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In 250 g water lossen we 15,0 g kristalsuiker ($C_{12}H_{22}O_{11}$) op.
Bereken de molfracties van water en suiker in deze oplossing?

Oplossing

$$250 \text{ g water is } \frac{250 \text{ g}}{18,0 \frac{\text{g}}{\text{mol}}} = 13,9 \text{ mol water}$$

$$15,0 \text{ g kristalsuiker is } \frac{15,0 \text{ g}}{342,0 \frac{\text{g}}{\text{mol}}} = 0,0439 \text{ mol kristalsuiker}$$

$$x_{H_2O} = \frac{13,9 \text{ mol}}{13,9 \text{ mol} + 0,0439 \text{ mol}} = \frac{13,9 \text{ mol}}{13,9439 \text{ mol}} = 0,997$$

$$x_{\text{kristalsuiker}} = \frac{0,0439 \text{ mol}}{13,9 \text{ mol} + 0,0439 \text{ mol}} = \frac{0,0439 \text{ mol}}{13,9439 \text{ mol}} = 0,003$$

Merk op dat

$$x_{H_2O} + x_{\text{kristalsuiker}} = 0,997 + 0,003 = 1$$