고분자블렌드에서의 변형거동
(Deformation Behavior in Compatible Polymer Blends)

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Abstract

Deformation behavior of compatible polymer blends was studied using scanning electron, optical, and transmission electron microscopies. Four different compatible systems were employed and characterized in this investigation : polystyrene(PS) and polyphenylene oxide(PPO), polystyrene(PS) and polyvinylmethylether(PVME), polystyrene(PS) and poly α-methylstyrene(PαMS), and polyphenylene oxide(PPO) and poly α-methylstyrene(PαMS).

Individual craze and shear deformation zone microstructures were examined by transmission microscopy(TEM). For TEM observations, specimens deformed in-situ on a TEM grid were utilized. Quantitative analysis of these crazes and shear deformation zones was obtained from the microdensitometry of the TEM negatives in the manner developed by Lauterwasser and Kramer.

Microdensitometry results showed that the fibril extension ratio decreased as the PPO content increased in the PS/PPO blends, and, finally, for 100% PPO, only shear deformation zones were observed. For the PS/PVME blends, the fibril extension ratio also decreased as the PVME content increased. For the PS/PαMS blends, the fibril extension ratio increased as the PαMS content increased. For the PPO/PαMS blends, the fibril extension ratio increased as the PαMS content increased.

Reference

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