

Answer on Question#65036 – Chemistry – General chemistry

Question: For a certain process at 27°C, $\Delta G = +210.6 \text{ kJ}$ and $\Delta H = -168.2 \text{ kJ}$. What is the entropy change for this process at this temperature? Express your answer in the form, $\Delta S = \text{_____ J/K}$.

Solution:

$$27^\circ\text{C} = (273.15 + 27) \text{ K} = 300.15 \text{ K}$$

$$\Delta G = \Delta H - T\Delta S$$

$$\Delta S = \frac{\Delta H - \Delta G}{T} = \frac{-168.2 \text{ kJ} - 210.6 \text{ kJ}}{300.15 \text{ K}} = -1.262 \frac{\text{kJ}}{\text{K}} = -1262 \frac{\text{J}}{\text{K}}$$

Answer: $-1262 \frac{\text{J}}{\text{K}}$.

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