

chapter: 9

METHODS OF SEPARATION IN
EVERYDAY LIFEI SHORT AND LONG ANSWER:

1. You are provided with a mixture of salt, sand, oil and water. Write the steps involved for the separation of salt, sand and oil from the mixture by giving an activity along with the diagram.

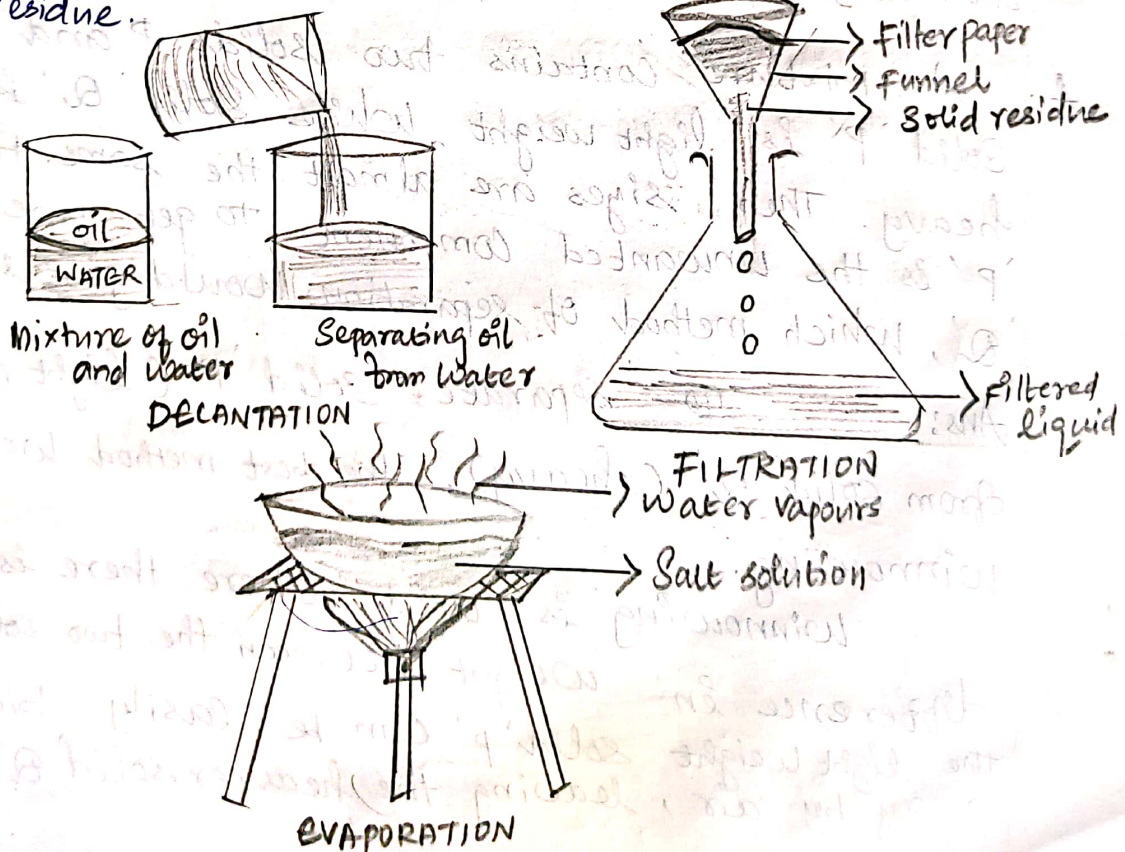
Ans:

We can separate salt, sand, oil and water through following steps.

* Decantation: Since oil floats on water (oil is insoluble in water), so it can be decanted easily.

* Filtration: Filter the mixture and sand will be separated from the water (as it is insoluble in water) and only salt solution will be left.

* Evaporation: The salt solution can be evaporated. The water will evaporate and salt will be left as residue.



2. Can the constituents of a mixture containing sawdust and water be separated by decantation? Give reason.

Ans: No, the constituents of a mixture containing sawdust and water cannot be completely separated by decantation. Since sawdust is light in weight and floats on the surface of the water instead of settling down. However, to separate sawdust and water, the method of filtration can be used.

3. What are the white patches on the dark coloured clothes you wear during summer? How are these patches formed?

Ans: White patches on dark-coloured clothes during summer are caused by salts left behind after sweat evaporates. Sweat contains water and salt and the water evaporates due to the heat and humidity of summer.

4. A mixture contains two solids P and Q. Solid 'P' is light weight while solid 'Q' is very heavy. Their sizes are almost the same. Here, 'P' is the unwanted component. To get pure solid 'Q', which method of separation would you suggest?

Ans: To separate solid 'P' (light weight) from solid 'Q' (heavy), the best method would be winnowing.

Winnowing is used where there is a difference in weight between the two solids. The light weight solid 'P' can be easily blown away by air, leaving the heavier solid 'Q' behind.

5 Filtration and Sieving are fundamentally the similar processes. What is the fundamental difference between the two?

Ans:

ASPECT	FILTRATION	SIEVING
TYPE OF MIXTURE	Separates solids from liquids or gases	Separates solids of different particle sizes
MEDIUM USED	Uses a porous filter (e.g. filter paper)	Uses a sieve with holes or a mesh
PRINCIPLE	Liquid passes through the filter, leaving solids behind.	Smaller solid particles pass through the sieve, larger ones remain.

II Higher order thinking skills:

1. Name a method to separate a thoroughly grinded mixture of sand and powdered dry leaves.

Ans: The best method to separate a thoroughly grind mixture of sand and powdered dry leaves is winnowing. Sand particles are heavier, while powdered dry leaves are lighter and can be carried away by the air.

2. How would you separate a mixture of
(a) wheat, sand and husk?
(b) rice, sugar and iron fillings?

Ans:

(a) To separate a mixture of wheat, sand and husk following methods are used.

For separating husk from wheat, winnowing can be used. By blowing air through the mixture,

the lighter husk will be carried away, while the heavier wheat grains will fall down.

To separate the sand from the wheat, a sieve with appropriate mesh size can be used. The sand will pass through the sieve, while the wheat grains will be left behind.

(b) To separate the mixture of rice, sugar and iron fillings following methods can be applied.

Magnetic Separation:

We can use a magnet to attract and remove the iron fillings from the mixture leaving behind rice and sugar.

Sieving: After removing the iron fillings, the rice and sugar can be separated using a sieve.

Dissolving: To separate sugar from rice, we can dissolve the sugar in water then filter the mixture. The rice will remain as solid particles in the filter paper, while the sugar solution will pass through. Finally, we can evaporate the water to get the sugar back.

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