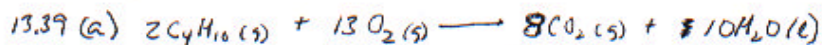


$$\Delta H^\circ = \left(-393.5 \frac{\text{kJ}}{\text{mole}} \times 3 \text{ mole} \right) + \left(-285.8 \frac{\text{kJ}}{\text{mole}} \times 4 \right)$$

$$- \left\{ -103.5 \frac{\text{kJ}}{\text{mol}} + \left(0 \frac{\text{kJ}}{\text{mol}} \times 5 \right) \right\} = -2219.8 \text{ kJ/mole}$$

(b) convert moles into grams:

$$-2219.8 \frac{\text{kJ}}{\text{mole C}_3\text{H}_8} \times \frac{1 \text{ mole C}_3\text{H}_8}{44.097 \text{ g}} \times 1.00 \text{ g C}_3\text{H}_8 = -50.3 \text{ kJ}$$



$$\Delta H^\circ = \left(\left(-393.5 \frac{\text{kJ}}{\text{mole}} \times 8 \right) + \left(-285.8 \frac{\text{kJ}}{\text{mole}} \times 10 \right) \right)$$

$$- \left(\left(-124.7 \frac{\text{kJ}}{\text{mole}} \times 2 \right) - \left(0 \frac{\text{kJ}}{\text{mole}} \times 13 \text{ mole} \right) \right) = -2878.3 \text{ kJ}$$

(b) convert moles into grams:

$$-2878.3 \frac{\text{kJ}}{\text{mole}} \times \frac{1 \text{ mole C}_4\text{H}_{10}}{58.12 \text{ g}} \times 1.00 \text{ g C}_4\text{H}_{10} = -49.5 \text{ kJ}$$

(c) propane (C₃H₈) yields more energy/gram