

15.2 Entropy and spontaneity

Understandings:

- Entropy (S) refers to the distribution of available energy among the particles. The more ways the energy can be distributed the higher the entropy.
- Gibbs free energy (G) relates the energy that can be obtained from a chemical reaction to the change in enthalpy (ΔH), change in entropy (ΔS), and absolute temperature (T).
- Entropy of gas > liquid > solid under same conditions.

Applications and skills:

- Prediction of whether a change will result in an increase or decrease in entropy by considering the states of the reactants and products.
- Calculation of entropy changes (ΔS) from given standard entropy values (S°).
- Application of $\Delta G^\circ = \Delta H^\circ - T\Delta S^\circ$ in predicting spontaneity and calculation of various conditions of enthalpy and temperature that will affect this.
- Relation of ΔG to position of equilibrium.