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Pressure dependence of various phase transitions for the miscible block copolymer blends DU YEOL RYU, YONGHOON LEE, HOYEON LEE, YEONGSIK KIM, Yonsei University, YONSEI UNIVERSITY TEAM — The phase behaviors of block copolymer (BCP) blends composed of the weakly interacting (with no specific interaction) polystyrene-*b*-poly(*n*-butyl methacrylate) (PS-*b*-PnBMA) and deuterated polystyrene-*b*-poly(*n*-hexyl methacrylate) (dPS-*b*-PnHMA) were investigated by Small-Angle Neutron Scattering (SANS) and Depolarized Light Scattering (DPLS) measurements. The various composition-dependent phase behaviors were generated due to a miscible phase between the PnBMA and PnHMA blocks in the BCP blends. To elucidate the origin and difference in baroplasticity of weakly interacting BCP blends, the pressure dependence of transition temperatures was evaluated using enthalpic and volumetric changes at phase transitions. We also demonstrate that the entropic compressibility for the miscible BCP blends is a baroplastic indicator, which was characterized by the negative volume change on mixing (V_{mix}) at transitions.

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