

# Chemistry One-Liners: Mixture and its separation Method



## Chemistry Notes : Mixture and its separation Method

**Mixture:** A mixture is a substance that constitutes two or more element or compound, chemically combined in any ratio.

- It can be separated into its constituent element by physical methods.
- It has variable melting and boiling point and the properties shown by the mixture are dependent on its constituent element.

### Types of Mixture

- **Heterogeneous Mixture:** A mixture in which the constituent elements are distinctly visible, and do not show the properties of its constituent element.

Normally the colloidal solution is heterogeneous in nature i.e. mixture of salt and sugar, suspensions etc.

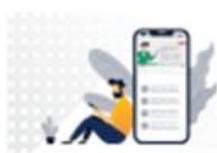
- **Homogeneous Mixture:** A mixture in which the constituent elements are uniformly distributed throughout the mixture and show the properties which are similar to the constituent element i.e. the electrolyte of sulphur in carbon dioxide.

- **The process used for the separation of its constituent element**

*Here are some methods used for the separation of the mixture. The selection process depends upon the nature of the constituent element.*

- **Filtration:** It is used for the separation of the insoluble solid component of the mixture from the soluble component in a given solvent, e.g. in car engines solid particles from engine oil are separated by air filters, for separation of naphthalene and urea.
- **Crystallisation:** This method is used to purify the solids, on the basis of heating.

In which the pure component is left behind, e.g. for obtaining salt from the sea water.



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- **Evaporation:** This is used to separate the volatile component from the non-volatile component.

In this process, the soluble solid solute dissolved in the solvent is obtained generally by heating the mixture, e.g. for manufacturing the ink.

- **Centrifugation:** This process is used for the separation of the insoluble particles from the liquid where normal filtration process does not work.

This process normally depends on the particles size, density and viscosity.

The principle is that the denser particles are forced to the bottom and the lighter particles stay at the top when rotating rapidly, e.g. separation of cream from the milk.

- **Sublimation:** It is used to separate sublimate volatile substances such as ammonium chloride from the non-sublimate substances such as sodium chloride.

Sublimate substances are iodine, naphthalene, camphor.

- **Distillation:** Liquid having sufficient difference in their boiling point are separated through this process.

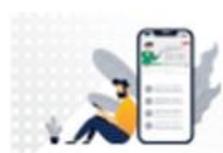
Used for the preparation of distilled water from the normal ordinary water.

- **Fractional Distillation:** It is used when there is a small difference in the boiling point of the liquids.

This process is mainly used in the industrial process, e.g. refining of the crude oil and manufacturing of the alcoholic beverages such as whisky and rum.

- **Differential Extraction:** It is used for the organic compound present in the water by using another immiscible liquid in which organic compounds are more soluble, e.g. iodine in water is extracted by using chloroform.

- **Chromatography:** It is used to separate the mixture into its constituent component to purify compounds and also for testing the purity of the compounds. It is technique used to separate colours in dye, pigments from natural colours, drugs from blood..





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