

AT Equilibrium  $\Delta G = 0$

$\Delta G = \Delta H - T\Delta S$   
 $0 = \Delta H - T\Delta S$



Temp?

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

(9)  $\Delta G = n \sum \text{prod} - n \sum \text{react}$   
 $= [-175] - [68 + -229]$   
 $= -14 \text{ kJ/mole}$

⊖ Spont

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

⊖ = Smaller — Bigger

Spont.

High T

(14)  $\Delta G = \Delta H - T \Delta S$  — LARGE

⊖ ↔ ⊕

Q = 137 —  $\frac{T}{KJ}$  (0.120)  $\frac{KJ}{KJ}$

⊖ T

$$(19) \Delta G^\circ = -RT \ln K$$

$$26 = -(8.314 \times 10^{-3})(298) \ln K$$

$$\ln K = -10.5$$

$$K = 2.75 \times 10^{-5}$$

$$\Delta G = n \cdot F \cdot \text{pot} - n \cdot F \cdot E_{\text{red}}$$

$$= [7 + 2(-1.91)] - 9.43$$

$$= 26$$

$$(20) \Delta G = \Delta H - T \Delta S$$

$$-121 = -151 - 298(\Delta S)$$

$$\Delta S = 0.101 \text{ kJ}$$

Spont. change  
 $\Delta G = \alpha$

$$0 = \Delta H - T \Delta S$$

$$\alpha = -151 - T(0.101)$$

$$T = 1495 \text{ K}$$