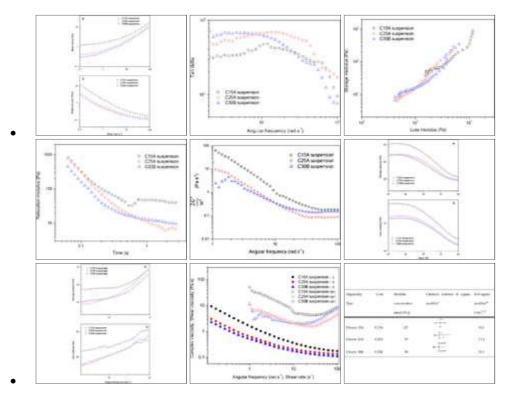
Rheology of organoclay suspension

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Abstract

We have studied the rheological properties of clay suspensions in silicone oil, where clay surfaces were modified with three different types of surfactants. Dynamic oscillation measurements showed a plateau-like behavior for all the organoclay suspensions studied, which indicated more solid-like characteristics. Shear stress results showed a non-Newtonian behavior over a wide applied shear range and increased at a high shear rate for all the organoclay suspensions. Shear-thinning behavior was observed for all the suspensions investigated. Our results exhibited that G(t), which was calculated using the Schwarzl equation, increased with increasing the degree of hydrophobicity of the surfactant used for the modification of pristine clay surface and decreased with time following a downward curve. A similar trend to that of G(t) was also observed for all the organoclay suspensions when Coleman and Markovitz relation was used.

Keywords: Clay - Suspension - Rheological property - Hydrophobicity



Images