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Miscibility of Polystyrene and Lighted Sulfonated Polystyrene Blends N.C. ZHOU, University of Pennsylvania, W.R. BURGHARDT, Northwestern University, R.J. COMPOSTO, K.I. WINEY, University of Pennsylvania — The blend miscibility of deuterated polystyrene (dPS) and lighted sulfonated poly(styrene-ran-sulfonated polystyrene) (P (S-SS)) has been examined by forward recoil spectrometry (FRES). Equilibrium coexistence compositions were determined for dPS:P(S-SSx) blends where x is the mole percent of sulfonation.At x = 0.2to 190C, while at x = 2.6same temperatures. Intermediate levels of sulfonation (0.7, 1.0 and 1.2solution temperature (UCST). This behavior is attributed to the dilution of repulsive intra-molecular interaction between the ionic and non-ionic groups in the copolymer due to favorable interactions with the non-ionic group of the homopolymer PS. Estimates using the Flory-Huggins and the copolymer effect theories found a large (20) positive monomer-monomer interaction parameter between styrene and styrene sulfonate. This large interaction parameter might drive phase separation within a compositionally disperse random copolymers sample.

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