**Записать слова и выражения с переводом в тетрадь**

Brownian Movement – броуновское движение

centrifugal – центробежный

cluster – скопление

colloid – коллоид, коллоидный раствор

consolidation – уплотнение

depth – глубина

dilute – разбавленный, разжиженный

draining – осушение

expression – выжимание, отжим

flocculation – образование хлопьев

layer – слой

pure – чистый

sediment – осадок

sedimentation tank – отстойник

solute – растворенное вещество

volumetric concentration – объемная концентрация

SEDIMENTATION

Concentrated suspensions may be obtained by the process which is called sedimentation. Sedimentation is settling of solids from a solid/liquid mixture in such a way that two layers are formed (a concentrated suspension of the solids with a clear liquid above it). After settling the two layers can be separated by filtration or draining. Sedimentation is used in food processing to clean liquid from undesirable particles and to recover useful food particles from water suspensions. It is also applied in the expression of juices and oils from fruits, vegetables and oilseeds.

There are two methods of carrying out sedimentation: the gravitational and the centrifugal techniques. If the particle is settling in the gravitational field, it rapidly reaches its terminal falling velocity. In a centrifugal field the particle may reach a very much higher velocity because the centrifugal force may be many thousands of times greater than the gravitational force.

The rate of sedimentation has been found to depend on the particle diameter and density, the viscosity of the liquid. It also depends on the depth and diameter of the containing vessel and the volumetric concentration. The depth of the sedimentation tank should be sufficient for settling the smallest solid particles, while the diameter should be such that the up-ward velocity of the clear water is lower than the settling velocity of the particles.

Although the sedimentation rate tends to increase steadily with the concentration of the suspension, the particles in very dilute suspensions settle rather quickly due to the formation of clusters of particles.

The rate of sedimentation of a suspension of fine particles is difficult to predict because of the large number of factors involved. Thus, for instance, the presence of an ionized solute in the liquid and the nature of the surface of the particles will affect the degree of flocculation, and, hence, the formation of sediment. A further factor influencing the sedimentation rate is the degree of agitation of the suspension. Gentle stirring can produce accelerated settling and prevent consolidation (agglomeration) of the final sediment.

The rate of sedimentation of particles in a fluid will be very much greater in a centrifugal field than in the gravitational field. The use of a centrifuge permits much more rapid sedimentation and also provides the possibility of effecting separation which would be quite impossible under gravitational conditions. For example, a colloid or emulsion may be quite stable under ordinary gravitational conditions where the dispersive forces such as those due to Brownian Movement are very much greater than the gravitational force. However, in a centrifuge the colloid or emulsion may break down completely because the vastly greater centrifugal forces will be able to overcome the effects of the dispersive forces. Similarly, it is possible to obtain a very much drier solid by centrifugal action than by draining under gravity, because the surface tension forces in the fine pores which cause retention of moisture can be overcome by the centrifugal but not the gravitational force.

**Выполнить задания:**

**I. Give the derivatives of the following words:**

centrifuge, gravity, disperse, retain, sediment, suspend, solve.

**II. Form the nouns and verbs with the prefix DIS-:**

advantage, comfort, charge, solve, cover, integrate, appear, continue.

**III. Translate from Russian:**

сила гравитации, центробежная сила, осаждение в гравитационном поле, удельная поверхность, объемная концентрация, броуновское движение, фильтрация, осушение, мелкие поры, влага.

**IV. Translate from English into Russian:**

degree of flocculation, dilute suspension, clusters of particles, degree of agitation, stirring, retention of moisture, flocculation, consolidation, settling, ionized solute, layer, surface tension forces, terminal falling velocity.