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Adenine-Functionalized Block Copolymers via RAFT polymerization EUNSEOL KIM, AVNISH KUMAR MISHRA, K. L. VINCENT JOSEPH, JIN KON KIM, Pohang Univ of Sci Tech — Nucleobase functionalized polymers have been used in various fields because they have complementary multiple hydrogen bonding between nucleobases. However, the polymerization of these polymers is hard due to poor solubility in a solvent. In this study, adenine functionalized block copolymers, poly(9-(4-vinylbenzyl)adenine)-b-polystyrene (PVBA-b-PS), were synthesized successfully using RAFT polymerization in polar solvents and characterized by GPC and NMR. Phase behavior of PVBA-b-PS with various volume fractions of PS block (f_{PS}) was investigated via small-angle X-ray scattering and transmission electron microscopy. With increasing f_{PS} from 0.1 to 0.9, body-centered-cubic spheres (BCC), hexagonally packed cylinders (HEX), and lamellae (LAM) were observed. Interestingly, PVBA-b-PS with f_{PS} of 0.77 showed asymmetric lamellar microdomains.

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