Prediction of physicochemical properties for jatropha biodiesel + ethan-1-ol or propan-1-ol binary mixtures at T= (288.15 -308.15K) and atmospheric pressure

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The thermophysical properties such as density (ρ) and speed of sound (υ) were measured for binary mixtures (blends) of {jatropha curcas biodiesel (1) + ethan-1-ol or propan-1-ol (2)} over whole composition range at T= (288.15-308.15 K) and atmospheric pressure, using an Anton Paar digital vibrating glass tube densimeter (model DSA 5000). The observed data has been utilized to evaluate the excess molar volume V^{E}_{12}, isentropic compressibility $(\kappa_S)_{12}$ and deviation in isentropic compressibilities $(\Delta\kappa_S)_{12}$.

These properties were fitted to Redlich –Kister polynomial equation to calculate the adjustable parameters together with standard deviation. Further, the results have been interpreted in terms of molecular interactions between biodiesel and alcohol molecules.