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Pressure Dependence of Block Copolymer Phase Transition in Selective Solvent.¹ YONGSHENG LIU, RAMA BANSIL, Boston University, MILOS STEINHART, Institute of Macromolecular Chemistry, Academy of Sciences of the Czech Republic — Synchrotron based small angle x-ray scattering (SAXS) was used to study the pressure dependence of the order-disorder transition (ODT) in a 30% (w/v) solution of a diblock copolymer of poly(styrene – isoprene) (SI 18-12, Polymer Source) in diethylphthalate (DEP), a selective solvent for the PS block. This diblock copolymer solution undergoes an order-disorder transition from the face-centered-cubic (FCC) phase to the disordered phase upon increasing the temperature. We will describe the design of the pressure instrument, sample cell and details of the experimental set up. The pressure applied to the sample is up to 0.35 GPa (3.5 kbar). The preliminary results show that the ODT temperature increases at about 20C/kbar with pressure. The spacing of the FCC lattice increases with pressure.

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