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Kinetics of Pressure Jump for Block Copolymer Phase Transition in Selective Solvent 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 diethyl phthalate, a selective solvent for the PS block using pressure jump methods. Time resolved pressure jump SAXS experiments were done to study the kinetics of disorder to BCC phase transition and the reverse transition. The results show that the ODT temperature increases at about 20C/kbar with pressure. Analysis of Percus-Yevik model following pressure jumps and pressure ramps will be presented. The analysis shows that core radius of micelles are independent of pressure, but hard sphere radius increases with pressure.

Yongsheng Liu

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