

Heat absorbed by calorimeter

$$q = C \cdot (\Delta T)$$

$$q = 4.886 \text{ kJ/}^\circ\text{C} \cdot (37.6^\circ\text{C} - 25^\circ\text{C})$$

$$q = +61.6 \text{ kJ absorbed by calorimeter}$$

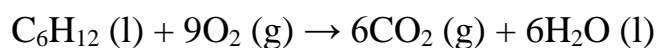
so therefore $q = -61.6 \text{ kJ}$ for heat released from combustion of C_6H_{12}

and per mole

$$\text{Heat evolved} = (-61.6 \text{ kJ} / 0.502 \text{ g } \text{C}_6\text{H}_{12}) / (84 \text{ g/mol})$$

$$\Delta U = -10.31 \times 10^3 \text{ kJ/mol of } \text{C}_6\text{H}_{12}$$

Reaction



$$\Delta U = -10.31 \times 10^3 \text{ kJ/mol}$$

Next section will show that if the same amount of gas is on reactant and product side then $\Delta U = \Delta H$ so for above $\Delta H = -10.31 \times 10^3 \text{ kJ/mol}$.