

Modeling the Time-Dependent Rheological Behavior of Clays Used in Fabrication of Ceramic

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Abstract : Many of clays exhibited the thixotropic behavior in which, the apparent viscosity of material decreases with time of shearing at constant shear rate. The structural kinetic model (SKM) was used to characterize the thixotropic behavior of two different kinds of clays used in fabrication of ceramic. Clays selected for analysis represent the fluid and semisolid clays materials. The SKM postulates that the change in the rheological behavior is associated with shear-induced breakdown of the internal structure of the clays. This model for the structure decay with time at constant shear rate assumes nth order kinetics for the decay of the material structure with a rate constant.

Keywords : ceramic, clays, structural kinetic model, thixotropy, viscosity

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