Colloidal dispersion

Solids in water

Colloidal particles have a size of 1-1000 nm and are formed by either macromolecules or micelles. Particles are constantly moving disorderly – Brownian motion. At larger particle sizes, the impacts of the molecules of the dispersion medium on the particle equalize, but in colloidal particles, one direction usually prevails and the molecule then moves accordingly.

Sedimentation

The particle of the dispersion fraction, which has a higher density than the dispersion medium, gradually decreases (sediments) due to the action of the gravitational field. For sedimentation rate: $v = \frac{2}{9} \cdot \frac{(\rho - \rho_0) \cdot g r^2}{\eta}$

η = viscosity of the environment, r = radius of the particle, g = acceleration of gravity

Ultracentrifugation increases the acceleration of gravity and thus the sedimentation velocity.

Dialysis

Dialysis – colloidal particles are (not) permeable by certain filters, and therefore we can separate them from the dispersion fraction currently present in the solution, or even from the dispersion medium

Electric double layer

The most important property of colloidal particles in water is the existence of their el. double layer on the surface. Each col. particle carries on its surface el. charge and if two particles come close to each other, they cannot unite because their identical charges repel each other.

Aerosols

- Liquid or solid in gas:
  - gas + liquid = mist;
  - gas + solid = smoke, dust.
- Mainly industrial fumes and dust polluting the atmosphere are unfavourable.

Links

Related articles

- Analytické disperze

Source

- KUBATOVA, Senta. *Biofot* [online]. [cit. 2011-01-31]. <https://uloz.to/!CM6zAi6z/biofot-doc>.