

Abstract Submitted
for the MAR08 Meeting of
The American Physical Society

Thin Film Morphology of Block Copolymers Containing Polydimethylsiloxane as a Function of the Surface Tension of the Opposing Block MAURICE WADLEY, KEVIN CAVICCHI, Dept. of Polymer Engineering 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 block copolymers containing poly(dimethylsiloxane) (PDMS) 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 where the surface tension of the opposing block was varied. The effect of changing the surface tension mismatch between the blocks on the thin film morphology will be discussed.

Maurice Wadley
The University of Akron

Date submitted: 27 Nov 2007

Electronic form version 1.4