

15.25 (b) $3.6 \times 10^{-5} \frac{\text{mol Ag}^+}{\text{L}} \times 0.10 \text{ L} = 3.6 \times 10^{-6} \text{ mol Ag}^+$

(c) $6.6 \times 10^{-6} \frac{\text{mol Ag}^+}{\text{L}} \times 0.10 \text{ L} = 6.6 \times 10^{-7} \text{ mol Ag}^+$

15.27

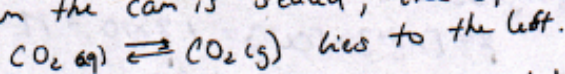
ΔH° (kJ/mol)	ΔS° (J/mol·K)	ΔG° (kJ/mol)	K	Spontaneous?	
KCl	16.9	76.4	-6.0	> 1	yes
AgCl	65.5	33.0	55.7	<< 1	no
$\text{Cd}(\text{OH})_2$	-17.6	-158.1	29.5	<< 1	no

15.28 $\Delta G^\circ = -RT \ln K \quad \Rightarrow \quad K = \exp\left(-\frac{\Delta G^\circ}{RT}\right)$, so

AgCl: $K_{sp} = \exp\left[\frac{-55700 \text{ J mol}^{-1}}{(8.3145 \text{ J mol}^{-1} \text{ K}^{-1})(298 \text{ K})}\right] = 1.7 \times 10^{-10}$

$\text{Cd}(\text{OH})_2$: $K_{sp} = \exp\left[\frac{-29500 \text{ J mol}^{-1}}{(8.3145 \text{ J mol}^{-1} \text{ K}^{-1})(298 \text{ K})}\right] = 6.8 \times 10^{-6}$

15.33 when the can is sealed, the equilibrium:



A sudden reduction of CO_2 pressure drives the reaction to the right.