Task:

1. Calculate the no. Of grams of water that must be added to 16 grams of sugar in the preparation of 25% sugar solution

2. Calculate the grams of solute that must be dissolve in

      a. 350 g of water in the preparation of 15% potassium sulfate solution

      b. 15 g of water in the preparation of 10% sodium chloride solution

Answer:

1)

$$\% = \frac{m_{(sugar)}}{m_{(sugar)} + m(H_2O)} \cdot 100\%$$

$$25\% = \frac{16}{16 + m(H_2O)} \cdot 100\%$$

$$m(H_2O) = \frac{16 \cdot 100}{25} - 16 = 48\,g$$

2)a

$$\% = \frac{m_{(K_2SO_4)}}{m_{(K_2SO_4)} + m_{(H_2O)}} \cdot 100\%$$

$$15\% = \frac{m_{(K_2SO_4)}}{m_{(K_2SO_4)} + 350} \cdot 100\%$$

$$m_{(K_2SO_4)} = 0{,}15(m_{(K_2SO_4)} + 350)$$

$$m_{(K_2SO_4)} = 61{,}8\,g$$

b)

$$\% = \frac{m_{(NaCl)}}{m_{(NaCl)} + m_{(H_2O)}} \cdot 100\%$$

$$10\% = \frac{m_{(NaCl)}}{m_{(NaCl)} + 15} \cdot 100\%$$

$$m_{(NaCl)} = 0{,}1(m_{(NaCl)} + 15)$$

$$m_{(NaCl)} = 1{,}67\,g$$