

D. Aplikasi

1. Perhatikan data percobaan di bawah ini!

Aspek yang diamati	Zat		
	Larutan AgNO ₃ (0,2 M)	Larutan NaCl (0,2 M)	Campuran (AgNO ₃ + NaCl)
Temperatur (°C)	27°C	27°C	31°C
Volume (mL)	50 mL	50 mL	100 mL

Jika kalor jenis larutan = 4,2 J/g^oK, massa jenis air = 1 g/cm³, tentukanlah besarnya ΔH pada reaksi berikut:

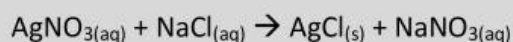


$$\begin{aligned} \text{Massa AgNO}_3 &= \text{massa jenis} \times \text{volume} \\ &= 1 \text{ g/cm}^3 \times \underline{\hspace{2cm}} \\ &= \underline{\hspace{2cm}} \end{aligned}$$

$$\begin{aligned} \text{Massa NaCl} &= \text{massa jenis} \times \text{volume} \\ &= 1 \text{ g/cm}^3 \times \underline{\hspace{2cm}} \\ &= \underline{\hspace{2cm}} \end{aligned}$$

$$\text{Massa campuran} = \underline{\hspace{2cm}}$$

$$\begin{aligned} q_{\text{larutan}} &= m \times c \times \Delta T \\ &= \underline{\hspace{1cm}} \times 4,2 \text{ J/g}^{\circ}\text{K} \times \underline{\hspace{1cm}} \\ &= \underline{\hspace{2cm}} \end{aligned}$$



$$\text{mula-mula : } \underline{\hspace{1cm}} \text{ mol } \underline{\hspace{1cm}} \text{ mol}$$

$$\text{bereaksi : } \underline{\hspace{1cm}} \text{ mol } \underline{\hspace{1cm}} \text{ mol } \underline{\hspace{1cm}} \text{ mol } \underline{\hspace{1cm}} \text{ mol}$$

$$\text{setimbang : } \underline{\hspace{1cm}} \text{ mol } \underline{\hspace{1cm}} \text{ mol } \underline{\hspace{1cm}} \text{ mol } \underline{\hspace{1cm}} \text{ mol}$$

$$\Delta H = \frac{q}{\text{mol}}$$

$$\Delta H = \underline{\hspace{2cm}} = \underline{\hspace{2cm}} \text{ kJ}$$

2. Sebanyak 12,8 gram naftalena ($C_{10}H_8$), zat yang berbau tajam dan biasa digunakan untuk mengusir ngengat, dibakar dalam kalorimeter bom. Dari hasil pengamatan, suhu air dalam kalorimeter naik sebesar $5^{\circ}C$. Jika kapasitas kalor kalorimeter adalah $10,17 \text{ kJ}/^{\circ}C$, tentukanlah perubahan entalpi pada reaksi tersebut! (Massa molar $C_{10}H_8 = 128 \text{ g/mol}$)

$$\text{Mol } C_{10}H_8 = \frac{\text{Massa}}{\text{Massa molar}} = \frac{\quad}{\quad} = \quad \text{mol}$$

$$\begin{aligned} q_{\text{reaksi}} &= - (q_{\text{larutan}} + q_{\text{kalorimeter}}) \\ &= - (m \cdot c \cdot \Delta T + C \cdot \Delta T) \\ &= \underline{\hspace{2cm}} \\ &= \underline{\hspace{2cm}} \end{aligned}$$

$$\Delta H = \frac{q}{\text{mol}}$$

$$\Delta H = \frac{\quad}{\quad} = \quad \text{kJ}$$