

Answer on Question #80445, Chemistry / General Chemistry

The initial water level in a 10-mL graduated cylinder is 5.0 mL. A diamond is dropped into the cylinder and the water level moves 6.5 mL. What is the volume of the diamond? If the diamond weighs 5.28 grams, what is the density of diamond in g/cm³?

Solution:

$$V = 6.5 \text{ mL} - 5.0 \text{ mL} = 1.5 \text{ mL} = 1.5 \text{ cm}^3$$

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

$$\rho = \frac{5.28 \text{ g}}{1.5 \text{ cm}^3} = 3.52 \text{ g/cm}^3$$

Answer: 3.52 g/cm³

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