

Abstract Submitted  
for the MAR05 Meeting of  
The American Physical Society

**Effect of the Shear Rate on the Morphology Development for Compatibilized PA6/SAN25 Blends** TOSHIAKI OUGIZAWA, NAOYUKI KITAYAMA, Tokyo Institute of Technology — The effect of shear rate on the morphology development for uncompatibilized and compatibilized PA6/SAN25 blends has been studied. Two kinds of anhydride-grafted SAN25 (MAH) with different functionality were used as compatibilizers and the content of MAH was varied from 1 to 5wt %. At the composition of 50/50, the blend morphology sensitively evolves with the shear rate applied, and the transition from SAN25 phase to PA6 phase continuity via a phase inversion is observed. Adding MAH causes the shear rate where the phase inversion occurs to shift to a higher shear rate. At the compositions of 75/25 and 25/75, the dispersed particle size decreases with the increase in the shear rate applied; whereas, it grows with the further increase in the shear rate after it reaches the minimum regardless of the compatibilization. This means that once finely disperse particles aggregate and form larger dispersions under a certain shear condition. This fact contradicts to the widely believed conventional compatibilization concept, and it is speculated that the excessive energy may mechanically destroy the interfacial layer formed with reactive compatibilizers and two component polymers

Toshiaki Ougizawa  
Tokyo Institute of Technology

Date submitted: 06 Dec 2004

Electronic form version 1.4