

Lesson 168: Kinetics and Equilibrium Terms

Chemistry with Lab

1. **Kinetics** – The study of the factors that govern how rapidly reactions occur.
2. **Collision theory** – The rate of a reaction is proportional to the number of collisions that occur each second between the reactants.
3. **Effective collision** – A collision in which the colliding particles approach each other at the proper angle and with the proper amount of energy.
4. **Catalyst** – A substance, usually used in small amounts relative to the reactants, that modifies and increases the rate of a reaction without being consumed in the process.
5. **Inhibitor** – One that inhibits, as a substance that retards or stops a chemical reaction.
6. **Enzyme** – Any of numerous proteins or conjugated proteins produced by living organisms and functioning as biochemical catalysts.
7. **Activation energy** – The minimum kinetic energy that must be possessed by the reactants in order to give effective collision (one that produces products).
8. **Potential Energy Diagram** – A plot of the change in potential energy that occurs during a chemical reaction.
9. **Transition state** – The moment during a reaction when the species involved have acquired the minimum amount of potential energy needed for a successful reaction.
10. **Reaction rate** – How quickly the reactants disappear and the products form.
11. **Reversible reaction** – a reaction in which the equilibrium constant is such that the reaction can be made to proceed at a detectable rate in either direction under appropriate conditions. A reversible reaction is a chemical reaction that results in an equilibrium mixture of reactants and products.
 - For a reaction involving two reactants and two products, this can be expressed symbolically as: $aA + bB \rightleftharpoons cC + dD$
 - A and B can react to form C and D or, in the reverse action, C and D can react to form A and B.
12. **Le Châtelier's principle** – When a system that is in dynamic equilibrium is subjected to a disturbance that upsets the equilibrium, the system undergoes a change that counteracts the disturbance and, if possible, restores the equilibrium.

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- 13. **Stress** – An applied force or system of forces that tends to shift a reaction.
- 14. **Endothermic** – Characterized by or causing the absorption of heat.
- 15. **Exothermic** – Releasing heat.