

Abstract Submitted
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**Composition Dependence on the Closed-loop Phase Block
Copolymer by Interaction Chromatography¹**

S.W. HWANG, S. NA, D.Y. RYU, Yonsei University, D.H. LEE, J.K. KIM, S. PARK, T. CHANG, POSTECH —

In this work our attention was directed towards the closed-loop transition behavior of polystyrene-poly(*n*-pentyl methacrylate), which have a narrower distribution in molecular weight as well as in chemical composition by interaction chromatography (IC). To find how the fractionation would affect the phase behavior of PS-*b*-*n*PPMA block copolymers, the mother block copolymer (homopolymer-free) was fractionated into five fractions. The mother copolymer and five samples with different lengths of chain in PPMA blocks are obtained, namely f1, f2, f3, f4, f5 depending on elution times. The microphase transitions of copolymers were measured by rheology, X-ray scattering, birefringence. f1 and f2 showed ordered structure within experimental temperature region, (110 ~ 250), whereas f4 and f5 did disordered entirely. Although the mother sample fm gave the entire disordered state, the f3 which had similar to the molecular weight and composition of fm showed two transitions: the lower disorder-to-order transition (LDOT) and upper order- to-disorder transition (UODT) occurring at lower and higher temperature, respectively.

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Du Yeol Ryu
Yonsei University

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