

**Ternary liquid-liquid equilibria system (hexane + benzene + Ionic Liquids) for the separation of aliphatic and aromatic compound at 298.15 K**

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An important step in the petrochemical industry is the recovery of high-purity aromatic hydrocarbons from naphtha. These aromatic compounds are separated from the aliphatic hydrocarbons present in the naphtha. These compounds have close boiling points which leads to the formation of azeotropic mixtures. The conventional separation process for aromatics and aliphatic hydrocarbon mixtures are liquid-liquid extraction. The commercial solvents, Organic solvents, are basically toxic, flammable, volatile compounds and easily evaporate to atmosphere. To search more eco-friendly solvent, ionic liquid was used as solvents in this research. In the present work, liquid-liquid equilibria (LLE) data have been obtained for the system {hexane + benzene + ionic liquids} at 298.14 K and at atmospheric pressure. The experimental data were correlated through two common common GE models: the non-random two-liquid (NRTL) and universal quasi-chemical activity coefficient (UNIQUAC) models. In addition, selectivity data was also calculated.