

**Excess properties at 298.15 K for binary and ternary mixtures of ether compounds and 1-methanol(or 1-propanol) with phosphinate based ionic liquid**

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Ionic liquids (ILs) have recently been categorized as green solvents in industrial separation methods because of their extremely low vapor pressure and thermal stability. Many applications of ILs as “green solvents” that replace volatile organic compounds have been reported. Phosphonium-based ILs are usually used as industrial solvents, particularly in the field of fuel cells, catalysis, electrochemistry as well as polymer and organic synthesis. In this work, we report the excess molar volume( $V^E$ ) and deviations in molar refraction( $\Delta R$ ) data at 298.15 K under atmospheric pressure for the following binary systems: {DIPE + 1-propanol}, {TAME + methanol}, {DIPE+ trihexyltetradecylphosphoniumbis(2,4,4-trimethylpentyl)phosphinate [ $P_{666,14}$ ][TMPP]}, {TAME + [ $P_{666,14}$ ][TMPP]}, {methanol + [ $P_{666,14}$ ][TMPP]} and {1-propanol + [ $P_{666,14}$ ][TMPP]}. The experimental binary  $V^E$  and  $\Delta R$  were correlated with the Redlich-Kister polynomial. And the ternary systems from the binary contribution model of Radojkovič with correlated sub-binary Redlich-Kister parameters.