|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **#1** | **N2O4 (g)  <--------> 2NO2(g) ΔH = + 92 KJ** | | | | | | | | | | |
| **The Stress** | | **Right or Left** | | **[N2O4]** | | | **[NO2]** | | | **Temperature** | |
| [N2O4] is increased | |  | | skip | | |  | | |  | |
| [NO2] is increased | |  | |  | | | skip | | |  | |
| Temp is increased | |  | |  | | |  | | | skip | |
| [N2O4] is decreased | |  | | skip | | |  | | |  | |
| [H2] is decreased | |  | |  | | |  | | |  | |
| [NO2] is decreased | |  | |  | | | skip | | |  | |
| Temp is decreased | |  | |  | | |  | | | skip | |
| **#2** | **4HCl (g)  + O2 (g) <--------> 2H2O(g) + 2Cl2 (g) + 98 KJ** | | | | | | | | | | |
| **The Stress** | | **Right or Left** | **[HCl]** | | | **[O2]** | | **[H2O]** | | | **Temperature** |
| [HCl] is increased | |  | skip | | |  | |  | | |  |
| [H2O] is increased | |  |  | | |  | | skip | | |  |
| [O2] is increased | |  |  | | | skip | |  | | |  |
| Temp is increased | |  |  | | |  | |  | | | 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 | |  | | |  | | | |  | | |
| CaO is added | |  | | |  | | | |  | | |
| CO2 is added | |  | | | skip | | | |  | | |
| Temp is decreased | |  | | |  | | | | skip | | |
| A catalyst is added | |  | | |  | | | |  | | |
| [CO2] is decreased | |  | | | skip | | | |  | | |
| Temp is increased | |  | | |  | | | | skip | | |
| CaO is removed | |  | | |  | | | |  | | |