Rheology of Non-dilute Polystyrene/Cloisite/Toluene Solutions

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have previously described a simple model of spin casting for polymer/clay nanocom-
posite films in which the viscosity of the polymer solution at low solvent concen-
tration is a critical parameter. We have therefore examined the shear dependent
viscosity of polystyrene/Cloisite-6A/toluene solutions over a wide range of weight
fractions, and for various molecular weights. The data is well described by the Car-
reau model $\eta - \eta_\infty = (\eta - \eta_0)(1 + \lambda^2 \dot{\gamma}^2)^{-N}$, where the parameters in the model show
a clear dependence on the clay/PS ratio. We will discuss the trends observed in the
viscosity data, and their impact on the uniformity of spin cast films.

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