

LeChateliers's Principle: Summary

A change in any of the factors that determine the equilibrium conditions of a system will cause the system to change in such a manner as to reduce or counteract the effect of the change.

| Factor that Changes | Direction of the Change | Direction to Restore Equilibrium |
|--|---------------------------------------|----------------------------------|
| 1. Concentration | ↑ Reactant | Forward |
| | ↑ Product | Reverse |
| 2. Temperature | ↑ T, when $\Delta H > 0$ | Forward – K increases |
| | ↑ T, when $\Delta H < 0$ | Reverse – K decreases |
| 3. Volume | ↑ V, when $\Delta n_{\text{gas}} > 0$ | Forward |
| | ↑ V, when $\Delta n_{\text{gas}} = 0$ | No effect |
| A change in volume impacts gas pressure. An increase in volume reduces pressure. | ↑ V, when $\Delta n_{\text{gas}} < 0$ | Reverse |

If you reverse any of the Changes above, the **Direction to reach Equilibrium** reverses