

## Solvent Effect on activation parameter For Kinetics Reaction of dipolar protic solvent of base catalised hydrolysis of propyl hexanoate in aqueous solvent system



A.K. Singh

Teerthanker Mahaveer University, India

### Abstract

The solvent effect of dipolar protic solvent on propyl hexanoate are investigated in water-propanol solvent system of different composition and different temperature ranging from 20 to 40°C. The specific rate constant values of the reaction was found to decrease with gradual addition of propanol in reaction media. Enhancement in numerical values of free energy of activation ( $\Delta G^\ddagger$ ) with simultaneous increase in enthalpy of activation ( $\Delta H^\ddagger$ ) and entropy of activation ( $\Delta S^\ddagger$ ) of reaction reveals that propanol acts as entropy inhibitor and enthalpy stimulator solvent. The iso-kinetic temperature of reaction was evaluated to be 332.52 which are greater than 300. Reveals that there is strong and appreciable solvent-solute interaction in reaction media.

Introduction: Solvent effect is most rationalized term of solvent polarity in different solvent media which attribute the sum of solvent-solute interaction, specific and nonspecific solvation and its dielectric behavior of different solvent system. Many workers [1-6] have published recently on the rationalized of solvent effect in different solvent system which is some time fail and sometime succeed. In order to investigate further how for the thermodynamic properties of aqueous solvent binary system are reflected in the kinetic parameter, I report the result of hydrolysis of propyl hexanoate in water-propanol solvent system which plays very active use in alcoholic beverage and also used as solvent for polar organic compound.

Keyword: Enthalpy of Activation, Entropy of activation, Free energy of activation, Solvent effect, solvent-solute interaction, Iso-kinetic temperature, specific and non-specific solvation.

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