

Density relates the mass of a material in a given volume.

Samples of two different materials may have the same volume, but they don't necessarily have the same mass.

Objects with densities greater than that of water will sink. Objects with lesser densities will float.

The density of water is  $1\text{g/cm}^3$

$$\text{Density} = \frac{\text{Mass}}{\text{Volume}}$$

A small block of wood floats on water. It has a mass of 200g and a volume of  $250\text{cm}^3$ . What is the density of the wood?

Given: mass = 200g                      volume =  $250\text{cm}^3$

$$\text{Density} = \frac{200\text{g}}{250\text{cm}^3} = 0.8 \text{ g/cm}^3$$

1. A sample of liquid has a mass of 24g and a volume of 16ml. What is the density of the liquid?
2. A piece of solid metal has a mass of 43.5g and a volume of  $15\text{cm}^3$ . What is the density of the metal?
3. A block of aluminum occupies a volume of 15.0 mL and weighs 40.5 g. What is its density?
4. Mercury metal is poured into a graduated cylinder that holds exactly 22.5 ml. The mercury used to fill the cylinder weighs 306.0 g. From this information, calculate the density of mercury.