1. When a 12.8-g sample of KCl dissolves in 75.0 g of water in a calorimeter, the temperature drops from 31.0 °C to 21.6 °C. Calculate ΔH for the process

\[ \text{KCl (s)} \rightarrow \text{K}^+ (aq) + \text{Cl}^- (aq) \quad \Delta H = ? \]

6. What is the final temperature of the solution formed when 1.52 g of NaOH is added to 35.5 g of water at 20.1 °C in a calorimeter?

\[ \text{NaOH (s)} \rightarrow \text{Na}^+ (aq) + \text{OH}^- (aq) \quad \Delta H = -44.5 \text{ kJ/mol} \]

2. What is the final temperature of the solution formed when 0.75 g of KMnO\(_4\) is added to 85.5 g of water at 13.2 °C in a calorimeter?

\[ \text{KMnO}_4 (s) \rightarrow \text{K}^+ (aq) + \text{MnO}_4^- (aq) \quad \Delta H = +42.1 \text{ kJ/mol} \]

7. When a 19.2-g sample of KCN dissolves in 65.0 g of water in a calorimeter, the temperature drops from 28.1 °C to 15.4 °C. Calculate ΔH for the process

\[ \text{KCN (s)} \rightarrow \text{K}^+ (aq) + \text{CN}^- (aq) \quad \Delta H = ? \]

3. When a 25.7-g sample of NaI dissolves in 80.0 g of water in a calorimeter, the temperature rises from 20.5 °C to 24.4 °C. Calculate ΔH for the process

\[ \text{NaI (s)} \rightarrow \text{Na}^+ (aq) + \Gamma (aq) \quad \Delta H = ? \]

8. What is the final temperature of the solution formed when 6.85 g of Ba(OH)\(_2\) is added to 15.5 g of water at 17.1 °C in a calorimeter?

\[ \text{Ba(OH)}_2 (s) \rightarrow \text{Ba}^{2+} (aq) + 2\text{OH}^- (aq) \quad \Delta H = +12.9 \text{ kJ/mol} \]

4. What is the final temperature of the solution formed when 1.45 g of KOH is added to 42.8 g of water at 17.2 °C in a calorimeter?

\[ \text{KOH(s)} \rightarrow \text{K}^+ (aq) + \text{OH}^- (aq) \quad \Delta H = -56.3 \text{ kJ/mol} \]

9. When a 28.7-g sample of KI is dissolved in 60.0 g of water in a calorimeter, the temperature drops from 27.2 °C to 13.2 °C. Calculate ΔH for the process

\[ \text{KI (s)} \rightarrow \text{K}^+ (aq) + \Gamma (aq) \quad \Delta H = ? \]

5. When a 16.9-g sample of NaOH dissolves in 70.0 g of water in a calorimeter, the temperature rises from 22.4 °C to 86.6 °C. Calculate ΔH for the process

\[ \text{NaOH (s)} \rightarrow \text{Na}^+ (aq) + \text{OH}^- (aq) \quad \Delta H = ? \]

10. What is the final temperature of the solution formed when 1.05 g of NH\(_4\)Cl is added to 18.5 g of water at 24.7 °C in a calorimeter?

\[ \text{NH}_4\text{Cl (s)} \rightarrow \text{NH}_4^+ (aq) + \text{Cl}^- (aq) \quad \Delta H = +14.5 \text{ kJ/mol} \]