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Micellization and phase transitions in a triblock copolymer-water system ALISON HUFF, KELLY PATTON, D.T. JACOBS, The College of Wooster, Wooster OH 44691, BRYNA CLOVER, S.C. GREER, Department of Chemistry and Biochemistry, University of Maryland, College Park MD 20742 — The triblock copolymer ("unimer") of PPO-PEO-PPO (commercially known as 17R4) has hydrophobic ends and a hydrophilic center. When placed in water at lower concentrations and temperatures, only a network of unimers exists. However, at higher concentrations or temperatures, micelles of different geometries can form. We have measured the micellization line marking the transition from only unimers to some micelles, as well as a one- to two-phase transition at higher temperatures. This second transition is an Ising-like, LCST critical point. We compare our results to earlier measurements and use micelle size measurements from dynamic light scattering to interpret the interesting behavior of this system. We acknowledge the support from Research Corporation, NSF-REU grant DMR 0649112, The College of Wooster, and (for BC and SG) to the donors of the American Chemical Society Petroleum Research Fund Grant 01433212.

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