Answer on Question #56884 – Chemistry - General Chemistry

Question:

A glass vessel weight 20.2376 g when empty and 20.3102 g when filled to an etched mark with water at 4°Celsius. The same vessel was then dried and filled to the same with a solution at 4°Celsius. The vessel was now found 20.33 grams. Find the density of the solution.

Answer:

Mass of water: 20.3102-20.2376=0.0726 g

Mass of the solution: 20.33-20.2376=0.0926 g

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

$$V_1 = V_2$$

$$\rho_{water} = 1.0000 \ \frac{g}{m^3}$$

$$\frac{0.0726}{1.0000} = \frac{0.0926}{\rho_1}$$

$$\rho_1 = \frac{0.0926}{0.0726 \cdot 1} = 1.2727 \ \frac{g}{m^3}$$