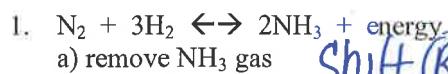


Le Chatelier's Principle – Chapter 18

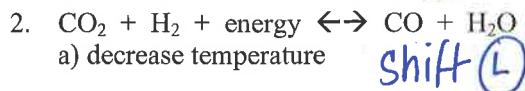
Name _____

Key

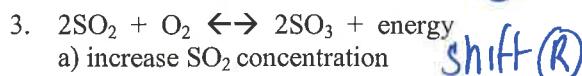
For the following gaseous equilibrium reactions, indicate what happens to the equilibrium position (shift to the right or left) when the indicated stress or condition change occurs.
 Assume all molecules are gases & remember energy is equal to heat.



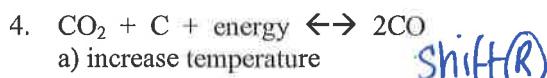
b) decrease pressure shift (L)



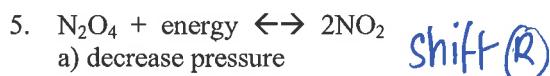
b) add a catalyst no Δ



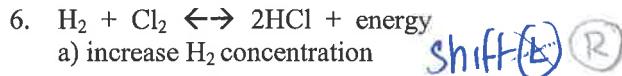
b) increase temperature shift (L)



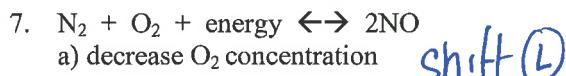
b) increase CO concentration shift (L)



b) remove N_2O_4 shift (L)



b) increase pressure no Δ b/c same # moles on each side



b) add a catalyst no Δ

Use the following equations to complete the tables below with respect to the desired item – how does the stress effect concentration, pressure, and temperature. Assume all molecules are gases.



Concentration

What are the resulting concentrations?

R E S U L T S

Equation	Stress	Shift, Left or Right?	Increase	Decrease
1	increase N_2	(R)	$[NH_3]$, heat	$[N_2]$, $[H_2]$
2	decrease H_2	(L)	$[H_2]$, $[I_2]$	$[HI]$, heat
3	increase O_2 decrease NO_2	(R)	$[NO_2]$, heat	$[NO]$, $[O_2]$

Pressure

R E S U L T S

Equation	Stress	Shift, Left or Right?	Increase	Decrease
1	increase	(R)	$[NH_3]$, heat	$[N_2]$, $[H_2]$
	decrease	(L)		
2	increase or decrease	no Δ	no Δ	no Δ
	increase	(R)	$[NO_2]$, heat	$[NO]$, $[O_2]$
3	decrease	(L)		

Temperature

R E S U L T S

Equation	Stress	Shift, Left or Right?	Increase	Decrease
1	increase	(L)	$[N_2]$, $[H_2]$	$[NH_3]$, heat
	decrease	(R)		
2	increase	(L)	$[H_2]$, $[I_2]$	$[HI]$, heat
	decrease	(R)		
3	increase	(L)	$[NO]$, $[O_2]$	$[NO_2]$, heat
	decrease	(R)		