Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

Chirality Effect on Flory-Huggins Interaction Parameters in Polylactide-*b*-Poly(ethylene-*co*-1-butene)-*b*-Polylactide Triblock Copolymers[1] WEIQIANG CAO, LEI ZHU, Polym. Program, Inst. of Mater. Sci. and Dept. of Chem., Mater. and Biomolecular Eng., University of Connecticut, Storrs, CT 06269-3136, LIXIA RONG, BENJAMIN S. HSIAO, Department of Chemistry, Stony Brook University, Stony Brook, NY 11794-3400 — In this work, a set of well-defined polylactide-*b*-poly(ethylene-*co*-1-butene)-*b*-polylactide (PLA-PEB-PLA) triblock copolymers were synthesized by controlled ring-opening polymerization of corresponding lactide monomers (L-lactide and racemic mixture of D- and L-lactides) using $Sn(Oct)_2$ as the catalyst. The volume fractions of PLA in the triblock copolymers were adjusted by tuning its molecular weight. The mesophase morphology and phase transitions in these triblock copolymers were studied by temperature-dependent small-angle X-ray scattering (SAXS). The Flory-Huggins interaction parameter χ between EB and lactide as a function of temperature were estimated from the order-disorder transition temperature (T_{ODT}) using the mean-field critical $(\chi N)_c$ values. The effects of PLA chirality on both Flory-Huggins interaction parameter and segmental lengths were investigated.

[1]This work was supported by ACS PRF (grant #41918-G7) and NSF CAREER Award (DMR-0348724).

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Date submitted: 23 Nov 2008 Electronic form version 1.4