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The influence of macromolecular architecture on the micellization in block copolymer/homopolymer blends E. PAVLOPOULOU, K. CHRISSOPOULOU, S.H. ANASTASIADIS[1], G. PORTALE, W. BRAS, ESRF-DUBBLE, Grenoble, France, H. IATROU, S. PISPAS[2], N. HADJICHRISTIDIS, Univ. of Athens, Greece — We investigate the micellar formation and micelle characteristics of block copolymers of varying architecture within homopolymer matrices. A series of symmetric (polyisoprene)$_n$(polystyrene)$_n$ (I_nS_n) miktoarm star block copolymers, with n identical pairs of arms, and a series of (polyisoprene)$_2$(polystyrene), I_2S, graft copolymers with constant total MW and varying composition, f_{PS}, are added to a low MW PI homopolymer matrix and the blends are investigated by small-angle X-ray and light scattering as a function of copolymer concentration and n or f_{PS}. The functionality of the junction point of the copolymer does not influence the characteristics of the I_nS_n micelles, while f_{PS} controls the behavior of the I_2S grafts. A simple thermodynamic model is developed that describes theoretically the micellization of A_nB_n copolymers within B homopolymers and its predictions agree very well with the experimental data both qualitatively and quantitatively. Sponsored by NATO's Scientific Affairs Division, by the Greek GSRT and by the EU.

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