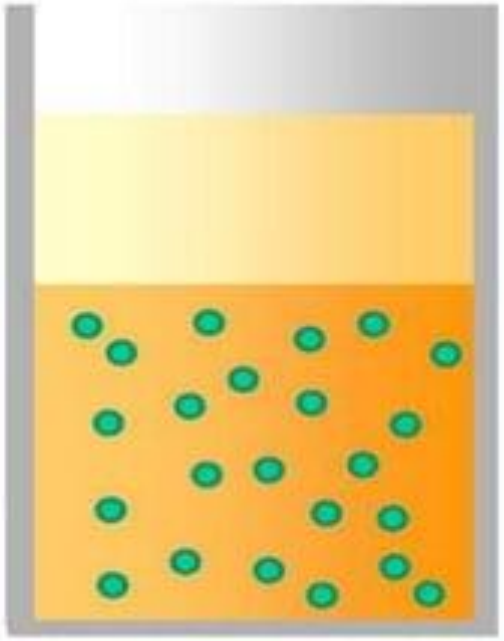
COLLOIDS

- A colloid is a substance microscopically dispersed throughout another substance
- The word colloid comes from a Greek word '**kolla**', which means glue thus colloidal particles are glue like substances.
- These particles pass through a filter pap but not through a semipermeable membrane.

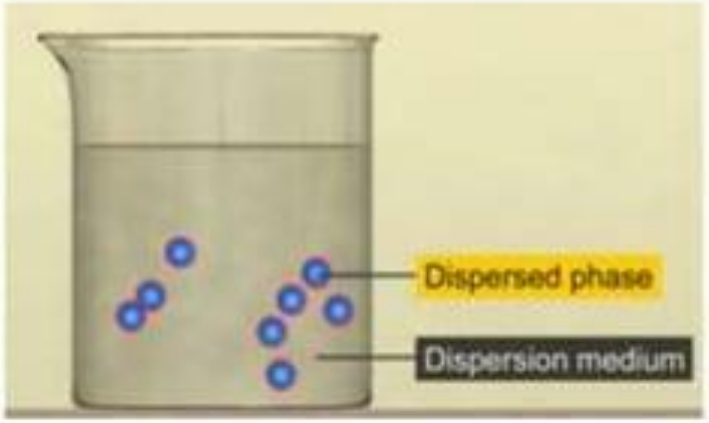


- Colloids can be made settle by the process of centrifugation.

- The colloidal system consist of two phases:

A dispersed phase (A discontinuous phase)

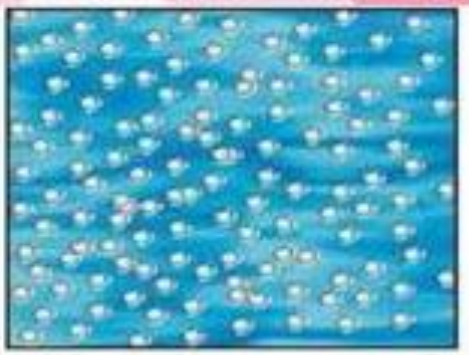
A dispersion medium (A continuous phase)



- The dispersed-phase particles have a diameter of between approximately 1nm – 100nm .
- Such particles are normally invisible in an optical, though their presence can be confirmed with the use of an ultramicroscope or an electron microscope.

SOLUTIONS

- Made up of particles or solutes and a solvent
- The solvent part of the solution is usually a liquid, but can be a gas.
- The particles are atoms, ions, or molecules that are very small in diameter.



True solution

COLLOIDAL MIXTURE

- Has particles that are not as small as a solution and not as large as a suspension.
- The particles are intermediate in size.

Colloidal solution

SUSPENSIONS

- Made up of particles and a solvent its particles are larger than those found in a solution.
- The particles in a suspension can be distributed throughout the suspension evenly by shaking the mixture.

Suspensions

Solution:

Table salt dissolves in water to form Salt (saline) water. A solute (salt; NaCl)Is dissolved in another substance (water) known as a solvent, and this creates a solution.

Suspension:

Flour suspended in water (appears light blue because blue light is scattered off the flour particles to a greater extent than red light)

Colloid:

Milk is an emulsified colloid of liquid butterfat globules dispersed within a water based liquid. Colloids are Stabilized In suspension by Electrostatics - mutual Repulsion of like electrical Charges.

Comparison of the Properties of Solutions, Colloids, And Suspensions

Property	True Solution	Colloid	Suspension
Particle Size	Less than 1 nm	1 to 100 nm	More than 100 nm
Appearance	Clear	Cloudy	Cloudy
Homogeneity	Homogeneous	Homogeneous or Heterogeneous	Heterogeneous
Transparency	Transparent but often coloured	Often translucent and opaque but can be transparent	Often opaque but can be translucent
Separation	Does not separate	Can be seperated	Separates or settles
Filterability	Passes through filter paper	Passes through filter paper	Particles do not pass through filter paper

- Examples of colloids are milk, synthetic polymers, fog,
  blood, jam, shoe polish, smoke, etc.

Based on physical state of dispersed phase and dispersion medium

Dispersed Phase	Dispersion Medium	Name	Examples
Solid	Solid	Solid-Sol	Alloys, Cranberry glass
Solid	Liquid	Sol	Ink, Blood
Solid	Gas	Aerosol	Smoke, Ice cloud
Liquid	Solid	Gel	Jelly, Curd
Liquid	Liquid	Emulsion	Milk, Cream
Liquid	Gas	Liquid aerosol	Cloud, Fog
Gas	Solid	Solid form	Aerogel, Pumice stone
Gas	Liquid	Foam	Shaving cream
Gas	Gas	None	All gases are miscible