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**Purification of colloidal solution**

The purification of sol is done y the following process.

Dialysis: The process of removing the dissolved electrolyte from the sol by means of a membrane is called dialysis.

A dialysis consists of bag made of parchment and suspended in running water in a trough.The mixture of the colloid and the crystalloid is taken in the bag .It is further observed that the above process of separation can be accelerated if an electric field is applied around the parchment bag.The process is then called electrodialysis.

**Optical and electrical properties of sols**

Optical properties of colloids

Tyndall effect is defined as the phenomenon in which light is scattered by the colloidal particles. The light is been absorbed by the particles present in the solution. Once the light is been absorbed a part of the light gets scattered in all the directions. The result of scattering exhibits this effect.

Electrical properties of colloids

**1.**Electrical double layer theory: In this theory, charge is imparted to the particles by placing ions which are adsorbed preferentially at immovable points which for the first layer. The second layer consists of diffused mobile ions. The charge present on both the layers is equal. This two-layer arrangement leads to a development of potential called zeta or Electrokinetic potential. As a result of this potential developed across the particles, under the influence of electric field these particles move.

**2.Electrophoresis**: It is a process in which an electric field is been applied to a colloidal solution which is responsible for the movement of colloidal particles. Depending upon the accumulation near the electrodes the charge of the particles can be predicted. The charge of the particles is positive if the particles get collected near a negative electrode and vice versa.

**3.Electro-osmosis**: It is a process in which the dispersing medium of the colloidal solution is brought under the influence of electric field and the particles are arrested.

**Stability of colloids**

The stability of a colloidal system is defined by particles remaining suspended in solution at equilibrium. Stability is hindered by aggregation and sedimentation phenomena, which are driven by the colloid's tendency to reduce surface energy

**Protective action**

Lyophobic colloidal solutions  are coagulated on addition of electrolytes while lyophillic colloidal solutions are not coagulated by electrolyte . If small amount of lyophillic colloidal solution is present along with a lyophobic colloidal solution, the addition of a small amount of electrolyte does not coagulate either of them. It means  presence of lyophillic colloidal solution prevents a lyophobic colloidal solution from coagulation. This phenomenon is known as protection & the lyophillic colloid used for this purpose is known as protective colloid.When a lyophillic colloid is added to a lyophobic colloidal solution, the particles of lyophobic colloidal solution adsorbs the particles of lyophillic colloid around them & behaves like lyophillic colloidal solution. This prevent them from coagulation.