Answer on Question #73422 - Chemistry - General Chemistry

Question:

Complete this statement. ΔG = ΔG° when

Answer:

ΔG = ΔG° when the ratio of standard state Q_0 and real Q concentrations equal to 1.

For the chemical reaction:

$$aA + bB = cC + dD$$

$$\Delta G = \Delta G^{\circ} + 2.3RTlog(Q/Q_0)$$

$$Q = \frac{C_C^c \cdot C_D^d}{C_A^a \cdot C_B^b}$$

$$Q_0 = \frac{(C_C^0)^c \cdot (C_D^0)^d}{(C_A^0)^a \cdot (C_B^0)^b}$$

Usually $Q_0 = 1$, and log of ratio determines by the quantity Q. But if this quantity is equal to 1 also, then $Q_0 = \ Q = 1$.