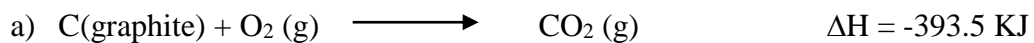


4) A 500.0 mL sample of 0.500 M NaOH at 20.00 °C is mixed with an equal volume of 0.500 M HCl at the same temperature in a foam cup calorimeter. The temperature rises to 23.21 °C. What is the ΔH of the reaction? (Ans: -53.5 KJ/mol)

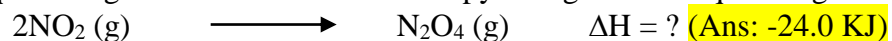
5) A 1.50 g sample of NH_4NO_3 (s) is added to 35.0 g of water in a foam cup calorimeter and stirred until dissolved. The temperature of the solution drops from 22.7 to 19.4 °C. What is the heat of solution of the NH_4NO_3 ? (Ans: +27 KJ/mol)

6) Use the equations given to calculate the enthalpy change for the equation given below.
 $2\text{C}(\text{graphite}) + \text{O}_2(\text{g}) \longrightarrow 2\text{CO}(\text{g}) \quad \Delta H = ?$ (Ans: -221.0 KJ)

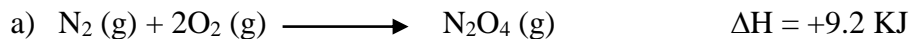
Given:



7) Use the equations given to calculate the enthalpy change for the equation given below.



Given:



8) Use the standard enthalpies of formation given below to calculate the standard enthalpy change for the following reactions.

(ΔH_f° in KJ/mol: $\text{Al}_2\text{O}_3 = -1676$, $\text{Al}(\text{OH})_3 = -1276$, $\text{H}_2\text{O} = -285.8$; $\text{C}_2\text{N}_2 = 308.9$, $\text{CO}_2 = -393.5$)

