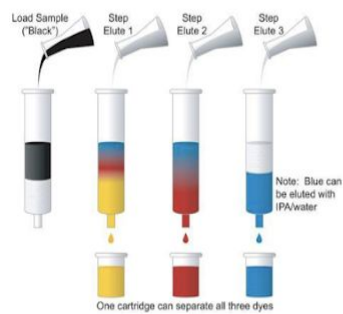


Centrifugation and Chromatography

Centrifugation

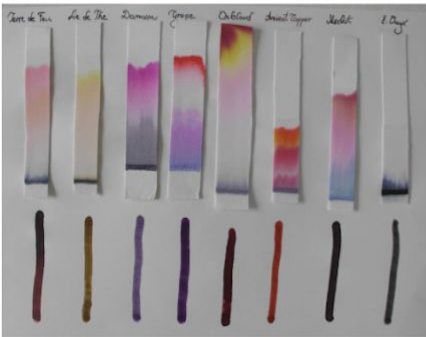
Centrifugation is a method in which solid or liquid particles of different densities are separated by rotating them in the tube in a horizontal circle. The heavier suspended particles move down and lighter particles remain on top. In this method, the mixture is rotated at a high speed in a test tube in a machine called centrifuge.

Chromatography



Chromatography is a technique of separating the constituents of a mixture of liquids. It is also used for gases. These substances should be such that they do not go undergo a chemical reaction with each other. The substances on which the mixtures are absorbed are called absorbents. Some of them are silica gel, filter paper, cellulose powder, alumina, etc.

Paper chromatography



Paper chromatography proceeds by a mechanism which is partly partition and partly absorption. The solute mixture, generally dissolved in water, is placed on a strip chromatographic paper and a second solvent is allowed to travel along the strip. It will extra the solute as a result distribution of the solvent between the two solvents.

Application of Chromatography

This method of separation is used to separate various chemicals in chemistry. Moreover, it is used in following sectors:

1. To separate different colours from the mixture.
2. To identify the medicines used by a person with blood and urine.
3. To identify the quality of a colour.

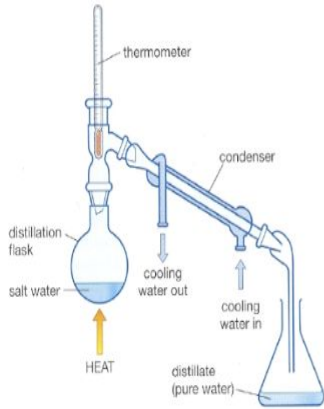
Distillation

A mixture is a substance or mass in which two or more than two substances when brought together do not undergo chemical change but simply lie together and retain their identity. Mixtures like air, cold drinks, and treated water are all useful mixtures. There are two types of mixture that is heterogeneous and homogeneous. A homogeneous mixture is that mixture in which the solute component molecules cannot be seen with the naked eye. In heterogeneous mixtures, the one or both the components present may be seen through naked eye because they are big in size. The constituents of a mixture can be separated by using specific techniques based on differences in their properties.

Activity 1

1. Take a small quantity of sand and mix it with camphor.
2. Put the mixture in a porcelain basin and cover it with a funnel in the inverted position.
3. Close the stem of the funnel with a dry cloth.
4. Put wet cotton around the funnel stem.
5. Heat the basin gently on a flame until you can see lining inside the funnel.

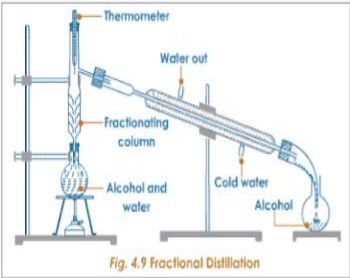
In this way, you can separate a mixture of camphor and sand. Similarly, ammonium chloride and iodine also can be separated.



Distillation

In the case of the solution, If the solution is recoverable, the solution is boiled in a distillation flask. The liquid turns into the vapour form. The vapour is allowed to pass through the condenser (Liebig's Condenser). The condenser has two side tubes. Through lower side tube cool tap water is passed which circulates the central tube through lower side tube cool tap water is passed which circulates the central tube through which vapour comes and releases out from upper side tube, thus condensing vapour into liquid. The liquid is collected in a receiver.

A Thermometer is fitted in the flask to measure the boiling point of the liquid. If two liquids are mixed, first, the liquid which has a lower boiling point is distilled and second, a liquid which has a higher boiling point is distilled.



Fractional Distillation

Fractional distillation is a technique used when separating a mixture of two liquids that do not "behave" well enough to use simple distillation. First of all liquid with low boiling point and the high boiling point should be separated. In this process, the fractional column is used. In this process, liquid with the lower boiling point is vaporated faster than the liquid with the higher boiling point. Petroleum products are also separated by fractional distillation.