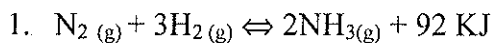
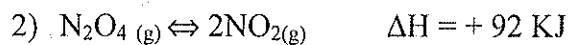


LeChatelier's Principle

Describe the changes that occur after each stress is applied to the equilibrium.



Stress	[N ₂]	[H ₂]	[NH ₃]	Shifts Right or Left	Shifts to the Reactants or Products
a) [N ₂] is increased					
b) [H ₂] is increased					
c) [NH ₃] is increased					
d) Temp is increased					
e) [N ₂] is decreased					
f) [H ₂] is decreased					
g) [NH ₃] is decreased					
h) Temp is decreased					
i) A catalyst is added					

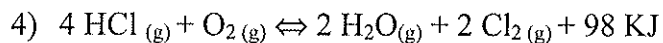


Stress	[N ₂ O ₄]	[NO ₂]	Shift Right or Left	Favors Reactants or Product
a) [N ₂ O ₄] is increased				
b) Temp is increased				
c) [NO ₂] is increased				
d) [N ₂ O ₄] is decreased				
e) [NO ₂] is decreased				
f) Temp is decreased				
g) A catalyst is added				



Note : Adding solids or liquids and removing solids or liquids does not shift the equilibrium. This is because you cannot change the concentration of a pure liquid or solid as they are 100% pure. It is only a concentration change that will change the # of collisions and hence shift the equilibrium.

Stress	[CaCO ₃]	[CaO]	[CO ₂]	Shift Right or Left	Favors Reactants or Product
1. CaCO ₃ is added					
2. CaO is added					
3. CO ₂ is added					
4. Temp is decreased					
5. A catalyst is added					
6. [CO ₂] is decreased					
7. Temp is increased					
8. CaO is removed					



Stress	[HCl]	[O ₂]	[H ₂ O]	[Cl ₂]	Shift Right or Left	Favors Reactants or Product
1. [HCl] is increased						
2. [H ₂ O] is increased						
3. [O ₂] is increased						
4. Temp is increased						
5. [H ₂ O] is decreased						
6. [HCl] is decreased						
7. [O ₂] is decreased						
8. Temp is decreased						
9. A catalyst is added						