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The Influence of the Concentration and Temperature on the Rheological Behavior of Carbonyl-Methylcellulose

Authors : Mohamed Rabhi, Kouider Halim Benrahou

Abstract : The rheological properties of the carbonyl-methylcellulose (CMC), of different concentrations (25000, 50000, 60000, 80000 and 100000 ppm) and different temperatures were studied. We found that the rheological behavior of all CMC solutions presents a pseudo-plastic behavior, it follows the model of Ostwald-de Waele. The objective of this work is the modeling of flow by the CMC Cross model. The Cross model gives us the variation of the viscosity according to the shear rate. This model allowed us to adjust more clearly the rheological characteristics of CMC solutions. A comparison between the Cross model and the model of Ostwald was made. Cross the model fitting parameters were determined by a numerical simulation to make an approach between the experimental curve and those given by the two models. Our study has shown that the model of Cross, describes well the flow of "CMC" for low concentrations.

Keywords : CMC, rheological modeling, Ostwald model, cross model, viscosity
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