

Equilibrium Problem Chart

Q#	Equation	Stressor	Shift Left or Right?	* Changes?
1	$N_2(g) + O_2(g) \rightleftharpoons 2 NO(g)$ \rightleftharpoons	$\uparrow [N_2]$	R	$[NO] \uparrow$ $[O_2] \downarrow$ } $[N_2] \uparrow$
2	$H_2(g) + I_2(g) \rightleftharpoons 2 HI(g)$ \leftarrow	$\uparrow [HI]$	L	$[H_2] \uparrow$ $[I_2] \uparrow$ } $[HI] \uparrow$
3	$CO(g) + H_2O(g) \rightleftharpoons CO_2(g) + H_2(g)$ \rightleftharpoons	$\downarrow [H_2]$	R	$[CO_2] \uparrow$ $[H_2O] \downarrow$ $[CO] \downarrow$ } $[H_2] \downarrow$
4	$2 SO_2(g) + O_2(g) \rightleftharpoons 2 SO_3(g)$ 3 molecules \rightleftharpoons 2 molecules	\uparrow total pressure	R	$[SO_3] \uparrow$ $[SO_2] \downarrow$ $[O_2] \downarrow$
5	$3 O_2(g) \rightleftharpoons 2 O_3(g)$ 3 molec \leftarrow 2 molec	\downarrow total pressure	L	$[O_2] \uparrow$ $[O_3] \downarrow$
6	$H_2O_2(l) \rightleftharpoons H_2O(l) + O_2(g)$ * \leftarrow	$\uparrow [H_2O_2]$ LIQ...	no change	no change (CNC)
7	$CO(g) + 2 H_2(g) \rightleftharpoons CH_3OH(g)$	Add argon gas	no change	no change
8	$CH_4(g) + 2 O_2(g) \rightleftharpoons CO_2(g) + 2 H_2O(g)$ $\Delta H = -5 kJ$ $\xrightarrow{+heat}$	$\uparrow T$	L	$[CH_4] \uparrow$ $[CO_2] \downarrow$ $[O_2] \uparrow$ $[H_2O] \downarrow$

\leftarrow exo \rightarrow + endo