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Defects in a Noncentrosymmetric Lamellar Block Copolymer Blend SHUJUN CHEN, SAMUEL P. GIDO, Dept. of Polymer Sci. and Eng., Univ. of Massachusetts, Amherst, MA 01003, THODORIS TSOUKATOS, APOSTOLOS AVGEROPOULOS, NIKOS HADJICHRISTIDIS, Dept. of Chemistry, Univ. of Athens, Panepistimiopolis, Zografou, 15771 Athens, Greece, KUNLUN HONG, JIMMY W. MAYS, Dept. of Chemistry, Univ. of Tennessee, Knoxville, TN 37996, and Chem. Sci. Div., Oak Ridge National Lab, Oak Ridge, TN 37831 — Here we report results from a defect study on the noncentrosymmetric (NCS) lamellar blend of an ABCD tetrablock copolymer and an AD diblock copolymer. The block copolymers used were polystyrene-*block*-polybutadiene-*block*-polyisoprene-*block*-polycyclohexadiene and polystyrene-*block*-polycyclohexadiene. Coexisting tetrablock-rich mixed centrosymmetric (CS) and NCS lamellar morphologies were seen in TEM, as predicted by the mean-field theory. NCS grain boundary defects similar to those in CS lamellar systems were observed as well as new defects unique to NCS layered systems, such as chain polarity reversals and kink bands with dilation or compression of the layers. In addition to morphology observations, geometrical and energetic calculations were performed on several new NCS defects, which are in good agreement with experimental results.

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