

PURE SUBSTANCES :

A pure substance is composed of same kind of matter and has definite physical and chemical properties. It is further classified into elements and compounds.

IMPURE SUBSTANCES:

Substances that are made up of two or more pure substances mixed together in any proportion are called impure substances.

Atoms & Molecules: (differentiation)

	ATOMS	MOLECULES
1.	Atom is the smallest particle of an element which may or may not exist independently.	Molecules are the smallest particle of a pure substance that exists independently.

There are two types of molecules:

1. **Homoatomic molecules** --- they are formed by atoms belonging to the same element. Example – H_2 / O_2 / N_2 / P_4 / S_8 .
2. **Heteroatomic molecules** --- they are formed by atoms belonging to different elements. Example – NH_3 / H_2O / $NaCl$.

ELEMENTS:

Substance made up of the same kind of atoms is called an element.

Characteristics:

- An element is a pure substance.
- Elements exist in all the three physical states.
- Elements are made up of only one kind of particles.
- Elements have fixed melting and boiling points.

Classification of elements:

1. Metals :

- Metals are solid at room temperature (except mercury).
- Metals are lustrous (except lead).
- Metals are ductile (except sodium & potassium).
- Metals are malleable (except sodium & potassium).
- Metals are good conductors of heat and electricity (except lead).
- Metals are sonorous (except sodium, potassium and lead).

Examples: Mercury, sodium , potassium, lead.

2. Non-metals:

- Non metals are generally solid and gas at room temperature (except bromine).
- Non-metals are non lustrous (except Iodine).
- Non-metals are non ductile (except carbon).
- Non-metals are non malleable.
- Non-metals are bad conductors of heat and electricity (except graphite).
- Non-metals are non sonorous.

Various terms:

- **Malleable – can be beaten into sheets.**
- **Ductile – Can be drawn unto wires.**
- **Sonorous – Produces sound when struck.**
- **Lustrous – Shiny appearance.**

3. Metalloids:

These are known as semi metals. They show both the properties of metals and non-metals.

Example – Arsenic, Boron, Silicon, Antimony.

4. Noble Gases/ Inert Gases :

These are those elements that do not react chemically with other elements and are stable.

Example – Helium, Neon, Argon, Krypton, Xenon, Radon.

Note:

Go through the matter taught and get it written down in your note book.
