



$$\Delta G = \Delta H - T \Delta S = 85,000 \text{ J/mol} - (298 \text{ K} \cdot 24 \text{ J/mol K})$$
$$\Delta G = 77,800 \text{ J/mol} = 77.8 \frac{\text{kJ}}{\text{mol}} \quad \underbrace{\hspace{10em}}_{7,152 \text{ J/mol}}$$

○ spontaneous  $\Delta G$  - negative

$$k = e^{-\frac{\Delta G}{RT}}$$

$$k = e^{-\frac{77,800 \text{ J/mol}}{8.314 \frac{\text{J}}{\text{mol K}} \cdot 298 \text{ K}}}$$

$$k = 2.31 \times 10^{-14}$$