

Keynote Lecture KL 06
Kinetic viscosities prediction using ASOG-VISCO group contribution method for binary liquid mixtures
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Abstract (less than 300 words)
<p>A number of empirical correlations/ models, for the prediction of liquid mixture viscosities are available in the literature. A reliable and valid theory for the qualitative prediction of viscosities of liquid mixtures from the properties of pure components has not been established.</p> <p>Group contribution models play a vital role in the prediction of viscosity data for liquid mixtures. Some of the best known group contribution based models for the prediction of viscosities of liquid mixtures are the UNIFAC-VISCO, ASOG-VISCO and Grunberg-Nissan model. [2-4]</p> <p>In the present work, an attempt has been made for predicting the kinematic viscosities for 193 data sets of binary systems using ASOG-VISCO model based on Eyring's theory of absolute reaction rates and ASOG group contribution method. [1,5].</p> <p>Close agreement is observed between the predicted and experimental viscosities for most of the systems studied. However, it is pointed out that ASOG-VISCO group contribution models give good estimates for mixtures viscosities as compared with ASOG-VLE.</p> <p>References</p> <ol style="list-style-type: none"> 1) K. Tochigi, D. Tiegs, J. Gmehling, K. Kojima: J. Chem. Eng. Japan 23, 453-463 (1990) 2) T. Funazukuri, Y. Ishikawa, N. Wakao: AIChE J., 38, 1761-1768 (1992) 3) A. Murata, K. Tochigi, H. Yamamoto: Mol. Simulat., 15, 451-457 (2004) 4) K. Tochigi, K. Yoshino, V. K. Rattan: Int. J. Thermophys., 26, 413-419 (2004) 5) K. Tochigi, T. Okamura, V. K. Rattan: Fluid Phase Equilib., 257, 228-232 (2007) 6) H. Matsuda, K. Kurihara, K. Tochigi, T. Funazukuri, V. K. Rattan: Fluid Phase Equilib., 470, 188-192 (2018)
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