

Abstract Submitted
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Concentration and Temperature Effects on the Micellization of Block Copolymers in a Homopolymer Matrix E. PAVLOPOULOU, K. CHRISOPOULOU, S.H. ANASTASIADIS, FORTH and Univ. of Crete, Heraklion Crete, Greece, H. IATROU, N. HADJICHRISTIDIS, Univ. of Athens, Athens, Greece, G. PORTALE, W. BRAS, ESRF-DUBBLE, Grenoble, France — The micellization characteristics of a block copolymer / homopolymer blend above and near the critical micellization concentration (CMC) as well as below and near the critical micellization temperature (CMT) are measured with SAXS using a symmetric linear polystyrene-*b*-polyisoprene diblock in a low MW polyisoprene matrix. Both the core radius and the aggregation number are independent of concentration and temperature, implying that the micellar features depend only on the characteristics of the copolymer and the matrix. Just above CMC the volume fraction of micelles in the blends increases linearly with concentration, however this dependence becomes weaker as concentration further increases. The “missing” micelles are primarily attributed to additional copolymer chains that remain in the blends as unimers; that fraction increases with increasing concentration. The dissolution of micelles with temperature is manifested by a gradual decrease of the volume fraction of micelles in the blend with increasing temperature up to the CMT. Sponsored by NATO’s Scientific Affairs Division, by the Greek GSRT and by the EU.

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