

Key Terms

Thermochemistry

kinetic energy - The energy possessed by a body because of its motion, equal to one half the mass of the body times the square of its speed.

potential energy - The energy of a particle or system of particles derived from position, or condition, rather than motion. A raised weight, coiled spring, or charged battery has potential energy.

heat - A form of energy associated with the motion of atoms or molecules and capable of being transmitted through solid and fluid media by conduction, through fluid media by convection, and through empty space by radiation.

temperature - A measure of the average kinetic energy of the particles in a sample of matter, expressed in terms of units or degrees designated on a standard scale.

system - Any set of interrelated parts. An *open system* allows mass and energy to circulate into and out of it; a *closed system* gives and receives energy but not mass.

surroundings - Everything outside the thermodynamic system.

specific heat capacity - Quantity of heat required to increase temperature of a body by one degree Celsius.

phase diagram - A graph showing the pressures at which phase transitions between different states of a pure compound occur, as a function of temperature.

heat of fusion - The amount of heat required to convert a unit mass of a solid at its melting point into a liquid without an increase in temperature.

heat of vaporization - The amount of heat required to convert a unit mass of a liquid at its boiling point into vapor without an increase in temperature.

endothermic - Characterized by or causing the absorption of heat.

exothermic - Denoting a chemical reaction that releases heat into its surroundings.

activated complex - An energetically excited state which is intermediate between reactants and products in a chemical reaction. Also known as transition state.

activation energy - The energy, in excess over the ground state, which must be added to an atomic or molecular system to allow a particular process to take place.

heating curve - A heating curve is a graph showing how a substance's phases (gas, liquid or solid) change while being heated.

absolute zero - The theoretical temperature at which substances possess no thermal energy, equal to -273.15°C or -459.67°F or 0 K .