

Rheology as a tool to characterize and control morphology of polymer blends and clay containing polymer nanocomposites

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The study of rheological properties of multiphase materials is an important tool to characterize and study the evolution of their morphology under controlled flows. In particular, the rheological characterization in the linear viscoelastic regime, which corresponds to small and slow deformations, can be used to characterize the morphology of the composite materials; the rheological characterization in the non linear viscoelastic regime, which corresponds to large and strong flows can be used to study the evolution of morphology of those materials under flow. In this work some of the results we obtained in our laboratories on the rheological behavior of polymer blends and clay containing polymer nanocomposites in in both linear and non linear viscoelastic regime are presented. Three aspects of those results are particularly presented:

Characterization of interfaces in compatibilized polymer blends using linear viscoelasticity

Morphology characterization of clay containing nanocomposites using linear viscoelasticity

Evolution of morphology of blends and clay containing nanocomposites during controlled flow.