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Application of Speed of Sound Relations to Binary System at Different Temperatures

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ABSTRACT

Speed of sound and density of the binary liquid mixtures of anisaldehyde with nonanol have been measured at temperatures 303.15 K, 308.15 K, 313.15 K and 318.15 K over the entire mole fraction range. The theoretical values of ultrasonic velocity were evaluated using Nomoto's relation (U_N), ideal mixing relation (U_{imx}), impedance relation (U_{Imp}), Rao's specific velocity relation (U_R) and Jungie's relation (U_J). The molecular interaction parameter (χ) has been evaluated from the experimental and theoretical velocity values. The variation of this interaction parameter with the mole fraction has been discussed in terms of molecular interactions.

Keywords: Anisaldehyde, alcohols, Nomoto's relation, Junjie's relation, Impedance relation.