

D. Aplikasi

- Ke dalam kalorimeter sederhana direaksikan 25 mL larutan H_2SO_4 0,5 M dan 25 mL KOH 1 M pada suhu $23,5^\circ\text{C}$. Ternyata suhunya naik menjadi $30,17^\circ\text{C}$. Hitunglah perubahan entalpi reaksi yang terjadi. (Anggaplah bahwa massa jenis larutan 1 g/mL dan kalor jenis larutan $4,2 \text{ J/gK}$).

$$\begin{aligned} \text{Massa H}_2\text{SO}_4 &= \underline{\hspace{2cm}} \\ &= \underline{\hspace{1cm}} \times \underline{\hspace{1cm}} \\ &= \underline{\hspace{2cm}} \end{aligned}$$

$$\begin{aligned} \text{Massa KOH} &= \underline{\hspace{2cm}} \\ &= \underline{\hspace{1cm}} \times \underline{\hspace{1cm}} \\ &= \underline{\hspace{2cm}} \end{aligned}$$

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

$$\begin{aligned} q_{\text{larutan}} &= \underline{\hspace{2cm}} \\ &= \underline{\hspace{1cm}} \times \underline{\hspace{1cm}} \times \underline{\hspace{1cm}} \\ &= \underline{\hspace{2cm}} \end{aligned}$$



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

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

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

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

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

2. Suatu kalorimeter bom berisi 250 mL air yang suhunya mencapai 25°C, kemudian dibakar 0,16 gram gas metana. Suhu tertinggi yang dicapai air dalam kalorimeter bom adalah 35°C. Jika kapasitas kalor kalorimeter itu = 75 J/°C dan kalor jenis air = 4,2 J/g°C. Berapakah nilai perubahan entalpi pembakaran gas metana? (Ar C = 12, H = 1)

$$\begin{aligned}
 q_{\text{kalorimeter}} &= \underline{\hspace{2cm}} \\
 &= \underline{\hspace{1cm}} \times \underline{\hspace{1cm}} \\
 &= \underline{\hspace{2cm}}
 \end{aligned}$$

$$\begin{aligned}
 q_{\text{larutan}} &= \underline{\hspace{2cm}} \\
 &= \underline{\hspace{1cm}} \times \underline{\hspace{1cm}} \times \underline{\hspace{1cm}} \\
 &= \underline{\hspace{2cm}}
 \end{aligned}$$

$$q_{\text{reaksi}} = - (\underline{\hspace{1cm}} + \underline{\hspace{1cm}}) = \underline{\hspace{2cm}}$$

$$\text{Mol} = \underline{\hspace{1cm}} = \underline{\hspace{1cm}} = \underline{\hspace{1cm}} \text{ mol}$$

$$\Delta H = \underline{\hspace{1cm}}$$

$$\Delta H = \underline{\hspace{1cm}} = \underline{\hspace{1cm}} \text{ kJ}$$