

# COLLOIDS

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**By**

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# COLLOIDS

## Contents

- ❖ Key point about colloids
- ❖ Size and range of colloids
- ❖ Types of colloids
- ❖ Examples of Colloids
- ❖ Components in colloids
- ❖ Coagulation

# COLLOIDS

## Key point about colloids

- It dissolves but donot lose identity
- Heterogeneous and generally multiphase
- A non-crystalline substance consisting of large molecules or ultramicroscopic particles of one substance dispersed through a second substance.
- Size is in between 1-1000nm
- Colloids include gels, sols, and emulsions
- The particles do not settle, and cannot be separated out by ordinary filtering or centrifuging like those in a suspension.
- In chemistry, a colloid is a mixture in which one substance of microscopically dispersed insoluble or soluble particles is suspended throughout another substance.
- Sometimes the dispersed substance alone is called the colloid
- The term colloidal suspension refers unambiguously to the overall mixture

## COLLOIDS

- **Colloids** are common in everyday life.
- Some **examples** include whipped cream, mayonnaise, milk, butter, gelatin, jelly, muddy water, plaster, colored glass, and paper, Gold+ water, clay+ water
- Every **colloid** consists of two parts: **colloidal** particles and the dispersing medium
- The dispersed-phase particles have a diameter between approximately 1 and 1000 nanometers.
- Such particles are normally easily visible in an optical microscope, although at the smaller size range ( $r < 250$  nm), an ultramicroscope or an electron microscope may be required. Homogeneous mixtures with a dispersed phase in this size range may be called *colloidal aerosols*, *colloidal emulsions*, *colloidal foams*, *colloidal dispersions*, or *hydrosols*. The dispersed-phase particles or droplets are affected largely by the surface chemistry present in the colloid.

# COLLOIDS

## Types of colloid

1. **Lyophilic colloids (Solvent loving)**
2. **Lyophobic colloids (Solvent hating)**

1. All particles in a **lyophobic sol** have the same charge.

Particles in the **lyophilic sol** absorb  $H^+$  and  $OH^-$  ions from the medium.

2. All Particles in a **lyophobic sol** absorb ions from the medium.

Particles in a **lyophilic sol** may or may not migrate towards the electrode

# COLLOIDS

## Components in colloid solution

1. Dispersed phase
2. Dispersion medium

Eg: protien(dispersed phase)+ water(dispersion medium)

## Example:

If water is used as the dispersion medium, **lyophilic sols** are called hydrophilic sols.

### **Examples of lyophilic colloid:**

Starch, gum, gelatin, RBC, egg albumin etc are liquid loving.

### **Examples of lyophobic colloids:**

Smoke is **colloids** of solid in gas and metal sulphides are liquid hating.