20-2 How can a suspension be separated?

Objective ▸ Describe some ways to separate a suspension.

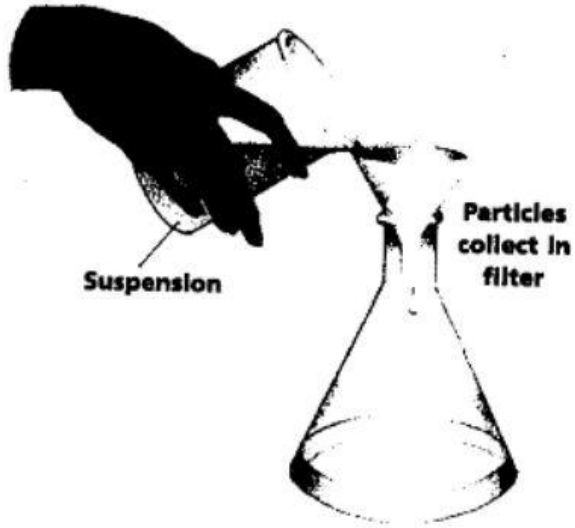
TechTerms

- **coagulation** (koh-ag-yoo-LAY-shun): use of chemicals to make the particles in a suspension clump together
- **filtration:** separation of particles in a suspension by passing it through paper or other substances

Settling Particles in a suspension settle on standing. Large particles settle out quickly. Smaller particles take a longer time to settle. You can see how this works if you mix sand and clay with water, and allow the mixture to stand. The sand will settle to the bottom in a few minutes. The clay will stay in the water much longer. You would have to let the mixture stand overnight in order for the clay to settle.

Explain: Why does sand settle out much faster than clay when mixed with water?

Filtration One way that a suspension can be separated quickly is by **filtration.** Filtration is the removal of particles in a suspension by passing the suspension through a filter. Filters can be made of paper or other substances. Filters have tiny holes or pores, through which some substances can pass, but not others. Substances that cannot pass through the filter have particles that are larger than the holes in the filter.



Predict: What will happen to the particles in a suspension if they are larger than the holes in a filter?

Coagulation Another way to make a suspension separate quickly is to add chemicals to the suspension. The chemicals make the particles of the suspension stick together. The particles form clumps that are larger and heavier than the original particles. As a result, the particles settle out more quickly. This process is called **coagulation** (koh-ag-yoo-LAY-shun). Coagulation takes place when you cut your finger. Chemicals in your blood cause the blood to coagulate and form a clot.

Define: What is coagulation?

Separation by Centrifuge A third way to separate the substances in a suspension is to spin the mixture at high speeds. The device that is used is called a centrifuge (SEN-truh-fyooj). As the suspension is spun around, the particles in the suspension are pulled down to the bottom of the container. Use of a centrifuge greatly increases the rate at which a suspension settles.

Identify: What is a centrifuge?

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