



## **Interactions of 1-butyl-3-methylimidazolium bromide with isopropyl alcohol binary system: Spectroscopic and Volumetric measurements at T (303.15, 313.15 and 323.15)K**

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**Abstract:** The ionic liquid, 1-butyl-3-methylimidazolium bromide [BMIm][Br] was synthesized and characterized. Density ( $\rho$ ), viscosity ( $\eta$ ) and physicochemical properties, at 303.15, 313.15 and 323.15 K were measured over the entire range of mixture composition. These data have been used to calculate the excess volume ( $V_m^E$ ), deviations in viscosity ( $\Delta\eta$ ) and excess Gibbs free energy of activation of viscous flow ( $\Delta G^{*E}$ ). These results were fitted to the Redlich-Kister polynomial equation to derive the binary coefficients and standard deviations. The experimental and calculated quantities were used to study the nature of the intermolecular interactions between the mixture components. The viscosities were correlated with single parameter Grunberg and Nissan model, Hind model, Frenkel model and Kendall and Monroe model.

**Keywords:** Ionic Liquid, Spectroscopic, Density, Viscous flow, Viscosity, FTIR, NMR spectra.

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