

↳ Mass of density bottle = 35g

Mass of density bottle when filled with

water = 65g.

Mass of water = 65 - 35 = 30g.

Mass of density bottle when filled with

alcohol = 59g

Mass of alcohol = 59 - 35 = 24g.

Density of water = $\frac{30g}{30g/cm^3}$ = 1g/cm³

Density of alcohol = $\frac{24g}{24cm^3}$ = 1g/cm³

Relative density = $\frac{1g/cm^3}{1g/cm^3}$

2) A density bottle is a specially designed bottle which is used to determine the density of a liquid. It is used as the bottle always holds a fixed volume of liquid.

3) The density of a substance is mass per unit volume, but relative density of a substance is defined as the ratio of the density of the substance to density of water.

4) It means that a piece of aluminium has 2.7 times mass as compared to ~~the~~ equal volume of water.

5) Mass of empty density bottle = 21.8g.
Mass when filled with water = 41.8g.
Mass of water = $41.8 - 21.8 = 20g$.
Mass when filled completely with liquid = 40.6g.
Mass of liquid = $40.6 - 21.8 = 18.8g$.

a) Volume of water = ~~$\frac{20g}{1g/cm^3}$~~ $\frac{20g}{1g/cm^3}$

Volume of density bottle = $20g/cm^3 = 20ml$

b) Relative density = $\frac{18.8}{20} = 0.94$

6 Mass of empty bottle = 22g

Mass of bottle along with water = 50g

Mass of bottle along with brine = 54g

Mass of water = $50 - 22 = 28g$

Mass of brine = $54 - 22 = 32g$

Density = $\frac{\text{Mass}}{\text{Volume}} = \frac{28g}{28ml} \quad (1g/cm^3 \text{ water})$

Density = $\frac{\text{Mass}}{\text{Volume}} = \frac{32g}{28ml} = 1.14 g/cm^3$

Relative density = $\frac{1.14}{1g} = 1.14$