

Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

Thermal analysis study of polystyrene-poly(methyl methacrylate) (PS-PMMA) diblock copolymer thin films morphologies when annealed and sheared under vacuum in inert atmosphere LUIS POMALES, MELISSA DAVILA-SANTANA, MIRNA RIVERA-CLAUDIO, JOSEE VEDRINE-PAULEUS, University of Puerto Rico at Humacao — Diblock copolymers are made of two chemically bonded blocks, with incompatible monomers. This incompatibility gives the block the property to phase separate at temperatures above the glass transition (T_g). The ability to self-assemble into different mesophase structures is of great importance in nanolithography and nanofabrication. This research involves the morphological study of PS-PMMA thin films annealed under inert atmosphere. Our objective is to determine the microstructure properties of the PS-PMMA diblock copolymer as a function of film thickness, annealing temperature, and applied shear force. The PS-PMMA thin film is spin casted onto silicon substrates, and annealed under an inert atmosphere. Our initial results show that the samples have an incomplete formation of the microstructures. However, further film analysis is needed to study the morphological properties when annealed. Futures studies will focus on the effects of a shear force during annealing, to align the film microstructures.

Luis Pomales
University of Puerto Rico at Humacao

Date submitted: 02 Dec 2010

Electronic form version 1.4