

Review of: "Shear stress during the flow of thixotropic and rheopex suspensions"

Andrey Zubarev¹

¹ Ural Federal University

Potential competing interests: No potential competing interests to declare.

I consider this model as weakly justified and not confirmed by any experiments either computer simulations. That is why I can not recommend it for publication, at least, in the present form. The concrete comments are below.

1. The basic formula (7) has been suggested by author and is not commonly recognized. I can not judge, if it is confirmed by experiments; author does not discuss this point.
2. Formula (7) includes many parameters. Playing with them, one can get almost any curve "stress vs. shear rate". The choice of the parameters at the legend to the Figures is not justified. For example, where are the values of the " η_0 ", " $[\eta_{1,2}]$ " taken from? Why in Fig.1 $[\eta_1]=4.4$, $[\eta_2]=10$? Isn't the value " $\phi_{20}=0.8$ " in Fig.1 too much to be realistic? Indeed, in this case eq.(3) gives " $\phi_0>1$ ", what is impossible. By the way, eq.(3), for the combination " $\phi_{10}=0.5$ ", " $\phi_{20}=0.3$ " (Figs.3,4), also gives impossible value " $\phi_0>1$ ".
3. The physical reason of the obtained increase of the the suspension viscosity with the shear rate is not discussed. I can not understand it, at least, on the blue eyes.
4. Lots of experimental results for the shear thinning and shear thickening of various suspensions can be found in literature. To my mind, comparison of theoretical results with experiments is absolutely necessary to consider a model like that as physically adequate. It is not done in the present work.