

For example, suppose we have a cubic foot of a substance, and that it weighs 440 lbs. Now the weight of a cubic foot of water is 62.4 lbs.

Then specific gravity = $\frac{440}{62.4} = 7.05$. [What substance is it?]

If we took 2, 3, or any number of cu. ft. we would get the same number for the specific gravity, which we see, therefore, does not depend on the volume of the substance used.

Again, suppose we have 50 c.c. of the substance, which, by means of the balance, we find weighs 352.5 grams. Now 50 c.c. of water weighs 50 grams.

Then specific gravity = $\frac{352.5}{50} = 7.05$,

which is the weight of 1 c.c. of the substance, and is the same as the density when we use these units.

Hence, when we use a centimetre as the unit of length and a gram as the unit of mass, the number representing the specific gravity of a substance is the same as that representing its density.

PROBLEMS

- ✓ 1. Find the mass of 140 c.c. of silver if its density is 10.5 gm. per c.c.
- ✓ 2. The specific gravity of sulphuric acid is 1.85. How much will 100 c.c. weigh? How many c.c. must one take to weigh 100 gm.?
- ✓ 3. A rolled aluminium cylinder is 20 cm. long, 35 mm. in diameter, and its density is 2.7. Find the weight of the cylinder.
- ✓ 4. A piece of granite weighs 83.7 gm. On dropping it into the water in a graduated vessel, the water rises from 130 c.c. to 161 c.c. (Fig. 9). Find the density of the granite.
- ✓ 5. A tank 50 cm. long, 20 cm. wide and 15 cm. deep is filled with alcohol of density 0.8. Find the weight of the alcohol.
- ✓ 6. A rectangular block of wood 5 x 10 x 20 cm. in dimensions weighs 770 grams. Find the density.
- ✓ 7. The density of anthracite coal is about 54 lbs. and that of bituminous coal about 49 lbs., per cubic foot. A coal bin is 9 x 7½ x 4 ft. in dimensions. Find the number of tons it will hold (a) of anthracite, (b) of bituminous coal.

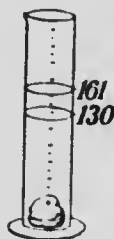


FIG. 9.