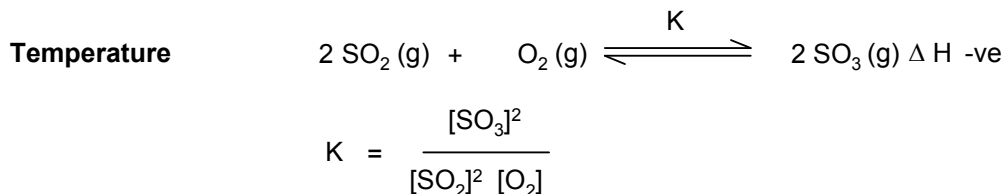


The Equilibrium Constant, K



When the temperature is increased, the equilibrium moves to the left hand side. The concentration of SO_3 goes down, and the concentrations of SO_2 and O_2 go up. Therefore, K decreases.

*K is a constant at a given temperature.
When the temperature changes, K changes.*

***in the case of pressure and concentration, K remains constant,
and the concentrations of the SO_3 , SO_2 and O_2 vary***

Pressure When the pressure is increased, the concentrations of all the molecules will increase. This is because the same number of molecules will now be in a smaller volume.

When the concentration of all three species increase, the expression

$$\frac{[\text{SO}_3]^2}{[\text{SO}_2]^2 [\text{O}_2]} \text{ becomes smaller.}$$

To counteract this, the equilibrium moves such that the concentration of SO_3 increases and the concentrations of SO_2 and O_2 decrease.

*i.e. the equilibrium moves to form more SO_3
K remains constant*

Concentration If the concentration of SO_2 is increased, the expression

$$\frac{[\text{SO}_3]^2}{[\text{SO}_2]^2 [\text{O}_2]} \text{ becomes smaller.}$$

Therefore, reactions take place such that the amount of SO_2 is decreased and the amount of SO_3 is increased.

*i.e. the formation of SO_3 is favoured
K remains constant*