

Chapter - 2, Physical quantities and measurement.

Density: Density is defined as mass per unit volume.

SI unit of density is kg/m^3

cgs unit of density is gm/cm^3

Density of water at 4°C is 1000kg/m^3 or 1gm/cm^3 .

In order to find the density of regular shaped body we need to first find the mass of the object and then find the volume of the object with the help of necessary dimensions and formula corresponding to the geometrical shape of the body. $\text{Density} = \frac{\text{mass}}{\text{volume}}$

But in case of irregular shaped object we need to find out the mass of the object with the help of beam balance and then to find the volume of the object we can apply water displacement method. That is immersing the object in a water filled container and observing the rise in water level of the container. This rise in water level volume gives the volume of the irregular object.

• Relative density is the ratio of the density of the substance to the density of water at 4°C .

Symbol of relative density is R.D. It has got no unit as it is the ratio between some physical quantity

• Any substance whose average density is less than the density of water floats on the water. An iron nail sinks in water but a ship made up of iron does not sink as the average density of ship is less than the density of sea water.

• Based on the principle of floatation "weight of a floating body is equal to the weight of the liquid displaced by the immersed part of the body" we can understand floatation of iceberg, submarines, whales, balloons.

• Based on principle of floatation we have hydrometer, which can compare R.D of liquids, Lactometer for finding the purity of milk