

Surface Chemistry notes

1. The phenomena of coagulation or flocculation is the precipitation of colloidal solution by addition of excess of an electrolyte.
2. **Characteristics of colloidal solution:**
 - (a) The zigzag and random motion of the colloidal particles is called **Brownian movement**.
 - (b) When a beam of light is passed through a colloidal solution, its path becomes visible. This phenomenon is known as Tyndall effect. It is due to the scattering of light by colloidal particles.
 - (c) This movement of colloidal particles under applied electric field is known as electrophoresis.
 - (d) Diffusion of colloidal particles takes place from a region of higher concentration to lower concentration.
3. **Rule of Hardy- Schulze:** Various electrolytes have different coagulation capacities. The flocculating ion which is the ion carrying charge opposite to the charge on colloidal particles relies on valency of the active ion. The coagulating capacity of flocculating ion is proportional to its valency.
4. Coagulation or flocculation value is the minimal concentration of electrolyte needed to coagulate a sol.

$$\text{coagulation value} \propto \frac{1}{\text{coagulating power}}$$

5. Associated colloids are the chemical that when dissolved in medium behave as conventional electrolyte at low concentration but due to production of aggregate particles behave as colloidal particles at larger concentration. Micelles are aggregated particles that result from this process.
6. Micelles are clumps or aggregated particles generated through colloid association in solution. Soaps and detergent are common examples of micelles. Micelles develop at a certain temperature known as Kraft temperature (T_k) and a particular concentration known as crucial micellization concentration. Classical example of micelle is sodium stearate.