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Increase of the Effective Dispersity in ARB-Type Triblock Copolymer SANGHOON WOO, HYUNJUNG JUNG, JUNE HUH, Department of Chemical and Biological Eng., Korea University, Seoul 136-713, Korea, DU YEOL RYU, Department of Chemical and Biological Eng., Yonsei University, Seoul 120-749, Korea, JOONA BANG, Department of Chemical and Biological Eng., Korea University, Seoul 136-713, Korea — The domain spacing of block copolymer (BCP) has been mainly controlled by molecular weight and block immiscibility. Instead of these traditional variables, we designed a new type of BCP, namely ARB type triBCP, where the R represents the short middle block composed of A and B random copolymer. It was expected that the R block provide the effect of increased "effective" dispersity via compositional distribution, leading to an increased domain size compared to the AB diBCP with same MW and dispersity. We prepared various ARB type triBCPs and AB diBCPs having the similar dispersity via living-radical polymerization, and their morphologies were characterized by TEM, SAXS, and GISAXS. As a result, it was shown that the ARB-type triBCP exhibited a significant increase in the domain spacing compared to the AB diBCPs with same MW and dispersity. These results were also compared with theoretical viewpoint.

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