

Le Chatelier's Principal continued - notes #50

4. The effect of adding a catalyst

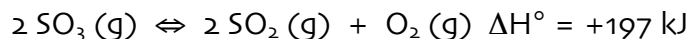
- Draw an energy diagram that shows the effect of a catalyst

What does a catalyst do?

How does it affect the K value?

Example 1:

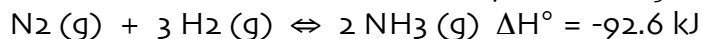
What will happen to the # of moles of SO_3 in equilibrium with SO_2 and O_2 in the following reaction?



- A) Add O_2 gas.
- B) Increase pressure by reducing the volume
- C) Increase pressure by adding argon gas
- D) Decrease the temperature
- E) Add a catalyst
- F) Remove gaseous sulfur dioxide

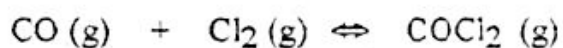
Example 2:

Name five things that a chemist could do to maximize their yield of NH_3 .

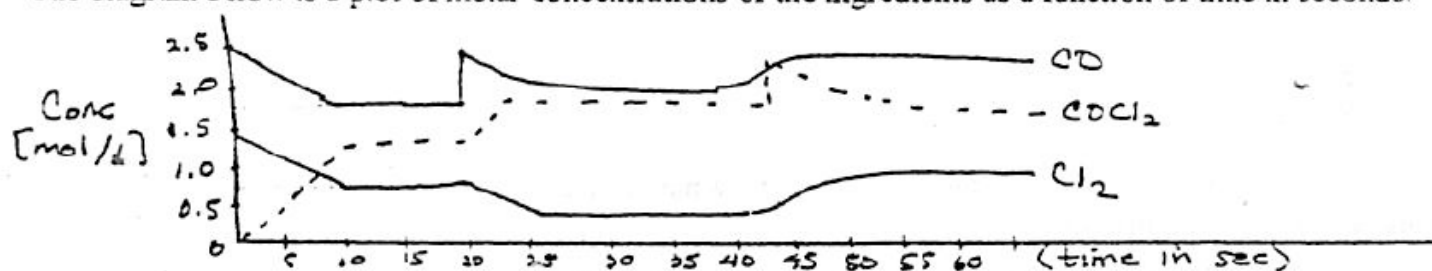


- 1.
- 2.
- 3.
- 4.
- 5.

EX3: Consider the reaction:



The diagram below is a plot of molar concentrations of the ingredients as a function of time in seconds.



A) How much time was required for the system to reach its first equilibrium?

B) Explain what happened 20 seconds after the initiation of the reaction?

C) What is K_c at $t = 17$ seconds?

D) How does that rate of the forward reaction compare to the rate of the reverse reaction from $t = 45$ to $t = 50$ seconds?