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Photodynamics

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Abstract

Energy can be different forms such as heat, light, radiant and electricity etc. but in chemistry, till now only two energy is being used – heat and light. In this research paper, I made some conclusion on how light energy affect chemistry, how it affect the system and energy of the system (internal energy U and gibbs energy G).

U = hv +w(on it) ---(eq 1)

h = planck's constant

v = frequency

U = internal energy

H = U +W(by it)

H = Enthaply of the system

H = hv + w(on it) – w(by it)

If w(on it) = 0 due to isolated surrounding or some boundary.

H = hv – w(by it)

Del H = h*del v – del w(by it) ---eq(2)

Eq(2) tells the total energy present in the system(in the particles or atoms of the system)

Theory – in light dependent reaction light provides energy to atoms to do some works such as overcoming repulsion force to form bond (Activation energy). In same way, in system and surrounding, light can be the energy

Del H = h2 – h1 = h(v2 – v1) – Del w(by it)

Del H = h(c/λ2 – c/λ1) – del w(by it)

If del w(by it) << h*del v, we can neglect it.

Then ,

Del H = hc(1/λ2 – 1/λ1)

$H \propto 1/\lambda$

Conclusion – Enthalpy or energy present in the system is inversely proportional to wavelength of the light falling on it.