2H_2O$

The equilibrium constant, K_c , is calculated as follows:

$$K_c = \frac{[H_2O]^2}{[H_2]^2 [O_2]}$$

where $[H_2O]$, $[H_2]$, and $[O_2]$ are the concentrations of water, hydrogen, and oxygen respectively.

The equilibrium constant, K_c , is a constant for a given reaction at a given temperature. It is not affected by the initial concentrations of the reactants or products.

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