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The Rheological Study of Multilayer Functionalized Polymers: Characterization of Interdiffusion and Reaction at Polymer/Polymer Interface

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Rheological behavior in molten state of multilayered polymers was investigated by dynamic mechanical measurements. The competition between polymer/polymer interdiffusion and interfacial reaction of functionalized polymer in a sandwich structure were followed in oscillatory mode under small amplitudes of deformation. The systems chosen for study are PEGMA/PA6, as a reactive system (RS) as PE/PA6 nonreactive (NRS) one. Experimental results are compared to several models of multiphase systems. Thus, they fit the different appearing phenomena. All these studies allow us to obtain a better handle of rotational molding process with reactive multilayered materials.