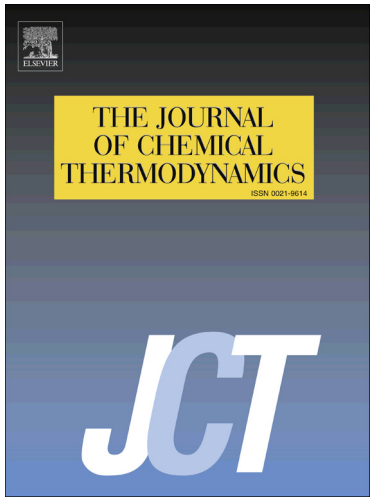

Studies on physicochemical behavior of binary mixtures containing Propanal and Alkan-2-ol

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PII: S0021-9614(17)30231-8
DOI: http://dx.doi.org/10.1016/j.jct.2017.07.004
Reference: YJCHT 5122

To appear in: *J. Chem. Thermodynamics*

Received Date: 24 December 2016
Revised Date: 26 June 2017
Accepted Date: 1 July 2017

Please cite this article as: M. Moftakhar, M. Almasi, Studies on physicochemical behavior of binary mixtures containing Propanal and Alkan-2-ol, *J. Chem. Thermodynamics* (2017), doi: http://dx.doi.org/10.1016/j.jct.2017.07.004

Studies on physicochemical behavior of binary mixtures containing Propanal and Alkan-2-ol

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ABSTRACT

In present paper, densities and viscosities of propanal, 2-propanol, 2-butanol, 2-pentanol and their binary mixtures with propanal were measured at temperatures 293.15 to 323.15 K. From these data, excess molar volumes and deviations in viscosity were calculated. Excess molar volumes are negative over the whole concentration range and increase with rising temperature. Viscosity deviations show positive values for all studied mixtures and decrease as temperature increases. The ability of SAFT and PC– SAFT equations for correlation of densities of binary mixtures and pure state was tested. The liquid density of the binary mixture was obtained accurate by both SAFT and PC– SAFT models but PC– SAFT equation is closely matched with the experimental data. Maximum AAD is 0.082% for SAFT and 0.043% for PC– SAFT model.

Keywords: Density; Viscosity; SAFT; PC-SAFT

1. Introduction

In recent years measurements of thermodynamic and transport properties have been adequately employed in understanding the nature of molecular systems and physicochemical behavior in liquid mixtures. Mass transport and heat transfer are operations directly related to bulk properties, such as density and viscosity; however the wide number of solvents used in chemistry makes it

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