**Morphological Studies of Crystallization in Thin Films of PEO/PMMA Blends**

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Morphological development during crystallization of thin films of poly(ethylene oxide) (PEO) / poly(methyl methacrylate) (PMMA) blends has been reported. Studies focused on the effects of the blend composition, PMMA molecular weight, film thickness, and crystallization temperature on the observed crystal morphology. As the blend composition was varied from 90 to 30 wt% PEO, the crystal morphology varied from spherulites to needles and dendrites. Variation of the crystallization temperature and PMMA molecular weight resulted in similar changes in morphology. A morphological map demonstrating the roles of the -----Original M experimental controls on the observed crystal morphology has been developed. This map was used as a tool for more detailed studies of the observed morphologies and morphological transitions. The dendritic region of the map (~ 30 – 40 wt% PEO) was studied in detail, focusing on sidebranch formation and coarsening. In-situ observations of morphological transitions, such as dendrite/DBM and DBM/needle transitions, were also reported. The resultessage-----From: s of this work have helped to define new directions for the study of crystal morphologies, especially in the areas of spherulite formation and dendritic growth.

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