

Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

Impact of Deuterium Substitution on the Physical Properties of Polymer Melts and Blends¹ RONALD WHITE, JANE LIPSON, Dartmouth College — We examine the effects on blend properties when one of the polymeric components is deuterated. Here we use SANS-fitted model calculations to explore the underlying physical behavior, and relate our findings to subtle effects in molecular size and energetics. A special emphasis is given to the prediction and analysis of phase behavior for polymeric mixtures (e.g. liquid-liquid partial miscibility), including a comparison of phase diagrams for several related systems. We discuss effects such as pressure and molecular weight dependence and also include an analysis of calculations in which we probe the influence of key model parameters on blend miscibility. As with our earlier studies, the results featured here involve the application of a microscopically parameterized equation of state derived from an integral equation theory for lattice-based chain molecule fluids.

¹work supported by the National Science Foundation (Grant No. DMR-0502196)

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Date submitted: 20 Nov 2008

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