

Lesson 172: Le Chatelier's Principle/Keg Notes Chemistry with Lab

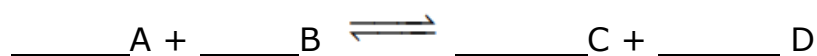
A reaction in which the _____ can react to form the _____ is called a _____ reaction.



Chemical _____ occurs when the _____ in a _____ reaction form the _____ at the same _____ that _____ form _____.

At equilibrium:

- the _____ of the reactants and products does not _____
- the concentration of reactants can be _____ to, _____, or _____ the concentration of the products.



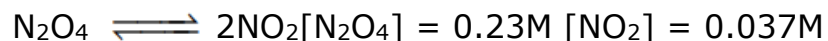
$$K_{eq} = \frac{[]^c []^d}{[]^a []^b}$$

If K_{eq} is...	... reaction is favored
= 1	neither
<1	
>1	

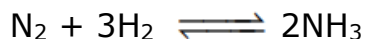
Lesson 172: Le Chatelier's Principle/Keg (cont.)

Chemistry with Lab

Ex. #1: Calculate K_{eq} for the following reaction using the given equilibrium concentrations. Then determine whether the forward or reverse reaction is favored.



Ex. #2: Calculate K_{eq} for the following reaction using the given equilibrium concentrations.



$[\text{N}_2] =$ _____ $[\text{H}_2] =$ _____ $[\text{NH}_3] =$ _____

The _____ reaction is favored.

LeChatelier's Principle:

When a _____ is applied to a system in a state of equilibrium, the system reacts in a way to _____ the stress.

Lesson 172: Le Chatelier's Principle/Keg (cont.)

Chemistry with Lab

Stress	System Will Shift
addition of a chemical	
removal of a chemical	
increase in temperature	
decrease in temperature	
*increase in pressure	
*decrease in pressure	
addition of a catalyst	

*applies to reactions involving gases only

examples: $\text{N}_2(g) + 3\text{H}_2(g) \rightleftharpoons 2\text{NH}_3(g) + \text{heat}$

- When H_2 is added to the system, the reaction shifts to the _____ to use up the extra H_2 . The amount of _____ produced will increase.
- What if _____ is removed? The reaction shifts to the _____ trying to replenish the N_2 .
- When the temperature increases, the reaction shifts to the _____.
- When the pressure of the system increases, the reaction shifts to the _____, toward the side with _____ particles.
- When a catalyst is added, there will be _____.

Lesson 172: Le Chatelier's Principle/Keg (cont.)

Chemistry with Lab

When a system in equilibrium...

shifts:	[products]	[reactants]
to the right		
to the left		

The Chemistry Quiz

CR1. _____ CR2. _____ 1. _____ 2. _____ 3. _____

4. _____ 5. _____