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Density, Viscosity and Ultrasonic Velocity Studies of Aqueous Sodium-Propionate at Different Temperatures

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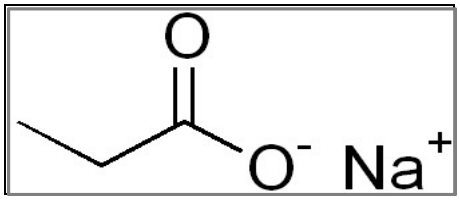
ABSTRACT

Propionate is short chain fatty acid (SCFA) which improves physiological and pathophysiological properties. In the present investigation, the mixture of the sodium propionate and water is carried out as a function of volume concentration. The density(ρ),viscosity(η) and ultrasonic velocity (u) of aqueous solution of sodium propionate of binary liquid mixtures (0.01 to 1.0) mol.kg^{-1} have been measured at different temperature range (298.15,303.15,308.15) K. The experimentally measured values have been used to calculate relaxation time(τ), acoustic impedance(Z), classical absorption(α/f^2)$_{cl}$, is entropic compressibility(K_s), apparent molal volume (ϕ_v) and apparent molal isentropic compressibility (ϕ_{ks}). The present study confirms that sodium propionate is water structure maker.

Graphical Abstract



Sodium propionate.

Keywords: Density, Viscosity, Ultrasonic velocity, Sodium propionate, Molecular interactions.