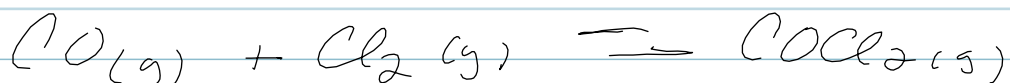


Chm 262

If the ^{equiv} conc. of COCl_2 & Cl_2 are the same at 395°C . Find the equiv conc. of CO in the reaction



$$K_c = 1.2 \times 10^3 \text{ at } 395^\circ\text{C}$$

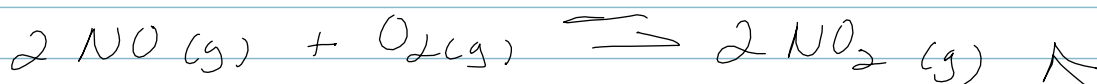
$$K_c = \frac{[\text{COCl}_2]}{[\text{CO}][\text{Cl}_2]} = 1.2 \times 10^3$$

$$K_c = \frac{1}{[\text{Cl}_2]} = 1.2 \times 10^3$$

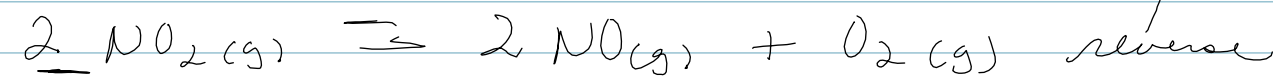
$[\text{Cl}_2]$
molar conc.

$$[\text{Cl}_2] = \frac{1}{1.2 \times 10^3} =$$

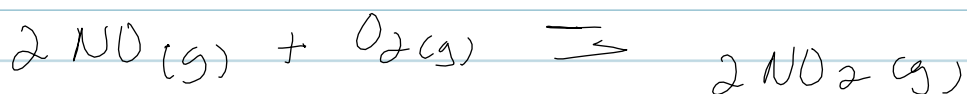
$$8.3 \times 10^{-4} \text{ M}$$



$$K_c = 4.67 \times 10^{13} \text{ at } 298 \text{ K}$$

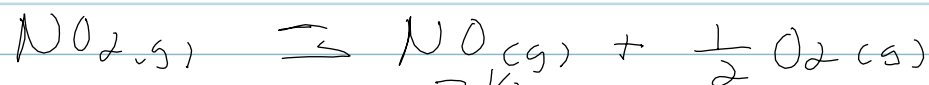


$$K' = \frac{1}{K_c} = \frac{1}{4.67 \times 10^{13}} = 2.14 \times 10^{-14}$$

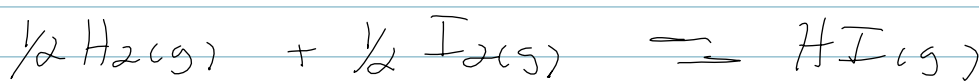


$$K_c = 4.67 \times 10^{13} \quad (298 \text{ K})$$

Consider

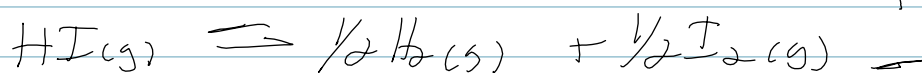


$$K'_c ? \left[\frac{1}{K_c} \right]^{\frac{1}{2}} = \sqrt{2.14 \times 10^{-14}} = 1.46 \times 10^{-7}$$



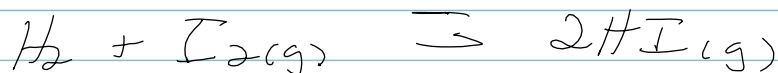
$$K = 7.07 \quad \text{at } 718 \text{ K}$$

a) What is K_c for

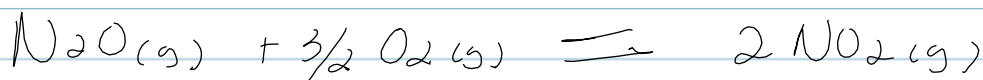
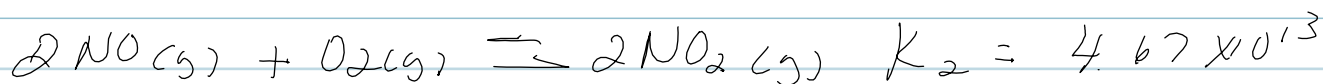
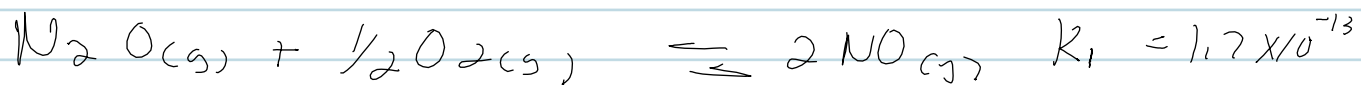
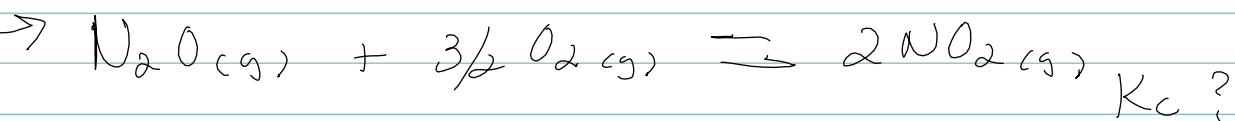


$$K'_c = \frac{1}{K_c} = \frac{1}{7.07} = 0.14$$

b) What is K''_c for



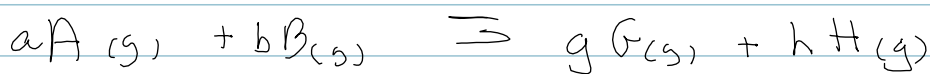
$$K''_c = (K)^2 = 50.0$$



$$K_c = K_1 K_2 = \underline{7.94}$$

$$\frac{[\text{NO}]^2}{[\text{N}_2\text{O}][\text{O}_2]^{1/2}} \times \frac{[\text{NO}_2]^2}{[\text{NO}]^2[\text{O}_2]}$$

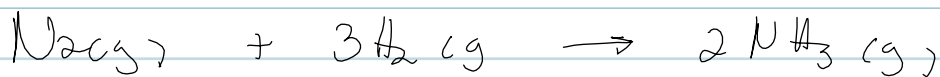
$$K_c = \frac{[\text{NO}_2]^2}{[\text{N}_2\text{O}][\text{O}_2]^{1/2}}$$



$$K_p = \frac{P_G^g P_H^h}{P_A^a P_B^b}$$

$$K_c \neq K_p \Rightarrow K_p = K_c (RT)^{\Delta n}$$

Δn = mols gas products - mols of reactant products



$$K_c = 6.0 \times 10^{-2} \text{ at } 773\text{K}$$

What is K_p ?

$$K_p = K_c (RT)^{\Delta n}$$

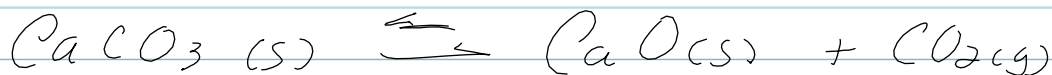
$$\Delta n = 2 - 4 = -2$$

$$K_p = 6.0 \times 10^{-2} \left(0.0821 \frac{\text{L} \cdot \text{atm}}{\text{mol} \cdot \text{K}} \times 773\text{K} \right)^{-2}$$

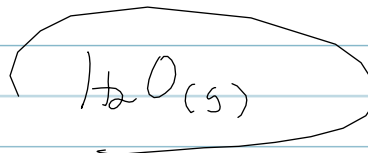
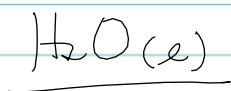
$$K_p = 1.5 \times 10^{-5}$$

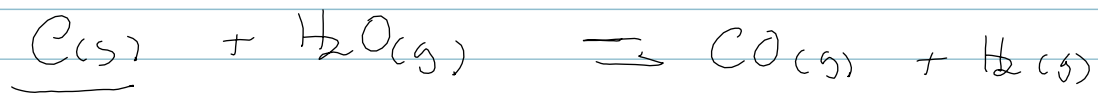
$$K_c = \frac{K_p}{(RT)^{\Delta n}}$$

Pure liquids Pure solids



$$K_c = [\text{CO}_2]$$





$$K_c = \frac{[CO][H_2]}{[H_2O]}$$

$$K \gg 1 \quad \Rightarrow$$

$$K \gg 1$$