

Acoustical Study of Intermolecular association in ternary liquid mixtures containing DEE

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Abstract. The ultrasonic velocity, density and viscosity have been measured for the liquid mixtures of DEE with *n*-butanol, *i*-butanol, *t*-butanol and CCl_4 at 303K. The experimental datas have been used to calculate the acoustical parameters such as adiabatic compressibility (β), Intermolecular free length (L_f), Free volume (V_f), Acoustic impedance (z), Internal pressure (π_i) and available volume (V_a). The excess values of some of the above parameters are calculated and fitted to Redlich-Kister equation. The results are interpreted in terms of molecular interactions present in the ternary mixture prepared at different concentration of the components. The negative deviation of all the parameters in the ternary mixture contains DEE + *n*-butanol + CCl_4 was found to be more indicating strong dipole-induced stock dipole-dipole type of interaction between the molecules of the ternary mixture.

Keywords. Adiabatic compressibility, Free length, Free volume Acoustic impedance, Internal pressure, Excess values.

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