

Abstract Submitted
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Pressure Jump Studies of Block Copolymer Phase Transition in Selective Solvent¹ YONGSHENG LIU, RAMA BANSIL, Boston University, MILOS STEINHART, Institute of Macromolecular Chemistry, CZ Republic — Synchrotron based time-resolved small angle x-ray scattering (SAXS) was used to study the kinetics of the order-disorder transition (ODT) in a 30% (w/v) solution of a diblock copolymer of poly(styrene – isoprene) (SI 18-12) in diethylphthalate (DEP), a selective solvent for the PS block using pressure jump methods. The results show that the ODT temperature increases at about 20C/kbar with pressure. Time resolved pressure jump SAXS experiments were done to study the kinetics of disorder to BCC phase transition and the reverse transition. Pressure jump from 100 bar to 800 bar at 108 C from disordered state displayed a BCC structure at 30 seconds. Results of experiments with solvent viscosity increased by adding low molecular weight polystyrene will also be presented.

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