



Polyjuice Potion at Hogwarts – Corrigé

- $$m_{\text{NaOH}} = n_{\text{NaOH}} M_{\text{NaOH}} = n_{\text{NaOH}} (M_{\text{Na}} + M_{\text{O}} + M_{\text{H}})$$

$$\Rightarrow m_{\text{NaOH}} = 6,0 \cdot 10^{-2} \times (23,0 + 16,0 + 1,00) = 2,4 \text{ g}$$

$$V_{\text{eau}} = \rho m_{\text{H}_2\text{O}} = \rho n_{\text{H}_2\text{O}} M_{\text{H}_2\text{O}} = \rho n_{\text{H}_2\text{O}} (2M_{\text{H}} + M_{\text{O}})$$

$$\Rightarrow V_{\text{eau}} = 1,0 \times 7 \times (2 \times 1,00 + 16,0) = 126 \text{ mL}$$

Rq : On ne respecte pas le nb de CS ici.

$$m_{\text{C}_6\text{H}_{12}\text{O}_6} = n_{\text{C}_6\text{H}_{12}\text{O}_6} M_{\text{C}_6\text{H}_{12}\text{O}_6} = n_{\text{C}_6\text{H}_{12}\text{O}_6} (6M_{\text{C}} + 12M_{\text{H}} + 6M_{\text{O}})$$

$$\Rightarrow m_{\text{H}_2\text{O}} = 1,6 \cdot 10^{-2} \times (6 \times 12,0 + 12 \times 1,00 + 6 \times 16,0) = 2,9 \text{ g}$$
- $$t_{m1} = \frac{m_{\text{NaOH}}}{V_{\text{potion}}} = \frac{2,4}{126 \cdot 10^{-3}} = 19 \text{ g} \cdot \text{L}^{-1}$$

$$t_{m2} = \frac{m_{\text{C}_6\text{H}_{12}\text{O}_6}}{V_{\text{potion}}} = \frac{2,9}{126 \cdot 10^{-3}} = 23 \text{ g} \cdot \text{L}^{-1}$$
- $$C_1 = \frac{t_{m1}}{M_{\text{NaOH}}} = \frac{19}{40} = 0,48 \text{ mol} \cdot \text{L}^{-1}$$

$$C_2 = \frac{t_{m2}}{M_{\text{C}_6\text{H}_{12}\text{O}_6}} = \frac{23}{180} = 0,13 \text{ mol} \cdot \text{L}^{-1}$$