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Influence of Copolymer Composition on Morphology Development in Blends JAYARAMAN KRISHANMOORTHY, YOUNG GYU JEONG, TOMOKO HASHIDA, THOMAS J MCCARTHY, SHAW LING HSU, Polymer Science and Engineering Department, University of Massachusetts Amherst — Blends involving a crystallizable polyester [poly(hexamethylene adipate) (PHMA)] with an amorphous polyether has been studied. These systems have hydroxyl end groups which can react with diisocyanate in the presence of nucleophilic catalysts. These functionalized (isocyanate-terminated) polymer blends form the fundamental structure of polyurethanes. These prepolymers can then be cured at a later stage due to ambient water molecules. Thus the migration of water molecules through the morphology formed needs to be understood well. The morphology development (i.e. phase separation occurring concurrently with crystallization) of nascent polymer blends has been characterized. The morphology of functionalized polymers exhibit very different kinetics due to the presence of the small amount of copolymers formed. The ultimate morphology formed can be "tuned" by varying blend composition and crystallization conditions. The structures of prepolymers will be reported. The presence of this copolymer can significantly alter the structural transformation in either binary or ternary blends.

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