

Answer on Question #40728 – Chemistry – Other

Question:

You have a solution that is 50 mg/mL of glucose. If you take 0.01 L of this solution how many grams of glucose have you taken.

Answer:

50 mg/mL is mass concentration of glucose solution.

$$50 \text{ mg/mL} = 50 \times 1000 \text{ g/1000L} = 50 \text{ g/L}$$

Density is defined as mass divided by volume:

$$\rho_i = \frac{m_i}{V}$$

Then

$$m = \rho \times V$$

where ρ_i is the mass concentration, m_i is the mass of a constituent, and V is the volume of the mixture.

Mass of glucose is:

$$m = 50 \text{ g/L} \times 0.01 \text{ L} = 0.5 \text{ g}$$

Answer: you have taken **0.5 g** of glucose.