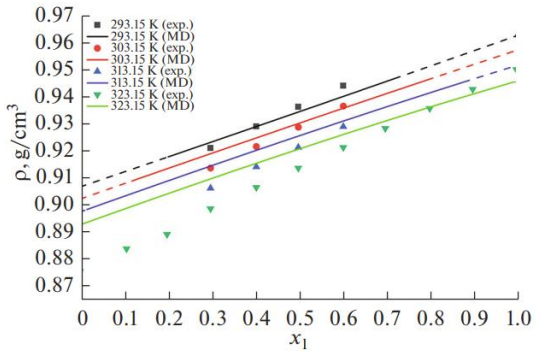
EXPERIMENTAL INVESTIGATION AND THERMODYNAMIC ANALYSIS OF VOLUMETRIC PROPERTIES OF THE THYMOL–L-MENTHOL SYSTEM

Misikov G.Kh., *Petrov A.V.*, *Toikka A.M.*
Saint Petersburg State University
198504, Saint Petersburg, Peterhof, Univeritetsky pr., 26

The thymol–L-menthol system has recently drawn increasing scientific attention as it belongs to a rather newly developed class of non-ionic deep eutectic solvents (DES), which is called Type V DES. As for the thymol-L-menthol mixture, there are some contradictory information on the thermodynamic properties and topology of the phase diagram for this mixture, e.g. [1,2], which indicates the necessity of further experimental study for more comprehensive observation.

In this work, density of thymol–L-menthol (see Fig.) and thymol/L-menthol-CCl_4 mixtures was studied in the temperature range 293.15 K – 323.15 K. The experimental results were compared with the molecular dynamics (MD) calculations. The molar excess volume was calculated for the studied mixtures to discuss deviation from ideal solution behavior. The ideal associated solution model was tested to be applied for evaluating association contribution to the non-ideality of the systems.



Experimental and calculated (MD) density for the thymol-L-menthol mixtures at 293.15 K, 303.15 K 313.15 K and 323.15 K

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