

Answer on the question #62244, Chemistry / Other

Question:

when an irregularly shaped chunk of an unknown metal, weighing 8.763g, was placed in a graduated cylinder containing 25.0ml of water, the water level in the cylinder rose to 28.76ml. what is the density of this unknown metal in g/cm³?

Solution:

According to definition, the density is the ratio of mass and volume of the object:

$$d = \frac{m}{V}$$

The volume of the object can be calculated as the difference of the water levels:

$$V = V_f - V_i = 28.76\text{ml} - 25.0\text{ml} = 3.76\text{ml} = 3.76\text{cm}^3$$

$$d = \frac{8.763\text{g}}{3.76\text{cm}^3} = 2.331\text{g/cm}^3$$

Answer: 2.331 g/cm³

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