

TOPIC IV DEFINITIONS SOLID-SOLUTION EQUILIBRIA

Activity - the “effective concentration” of an ion in the presence of an electrolyte

Chelate - a coordination complex in which more than one atom of a ligand binds to the metal.

Compatible Pairs - minerals that can coexist in equilibrium.

Enthalpy of formation - the enthalpy change occurring when a compound is formed from its elements, $H^{\circ}f$. Elements in their standard states have $H^{\circ}f = 0$.

Endothermic - heat transfer is in the direction surroundings \rightarrow system.

Enthalpy - (H) heat transferred into or out of a system at constant pressure.

Enthalpy change - the heat energy transferred at constant pressure.

Entropy - (S) measure of the disorder of a system.

Exothermic - heat transfer is in the direction system \rightarrow surroundings.

First law of thermodynamics - the law of conservation of energy. $E = q + w$. The change in the energy of a system is equal to the heat transferred to the system plus the work done on the system.

Free Energy - (G) thermodynamic state function relating enthalpy, temperature, and entropy.

Ionic strength - is a measure of the total electrolyte concentration.

Ligand - the molecules or ions bonded to a central metal atom in a coordination complex.

Second law of thermodynamics - states that the combined entropy of the system and its surroundings (the entropy of the universe) always increases in a spontaneous process.

Third law of thermodynamics - the entropy of a pure, perfectly ordered crystalline substance is 0 at zero kelvin

State Function - a quantity for which the change in value is determined only by the initial and final states of the system.

Surroundings - the rest of the universe exclusive of the system.

System - the part of the universe (the specific atoms, molecules, or ions) under study.

