|  |  |
| --- | --- |
| **#1** | **N2O4 (g)  <--------> 2NO2(g) ΔH = + 92 KJ** |
| **The Stress** | **Right or Left** | **[N2O4]** | **[NO2]** | **Temperature** |
| [N2O4] is increased | **R** | skip | **INCR** | **DECR** |
| [NO2] is increased | **L** | **INCR** | skip | **INCR** |
| Temp is increased | **R** | **DECR** | **INCR** | skip |
| [N2O4] is decreased | **L** | skip | **DECR** | **INCR** |
| [H2] is decreased | **NO AFFECT** | **NO AFFECT** | **NO AFFECT** | **NO AFFECT** |
| [NO2] is decreased | **R** | **DECR** | skip | **DECR** |
| Temp is decreased | **L** | **INCR** | **DECR** | skip |
| **#2** | **4HCl (g)  + O2 (g) <--------> 2H2O(g) + 2Cl2 (g) + 98 KJ** |
| **The Stress** | **Right or Left** | **[HCl]** | **[O2]**  | **[H2O]** | **Temperature** |
| [HCl] is increased | **R** | skip | **DECR** | **INCR** | **INCR** |
| [H2O] is increased | **L** | **INCR** | **INCR** | skip | **DECR** |
| [O2] is increased | **R** | **DECR** | skip | **INCR** | **INCR** |
| Temp is increased | **L** | **INCR** | **INCR** | **DECR** | skip |
| **#3** | **CaCO3 (s) + 170 KJ <----------> CaO (s) + CO2 (g)**Reminder: 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. |
| **The Stress** | **Right or Left** | **[CO2]** | **Temperature** |
| CaCO3 is added | **NO CHANGE** | **NO CHANGE** | **NO CHANGE** |
| CaO is added | **NO CHANGE** | **NO CHANGE** | **NO CHANGE** |
| CO2 is added | **L** | skip | **INCR** |
| Temp is decreased | **L** | **DECR** | skip |
| A catalyst is added | **NO CHANGE** | **NO CHANGE** | **NO CHANGE** |
| [CO2] is decreased | **R** | skip | **DECR** |
| Temp is increased | **R** | **INCR** | skip |
| CaO is removed | **NO CHANGE** | **NO CHANGE** | **NO CHANGE** |