

Question#14447

Calculate the mass of glucose and water required to make 250 grams of 25% solution of glucose?

Solution:

$$m(\text{solution}) = 250\text{g}$$

$$\omega(\text{solution}\%) = 25\%$$

$$m(\text{solute}) (\text{Glucose}) = x \text{ g}$$

$$m(\text{solvent}) (\text{water}) = (250 - x) \text{ g}$$

$$\omega(\text{solution}\%) = \frac{m(\text{solute})}{m(\text{solution})} \times 100$$

$$25 = \frac{x}{250} \times 100$$

Solving for x we get:

$$x = 62,5 \text{ g}$$

$$m(\text{solvent})(\text{water}) = 250 - 62,5 = 187,5\text{g}$$

Answer:

$$m(\text{Glucose}) = 62,5 \text{ g}$$

$$m(\text{water}) = 187,5\text{g}$$