Heat | Notes

Definitions

Thermometric property: Property that changes measurably with temperature

Triple point of water: Point at which water can remain in equilibrium in its liquid, gaseous and solid states

Absolute zero: -273 K

Brownian motion: Rapid, random motion of particles

Real gas: Is a gas that does not behave like an ideal gas due to reactions with different gas molecules

Ideal gas: One that obeys all the gas laws at all temperatures and pressures.

Charles law: Sates that the volume of a fixed mass of gas at constant pressure is directly proportional to its temperature measured on the kelvin scale.

Boyles law: States that the pressure of a fixed mass of gas at constant temperature is inversely proportional to its volume.

Endothermic Reaction: Heat taken in from the surroundings

Exothermic reaction: heat given out to the surroundings.

Assumptions of the kinetic theory of gases: Particles are in constant motion, Particles collide with one another, No forces of attraction between particles

Temperature: Measure of how hot or cold an object is.

Heat of combustion: Heat change when one mole of a substance is burned is excess oxygen

Heat of solution: Heat change when one mole of a substance is dissolved is excess solution

Heat of reaction: Heat change when

Hess's law: The heat change of a reaction is independent of the path taken and depends only on the initial and final states.

Heat of formation: Heat change taken place one mole of a substance is formed from its elements in their standard state

Formulas to Remember

Charles Law: $\frac{\mathbf{P_1V_1}}{\mathbf{T_1}} = \frac{\mathbf{P_2V_2}}{\mathbf{T_2}}$

Gas Law: $\boldsymbol{Pv = nRT}$

P= Pressure V=Volume n=No. of Moles R=Gas Constant T=Temp

Temperature: $\boldsymbol{\theta = \left[\frac{Y_\theta - Y_0}{Y_{100} - Y_0} x100\right]}$

$Y_\theta = Height\ at\ \theta°C$ $Y_0 = Height\ at\ 0°C$ $Y_{100} = Height\ at\ 100°C$