

Abstract Submitted
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Thin Films of Polydimethylsiloxane-Containing Block Copolymers MAURICE WADLEY, KEVIN CAVICCHI, The University of Akron — The self-assembly of block copolymers into ordered nanostructures such as spheres, cylinders, and lamellae in the range of 10-100 nm makes them interesting materials for patterning surfaces. Thin films of poly(dimethylsiloxane) (PDMS) containing block copolymers are attractive for patterning due to their high oxygen etch resistance compared to other polymers. The main disadvantage of these polymers for patterning is the low surface tension of PDMS. This causes the preferential migration of PDMS to the air/film interface driving the formation of domains parallel to the interface and surface wetting layers. In this work a series of AB block copolymers containing PDMS have been prepared via RAFT polymerization where the surface tension of the opposing block was varied. Using a macro chain transfer approach, it is possible to isolate the effect of changing the opposing block while keeping the PDMS the same in each different block copolymer. The effect of changing the surface tension mismatch between the blocks on the thin film morphology will be discussed.

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