**Dr.Manoj Kumar**

**Associate professor**

**Department of Chemistry**

**Raja Singh College,Siwan**

**Preparation and purification of Colloidals Kinetic**

**[A] Dispersion Methods:** There are various dispersion processes.

**(1)** **Bredigs arc method:** This method is used to prepare colloidal solution of metals e.g.Cu,Ag,Au,Pt etc.In this method a colloidal solution is prepared by striking an electric arc between two metal electrode of an alkali in a container. The container is surrounding by ice cold water placed in a freezing bath.Here some of the metal from the negative electrode gets vaporized by the heat of the spark and the vapours so formed then condense in water to give colloidal solution.

**(2) Peptisation:** Peptisation is the process in which a freshly formed precipitate is converted into a colloidal particle.It is done by adding a little amount of a suitable electrolyte.For example by adding a small quantity of dilute FeCl3 solution to a freshly formed precipitate of Fe(OH)3 a reddish brown colloidal solution i.e.Fe(OH)3 is obtained.The excess of FeCl3 IS removed by electrodialysis .The electrolyte which brings about peptisation is called peptizing agent

**[B] Condensation Methods:** There are various condensation processes.e.g.

**(1) Oxidaton:** Sols of non-metals are generally prepared by this method .For example,when O2 is bubbled through an aqueous solution H2S a colloidal solution of sulphur is obtained:

**H2S** $→$ **2H2O + 2S**

**(2) Reduction:** Sols of metal are generally prepared by this method.The colloidal solution solution of gold is prepared by reducing a dilute solution of gold chloride with methanol.Collodal Ag solution is prepared by reducing dilute AgNO3 solution by tannic acid.

**(3) Hydrolysis:** A deep red colloidal solution of Fe(OH)3 IS obtained by adding 30% FeCl3 solution to boiling water dropwise with constant stirring.The excess of FeCl3 and HCl are removed by dialysis.

**FeCl3 + 3H2O = Fe(OH)3 + 3HCl**

**Properties of colloidal solution :**

**1.**Their molecular weight are very high.

**2.** Their particle are invisible .

**3.** They show Tyndal effect.

**4.**They show Brownian movement.

**5.** Their particles can be separated by ultrafiltration .

**Kinetic properties of Colloidal Solution**

**Brownian Movement**

When he examined a colloidal solution ultramicroscopically .It was seen that the particles in these solutions were in constant motion having no definite set path but travelling in zig-zag direction all over the field of view .So the continuous and irregular movement of the colloidal particle is known as Brownian movement.