

Physicochemical investigation of 1-hexyl-3-methylimidazolium bis (trifluoromethylsulfonyl) imide [hmim][Tf2N] + N-methyldiethanolamine (MDEA) binary mixtures at T= 303.15, 313.15 and 323.15 K

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Ionic liquids and aqueous amine are well known solvents for post combustion CO₂ capture and natural gas processing. Therefore, a significant amount of work has been carried out regarding the investigation of their physicochemical properties. Hence, in this work, physicochemical properties such as densities and dynamic viscosity for 1-butyl-3-methylimidazolium bis (trifluoromethylsulfonyl) imide + N-methyldiethanolamine (MDEA) binary mixture have been measured as functions of composition at T= 303.15, 313.15 and 323.15K and atmospheric pressure. The observed data has been utilized to evaluate the excess molar volume, V_{12}^E and were fitted to Redlich-Kister polynomial equation to predict adjustable parameters along with standard deviations. This binary mixture exhibits a temperature-dependent behavior and densities decreased linearly with temperature. Excess molar volume showed positive deviation.