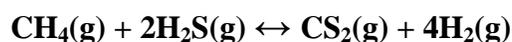


Le Chatelier's Principle Worksheet

- 1) For the reaction below, which change would cause the equilibrium to shift to the right?



- (a) Decrease the concentration of dihydrogen sulfide.
 - (b) Increase the pressure on the system.
 - (c) Increase the temperature of the system.
 - (d) Increase the concentration of carbon disulfide.
 - (e) Decrease the concentration of methane.
- 2) What would happen to the position of the equilibrium when the following changes are made to the equilibrium system below?

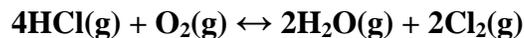


- (a) Sulfur dioxide is added to the system.
 - (b) Sulfur trioxide is removed from the system.
 - (c) Oxygen is added to the system.
- 3) What would happen to the position of the equilibrium when the following changes are made to the reaction below?

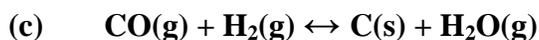
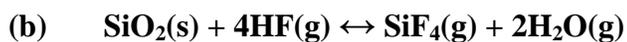
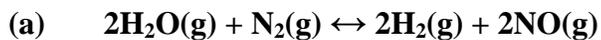


- (a) HgO is added to the system.
- (b) The pressure on the system increases.

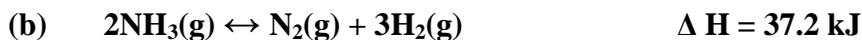
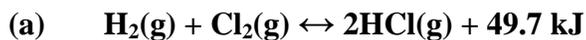
- 4) When the volume of the following mixture of gases is increased, what will be the effect on the equilibrium position?



- 5) Predict the effect of decreasing the volume of the container for each equilibrium.



- 6) Predict the effect of decreasing the temperature on the position of the following equilibria.



Solutions

- 1) **c, increase the temperature of the system because a decrease in temperature favors the exothermic reaction.**

- 2)
 - (a) **Shifts left to counteract the increased concentration of $\text{SO}_2(\text{g})$.**
 - (b) **Shifts left to counteract the decrease in concentration of $\text{SO}_3(\text{g})$.**
 - (c) **Shifts left to counteract the increase in concentration of $\text{O}_2(\text{g})$.**

- 3)
 - (a) **No shift because pure liquids and solids have no effect on the equilibrium position.**
 - (b) **Shifts left to decrease the number of moles of gas.**

- 4) **Shifts left to increase the number of gas molecules.**

- 5)
 - (a) **Shifts left to produce fewer number of gas molecules.**
 - (b) **Shifts right to produce fewer number of moles of gas.**
 - (c) **Shifts right to produce fewer number of moles of gas.**

- 6)
 - (a) **Shifts right because an increase in temperature favors the endothermic reaction.**
 - (b) **Shifts left to counteract the decrease in temperature.**
 - (c) **Shifts left because an increase in temperature favors the endothermic reaction.**