

Abstract Submitted  
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**Effect of Organoclays on Immiscible Polymer Blends** MAI HA, RAMANAN KRISHNAMOORTI, University of Houston — The effect of adding organoclays on the phase behavior, rheological properties and bulk mechanical properties of immiscible polymer blends of polystyrene (PS) and poly(methyl methacrylate) (PMMA) is investigated. Traditional organoclays, prepared using alkyl ammonium chains, display a preference to segregate to the PS phase for high PS volume fraction blends where the PS forms the continuous matrix. On the other hand, for blends with low PS volume fractions, the organoclay segregates to the interface between the PS and PMMA domains and leads to a decrease in the domain size that does not change much with organoclay concentration variations from 0.1 to 2 wt %. Linear dynamic rheological data of these samples show significant increase in the low-frequency modulus of the blends with added organoclay. A thermodynamic model for estimating the interfacial modulus is proposed and the results agree well with the interfacial modulus calculated by Palierne's emulsion model. The toughness of the blends increases at low concentrations of added organoclays with the optimal improvements observed for less than 0.5 wt % added organoclay.

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