Answer on Question #53622 – Chemistry – General chemistry

Question:

You need to dissolve CaCl2 in water to make a mixture that is 32.0% calcium chloride by mass. If the total mass of the mixture is 216.5 g, what masses of CaCl2 and water should be used?

Solution:

First of all, the mass of CaCl2 should be found:

Since $w(\%) = [m(CaCl_2)/m(total)] \times 100\%$, then $m(CaCl_2) = (m(total) \times w(\%))/100\%$.

Thus, $m(CaCl_2) = (216.5 \text{ g} \times 32\%) / 100\% = 69.28 \text{ g}$

Taking into account that the total mass equals: $m(total) = m(CaCl_2) + m(H_2O)$

$m(H_2O) = m(total) - m(CaCl_2) = 216.5 \text{ g} – 69.28 \text{ g} = 147.22 \text{ g}$

Answer: $m(H_2O) = 147.22 \text{ g}$ and $m(CaCl_2) = 69.28 \text{ g}$