Sub.: **Submission of a Regular Article.**

Respected Editor,

Attached please find the original version of a manuscript entitled: **Analysis of correlation between viscosity Arrhenius parameters: Extension to ternary liquid mixtures**.

We hereby affirm that the content of this manuscript are original. Furthermore it has been **neither** published elsewhere (fully or partially) or any language **nor** submitted for publication (fully or partially) elsewhere simultaneously.

We have a previous paper published in **Fluid Phase Equilibria** entitled “**Contribution to modeling the viscosity Arrhenius-type equation for some solvents by statistical correlations analysis.**” (R. B. H.Kacem, N. Ouerfelli. J.V. Herráez, M. Guettari, H. Hamda, M. Dallel. Fluid Phase Equilibria.383 (2014) 11-20.) in which we have proposed an original equation correlating the two parameters of viscosity Arrhenius-type relationship for some pure liquids and have been cited until know more than 10 times.

In this paper, we continue our research in this axis and we investigate investigate the validity of the simplified Arrhenius-type equation for ternary fluids mixtures. The extension of the proposed equation to ternary liquid mixtures is very important since it simplifies the estimation of viscous behavior and the ensuing calculations.

Empirical validation based on several statistical tools and using 114 experimental data from the literature on viscosity for 5 ternary liquid mixtures over different temperature ranges at atmospheric pressure show that the validation of the proposed equation depends significantly on the density of liquids and is validated only for 4 studied ternary liquid mixtures.

The obtained results are very important in fluids engineering because the validation of these equations for ternary liquid mixtures simplifies the estimation of viscous behaviour and the ensuing calculations by reducing the number of viscosity equation parameters and thus facilitating manipulations. We expect that this study will be useful in large domains of applied chemistry and engineering and will open new interesting field of profitable investigations such as the study of specific groups or families of organic liquids solvents. It could also pave the way to estimate more accurate values of the equation’s parameters, when the natures of fluids are classified separately.

With regards

Yours sincerely,

Corresponding author:

Dr. Rami H. Kacem

University of Carthage, Tunisia.

[rami.bhk@isffs.rnu.tn](mailto:rami.bhk@isffs.rnu.tn)