

# Chemistry Study Materials for Class 9 (NCERT Based notes of Chapter -02)

Ganesh Kumar

Date:- 01/05/2021

## IS MATTER AROUND US PURE

Matters can be classified into two types –

Pure substances and impure substances

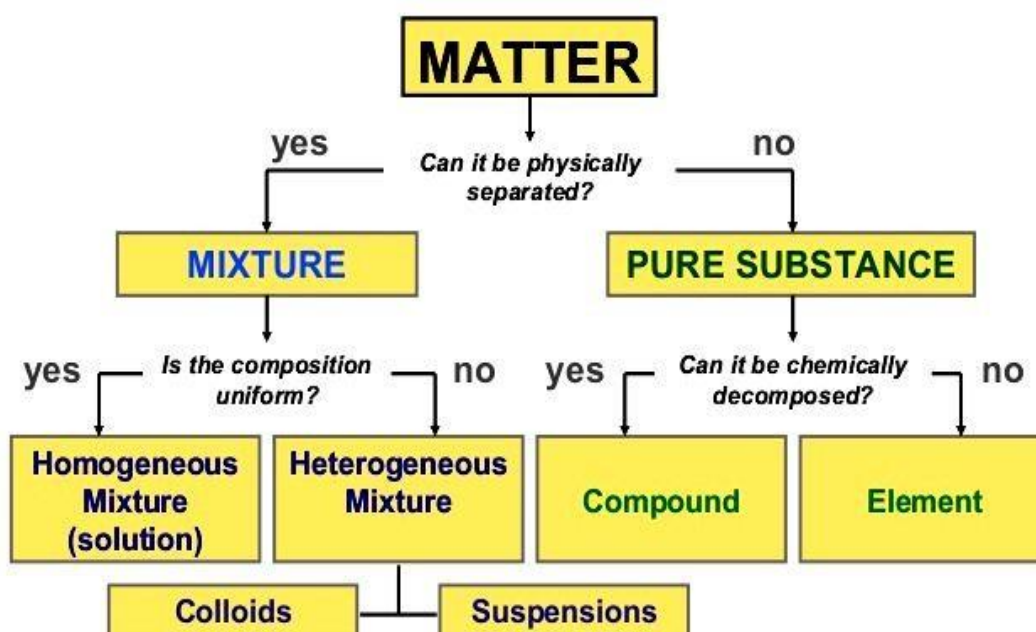
Pure substances – Pure substances are of two types –

Elements and Compounds

Impure substances – All mixture are considered as impure substances.

Colour, odour, density, melting point and boiling point are often treated as physical properties of matter. The physical properties of a substance can be observed or measured without changing its composition.

The term “impure” is different from adulteration. According to scientists, the term “pure” means single form of matter.



Most of the substances in our surroundings are not in their pure form and are called mixture. Substances which are made of two or more matters and which can be separated by physical methods are known as mixtures, such as mixture of salt and water, mixture of sugar and water, mixture of different gases, air, etc.

In a mixture, components do not combine chemically or through any chemical change. In a mixture, components do not lose their properties.

Mixtures are of two types on the basis of their composition:-

Homogeneous mixture and Heterogeneous mixture

## **HOMOGENEOUS MIXTURE**

Mixtures which have uniform composition throughout are called Homogeneous Mixture. For example – mixture of salt and water, mixture of sugar and water, air, lemonade, soda water, etc.

Mixture of salt in water is an example of homogeneous mixture. In this mixture, the boundary of salt and water cannot be differentiated. When a ray of light is passed through the mixture of salt and water, the path of light is not seen.

### **General Properties of Homogeneous Mixture:**

- All solutions are the examples of homogeneous mixture.

The particles of a homogeneous mixture are less than one nanometer ( $10^{-9}$  m).

- A homogeneous mixture does not show Tyndall effect.
- The boundaries of particles cannot be differentiated.
- The constituent particles of homogeneous mixture cannot be separated using centrifugation or decantation.
- Alloys are the examples of solution.



## HETEROGENEOUS MIXTURE

Mixtures which do not have uniform composition throughout are called Heterogeneous Mixture. For example – mixture of soil and sand, mixture of sulphur and iron fillings, mixture of oil and water etc The boundaries of constituent particles of a homogeneous mixture can be identified easily; as a homogeneous mixture has two or more distinct phases.

### General Properties of Heterogeneous Mixture:

- Most of the mixtures are heterogeneous except solutions and alloys.
- The constituent particles are present uniformly in a heterogeneous mixture.
- The components of a heterogeneous mixture can be identified easily.

- Generally, two or more phases are present in a heterogeneous mixture.
- Particles of a heterogeneous mixture are sized between one nanometer and one micrometer or more.
- Heterogeneous mixtures show Tyndall effect.

## **INTEXT QUESTIONS PAGE NO. 15**

### **Q1. What is meant by a pure substance?**

**Answer:** A pure substance is the one that consists of a single type of particles, i.e., all constituent particles of the substance have the same chemical nature.

Pure substances can be classified as elements or compounds.Q2. List the points of differences between homogeneous and heterogeneous mixtures.

Answer:

- A homogeneous mixture is a mixture having a uniform composition throughout the mixture. For example: salt in water, sugar in water, copper sulphate in water
- A heterogeneous mixture is a mixture having a non-uniform composition throughout the mixture. For example: sodium chloride and iron fillings, salt and sulphur, oil and water

**\*\*\*\*\***