

## Synergistic behaviour in binary mixtures of DEHPA and MIBK - an acoustic study

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**Abstract.** Density ( $\rho$ ), viscosity ( $\eta$ ) and ultrasonic velocity ( $U$ ) of binary mixture of methyl isobutyl ketone (MIBK) and di-(2-ethyl hexyl) phosphoric acid (DEHPA) including those of pure liquids were measured over the entire composition range of DEHPA at 303.15K and 0.1Mpa. The deviations of isentropic compressibility,  $\Delta\beta_s$ , intermolecular free length,  $\Delta L_f$ , viscosity,  $\Delta\eta$ , ultrasonic velocity,  $\Delta U$ , acoustic impedance,  $\Delta Z$ , excess molar volume,  $V^E$  and excess Gibb's energy of activation of viscous flow,  $\Delta G^E$  have been calculated using experimentally measured values of  $\rho$ ,  $\eta$  and  $U$ . The results have been discussed in terms of molecular interactions between unlike molecules of the studied binary mixture.

**Keywords:** Density, viscosity, ultrasonic velocity, binary mixture, deviation function, molecular interaction

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