

NEW UNIFAC-VISCO PARAMETERS TO CALCULATE VISCOSITIES OF MIXTURES INVOLVING FATTY SYSTEMS.

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Data acquisition about physical properties of transport, such as viscosity, is essential for the equipment and piping design. Furthermore, it is indispensable for process optimization of biodiesel production, since these properties affect as the energy loss through friction in fluids, as the mechanisms of heat and mass transfer. Thus, this study had as objective measuring experimental data for mixtures composed of commercial fatty compounds and alcoholics solvents. These results were linked to the experimental data of viscosities of mixtures containing triacylglycerols (TAG) and fatty acids (FA), already available in the literature, for the achievement of new parameters of the UNIFAC-VISCO model, involving functional groups presented in the studied systems. The viscosities data were determined in as automatic micro viscometer AMVn (a high precision equipment from Anton Paar), which provides a direct measure of the physical property, regardless of the sample preparation. The interaction parameters between the functional groups presents in the mixtures described relatively well the viscosities of the systems studied, presenting an average relative error of 6.12%. The results showed that the UNIFAC-VISCO model is very effective to describe the viscosities of the studied mixtures. The deviations obtained in the modeling procedure can be considered relatively low, indicating that the obtained parameters can be used for the prediction of viscosities of mixtures of interest in processes involving these fatty compounds, such as the biodiesel production.

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