

**Excess molar volumes and refractive index for the binary and ternary systems of {dimethyl carbonate + ethanol + 2,2,4-trimethylpentane} at 298.15K**

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The addition of fuel oxygenates to gasoline raises combustion temperatures and improves engine efficiencies. The results are lower levels of carbon monoxide and unburned hydrocarbons in auto exhaust. Today, methyl tert-butyl ether (MTBE) dominates the market, but the insufficient supply of this ether and anxiety of contamination of ground water makes the interest in heavier ethers and other substitutes. Recently, environmentally friendly Dimethyl carbonate (DMC) is one of the most suitable and alternative candidate for gasoline additive. We have reported the phase equilibria and mixture properties systematically for several candidates of gasoline additive (octane booster), because the accurate data of such properties are strongly related to the processing of their compounds. In this work, excess molar volumes and refractive index at 298.15 K are reported for the binary and ternary systems of {DMC + ethanol + 2,2,4-trimethylpentane}. The excess volumes and refractive index of the binary and ternary systems were derived and correlated with the Redlich-Kister and Cibulka equation.