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Transition Behavior of Hydrogen Bonding mediated Block Copolymer complex SUDHAKAR NAIDU, HYUNGJU AHN, HOYEON LEE, DU YEOL RYU, Yonsei University, YONSEI UNIVERSITY TEAM — We have investigated transition behavior for block copolymer (BCP) complexes composed of a lamella-forming polystyrene-block-poly(2-vinylpyridine) (PS-b-P2VP) and phenyl acetamide derivatives. Influence of small molecules on transition temperatures such as order-to-disorder transitions (ODT) were analyzed by by in-situ small angle x-ray scattering (SAXS) and depolarized light scattering (DPLS). The importance of the availability for H-bonding mediation to control over transition behavior for BCP mixtures with the functional molecules was shown by changing the annealing temperatures. Non-covalent interactions between the nitrogen units of P2VP block and small molecules enhances nonfavorable segmental interactions between two block components, leading to a significant increase in d-spacing for BCP mixtures.

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