

Abstract Submitted  
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**Closed-Loop Phase Behavior: Is it Universal Phenomenon for Block Copolymers with Lower Critical Transition Temperature?**<sup>1</sup> JIN KON KIM, CHAOXU LI, DONG HYUN LEE, Department of Chemical Engineering, Pohang University of Science and Technology — A closed-loop phase behaviour was found for Polystyrene-block- poly(n-pentyl methacrylate) (PS-PnPMA) copolymer having a weak interaction between two segments. On the other hand, PS-block-poly(n-butyl methacrylate) (PS-PnBMA) exhibited only lower disordered-to-ordered transition (LDOT). Then, a question might be raised: Is it possible that PS-PnBMA has the closed-loop phase behaviour, although the upper ordered-to-disordered transition (UODT) could not be detected in the experimentally accessible temperature. In this study, we clearly demonstrate that PS-PnBMA exhibits the closed-loop phase behaviour, where both LODT and UODT were measured at experimentally accessible temperatures (100 ~ 280°C) by using special solvents.

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