

chemical equilibrium

Reversible processes [processes which may be made to proceed in the forward or reverse direction by the (infinitesimal) change of one variable], ultimately reach a point where the rates in both directions are identical, so that the system gives the appearance of having a static composition at which the Gibbs energy, G , is a minimum. At equilibrium the sum of the chemical potentials of the reactants equals that of the products, so that:

$$\Delta G_r = \Delta G_r^{\circ} + R T \ln K = 0$$

$$\Delta G_r^{\circ} = -R T \ln K$$

The equilibrium constant, K , is given by the mass-law effect.

Source:

PAC, 1994, 66, 1077 (*Glossary of terms used in physical organic chemistry (IUPAC Recommendations 1994)*) on page 1114