



Name:

Study Sheet 2: Separating Mixtures

Date:

Grade 6 A

What is a Mixture:

A mixture is formed of two or more substances mixed together.

Usually, the parts can be separated from each other by physical means, because it **does not** involve any chemical reactions or bonds.

Separating Methods:

The kind of separation method depends on the differences of the physical properties of the mixture's components, like size, color, shape, solubility, ...etc.

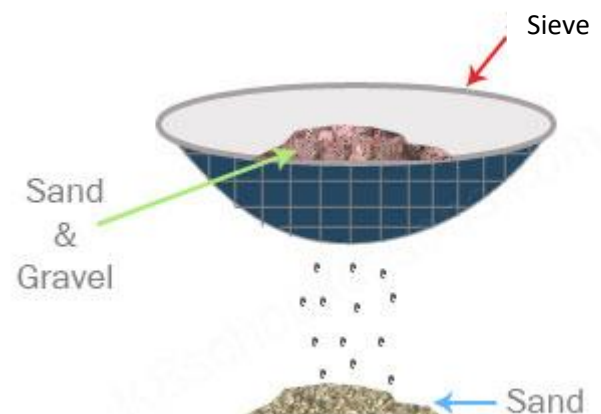
1 - Separation methods of Insoluble matter

A) Sieving:

A sieve can be used to separate solids that differ in grain or particle size.

The mixture is poured into a sieve held over a bowl.

The smaller particles will get through it into the bowl and the larger particles will be caught in the sieve.

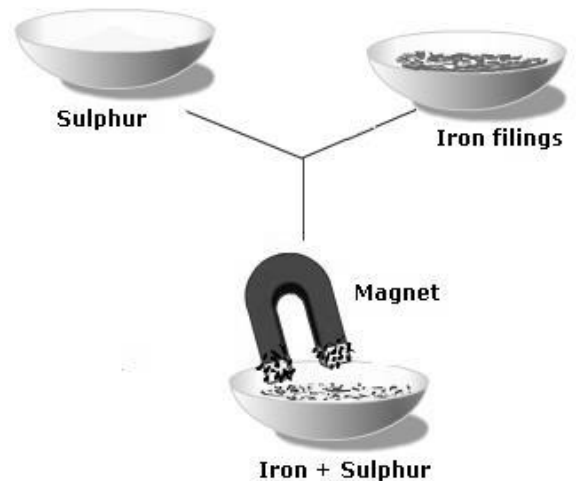


b) Magnetism:

Magnetism is ideal for separating mixtures of two solids with one part having magnetic properties.

Magnetic Materials are:

- 1- Iron
- 2- Cobalt
- 3- Nickel
- 4- Steel



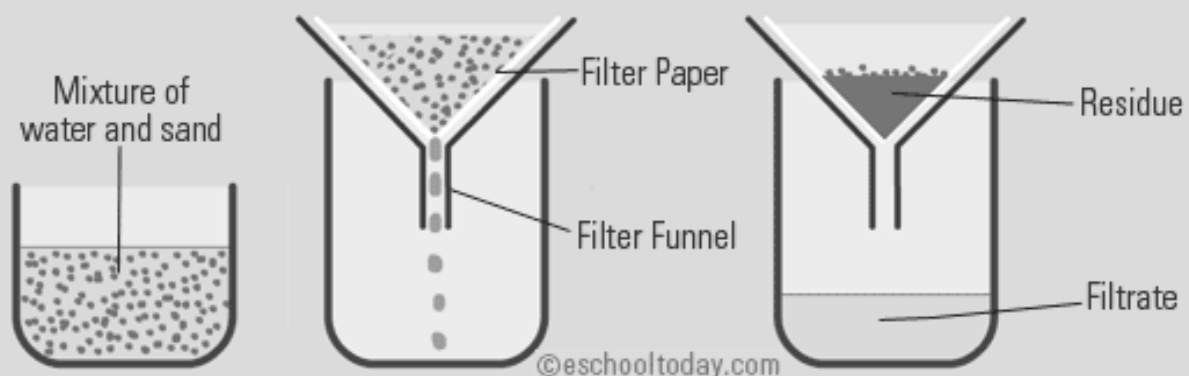
c) Hand sorting:

This can be used with large solid particles. The mixture is observed and the different substances are picked out based on **observed properties such as color and size.**

d) Filtration:

This is a more common method of separating an **insoluble solid from a liquid.** An example of such a mixture is sand and water.

Filtration is used in water treatment plants, where water from rivers is filtered to remove solid particles.



e) Separating funnel

In this technique, two **immiscible liquids** (liquids that do not dissolve very well in each other) can be separated by taking advantage of their unequal density.

A mixture of oil and water, for example, can be separated by this technique. The lighter oil floats on top of the water.

The water layer can be removed using the tap at the bottom, leaving the oil layer behind.

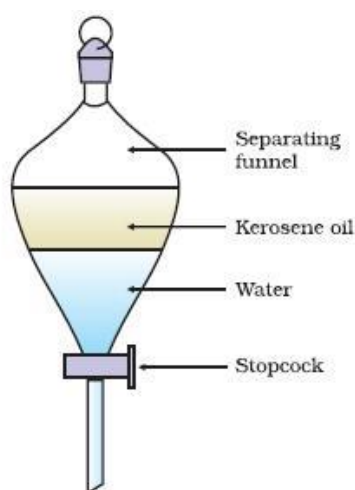
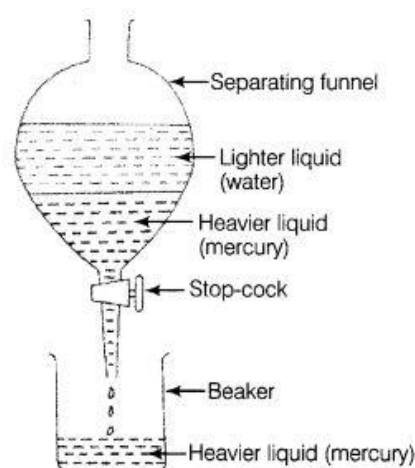


Fig. 2.6: Separation of immiscible liquids



Separation of two immiscible liquids by using a separating funnel

2- Separation methods for soluble components

A) **Evaporation**

Evaporation is used to separate a mixture (solution) of a soluble solid and a solvent.

The process involves heating the solution until the solvent evaporates (turns into gas) leaving behind the solid residue. (Solute)



B) **Simple distillation**

This method is best for separating a liquid (solvent) from a solution. In a way, the concept is similar to evaporation, but in this case, **the vapor is turned into liquid again by condensation (cooling)**.

For example, if you want to separate water from a salt solution, simple distillation would be great for this.

