

Abstract Submitted  
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**Manipulating triblock copolymer morphology using tapered block interfaces** WEI-FAN KUAN, THOMAS H. EPPS, III, University of Delaware — Tapered block copolymers offer the opportunity to manipulate copolymer segregation strengths independently of the molecular weight and chemical constituents. This independent control allows the design of materials with designer interactions and improved mechanical properties, while retaining the desired self-assembled nanostructures. The tapered interfaces between blocks have been shown to significantly decrease the effective interaction parameters between blocks, leading to lower order-to-disorder transition temperatures relative to corresponding non-tapered block copolymers. In this work, we synthesized a series of tapered triblock copolymers using a combination of anionic polymerization, atom transfer radical polymerization, and click chemistry. Comparing the morphologies of our tapered and non-tapered triblock copolymers suggests that the phase behavior of the tapered materials can differ from the non-tapered triblock materials due to the manipulated interfacial profile.

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