

Chapter 6

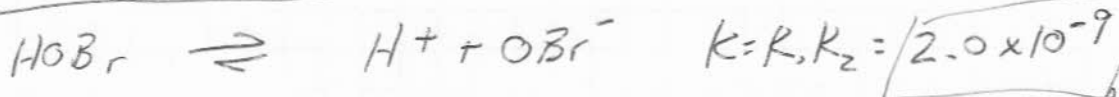
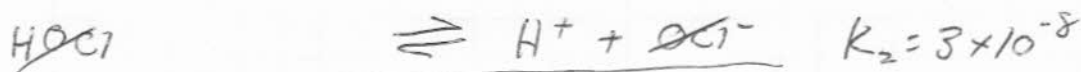
② All terms in an equilibrium expression are divided by their standard state. Therefore, all units have been cancelled and the equilibrium constant has no dimensions

③ Gibbs free energy and LeChâtelier's principle can only be used to predict whether a reaction will proceed toward reactants or products, which is a thermodynamic property. They cannot say anything about the speed of the reaction, which is kinetics.

④ a.
$$\frac{1}{[\text{Ag}^+]^3 [\text{PO}_4^{3-}]} = K$$

b.
$$\frac{(P_{\text{CO}_2})^6}{(P_{\text{O}_2})^{15/2}} = K$$

⑥ ~~HOBr~~



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a. right ~~to~~
 - to minimize pressure

b. right
 - remove product

c. neither
 - as long as graphite is not the limiting reagent

d. right
 - to minimize pressure

e. becomes smaller
 - exothermic reaction

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$$\frac{[x]}{P_x} = K_h$$

$$K_h = 1.71 \frac{M}{\text{bar}}$$

$$P_x = ?$$

$$P_x = \frac{[x]}{K_h}$$

$$[x] = 100 \text{ ppm} = \frac{100 \frac{\mu\text{g}}{\text{mL}}}{10^6 \frac{\mu\text{g}}{\text{g}}} \cdot \frac{8}{88.15 \text{ g}}$$

$$= \frac{1.13 \times 10^{-3} M}{1.71 M/\text{bar}}$$

$$= 6.61 \times 10^{-4} \text{ bar}$$

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$$\left| \frac{1000 \mu\text{g}}{\text{L}} \right| = 1.13 \times 10^{-3} M$$

$$= 0.661 \text{ mbar}$$