

We know that

1 litre of water = 1,000 c.c. = 1 kilogram = 1,000 grams,  
or 1 c.c. of water = 1 gram,

and hence in this case the density of water is represented by 1.

The following are the densities of some other substances:—  
Cast-iron, 7.0 to 7.1; silver, 10.5; mercury, 13.6; white pine, 0.3 to 0.5 grams per c.c.

Note also that if we know the volume and the density of a body we can at once calculate its mass. For example, the volume of a piece of cast aluminium is 150 c.c. and its density is 2.56 grams per c.c. Then the

$$\text{Mass} = 150 \times 2.56 = 384 \text{ grams.}$$

**Exercise**—Find the volume of a rectangular solid, also its density.

**APPARATUS**:—Block of wood, metre stick, balance.

Apply the metre stick to each edge of the block, thus measure each dimension of the block four times. Take the average; and then, by multiplying the three dimensions together obtain the volume.

Take the measurements in inches as well as in cm., and from the volumes obtained calculate the number of c.c. in 1 cu. in.

Next, weigh the block with the balance, and calculate the number of grams in 1 c.c. of it.

**16. Relation between Density and Specific Gravity.** We have seen that the number expressing the density of a substance differs according to the units of length and mass which we use;

Specific gravity is defined to be the number of times the weight of a given volume of the substance contains the weight of an equal volume of water. This is expressed by a simple number, which is the same, no matter what units we use.