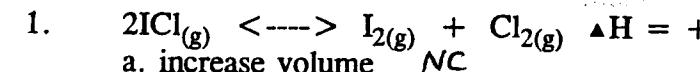


Equilibrium #3b

Describe the effect of the changes on each equilibrium.

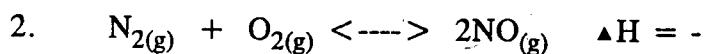


a. increase volume NC

b. decrease temperature \leftarrow

c. increase partial pressure of $\text{I}_{2(\text{g})}$ \leftarrow

d. effect of c. on $\text{Cl}_{2(\text{g})}$ concentration \downarrow

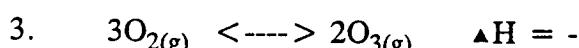


a. decrease volume NC

b. increase temperature \leftarrow

c. increase partial pressure of $\text{O}_{2(\text{g})}$ \rightarrow

d. effect of c. on $\text{N}_{2(\text{g})}$ concentration \downarrow

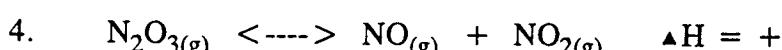


a. decrease volume \rightarrow

b. increase temperature \leftarrow

c. increase partial pressure of $\text{O}_{2(\text{g})}$ \rightarrow

d. effect of c. on $\text{O}_{3(\text{g})}$ concentration \uparrow

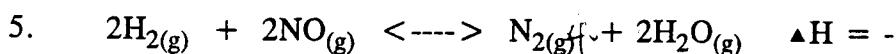


a. increase volume \rightarrow

b. decrease temperature \leftarrow

c. increase partial pressure of $\text{NO}_{2(\text{g})}$ \leftarrow

d. effect of c. on $\text{NO}_{(\text{g})}$ concentration \downarrow



a. decrease volume \rightarrow

b. increase temperature \leftarrow

c. increase partial pressure of $\text{N}_{2(\text{g})}$ \leftarrow

d. effect of c. on $\text{NO}_{(\text{g})}$ concentration \uparrow

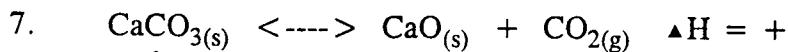


a. increase volume \leftarrow

b. increase $[\text{H}^+]$ (decrease pH) \leftarrow

c. add more $\text{Bi}_2\text{S}_{3(\text{s})}$ NC

d. add NaOH \rightarrow



a. decrease volume \leftarrow

b. add $\text{Ar}_{(\text{g})}$ at constant volume NC

c. add $\text{Ar}_{(\text{g})}$ at constant pressure \rightarrow

d. add a catalyst NC

Key

\rightarrow denotes shift to products

\leftarrow denotes shift to reactants

\uparrow denotes increase

\downarrow denotes decrease

NC denotes no change

8. $\text{CaC}_{2(\text{s})} + 2\text{H}_2\text{O}_{(\text{l})} \rightleftharpoons \text{C}_2\text{H}_2_{(\text{g})} + \text{Ca(OH)}_{2(\text{s})} \Delta H = +$
 a. add more water NC
 b. increase pressure by changing volume ←
 c. add more $\text{CaC}_{2(\text{s})}$ NC
 d. heat up the mixture →
9. $\text{C}_6\text{H}_{6(\text{l})} + \text{Br}_{2(\text{l})} \rightleftharpoons \text{C}_6\text{H}_5\text{Br}_{(\text{l})} + \text{HBr}_{(\text{g})} \Delta H = +$
 a. add more $\text{C}_6\text{H}_5\text{Br}_{(\text{l})}$ ←
 b. decrease pressure by changing volume →
 c. increase the temperature →
 d. add a catalyst NC
10. $\text{Cu}_{(\text{s})} + 2\text{Ag}^+_{(\text{aq})} \rightleftharpoons \text{Cu}^{2+}_{(\text{aq})} + 2\text{Ag}_{(\text{s})}$
 a. add more $\text{Cu}_{(\text{s})}$ NC
 b. add some HCl ←
 c. add some $\text{Cu}(\text{NO}_3)_2$ ←
 d. add more $\text{Ag}_{(\text{s})}$ NC
11. $4\text{NH}_3_{(\text{g})} + 5\text{O}_{2(\text{g})} \rightleftharpoons 6\text{H}_2\text{O}_{(\text{g})} + 4\text{NO}_{(\text{g})} \Delta H = +$
 a. increase the partial pressure of $\text{NO}_{(\text{g})}$ ←
 b. decrease the temperature ←
 c. add $\text{Ne}_{(\text{g})}$ at constant pressure →
 d. add $\text{Ne}_{(\text{g})}$ at constant volume NC
12. $\text{H}_{2(\text{g})} + \frac{1}{2}\text{O}_{2(\text{g})} \rightleftharpoons \text{H}_2\text{O}_{(\text{l})} \Delta H = -$
 a. add $\text{H}_2\text{O}_{(\text{l})}$ NC
 b. decrease the partial pressure of $\text{O}_{2(\text{g})}$ ←
 c. increase the temperature ←
 d. decrease the volume →
13. $\text{CO}_{(\text{g})} + \frac{1}{2}\text{O}_{2(\text{g})} \rightleftharpoons \text{CO}_{2(\text{g})} \Delta H = -$
 a. add $\text{CO}_{2(\text{g})}$ ←
 b. decrease the partial pressure of $\text{O}_{2(\text{g})}$ ←
 c. increase the temperature ←
 d. decrease the volume →
14. $\text{I}_{2(\text{s})} + \text{Cl}_{2(\text{g})} \rightleftharpoons 2\text{ICl}_{(\text{g})} \Delta H = -$ ↗
 a. add $\text{Cl}_{2(\text{g})}$ →
 b. decrease the partial pressure of $\text{I}_{2(\text{g})}$ ←
 c. increase the temperature ←
 d. decrease the volume NC