

Polymer Blend Electron Beam Irradiated Rheological Behavior

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Morphology and interfacial adhesion between phases are among the most important parameters effecting the properties and behavior of multiphase polymer blend. One of the methods used for obtaining multiphase polymer blend with ordered structure is freezing the concentration fluctuation structure developed at different stages of spinodal decomposition process in polymer blends which can be stabilized by imposing electron beam radiation crosslinking process. The PS/PVME blend exhibits a lower critical solution temperature (LCST) thermodynamic behavior i.e. phase separation upon heating. The combination of dissimilarity provides the necessary prerequisites for a unique and informative study of radiation objective of present work was to study the rheological behavior of irradiated PS/PVME blend samples at temperature above their LCST. The melt flow behavior of samples showed that irradiated samples with gel content up to 40% can be flow with a power law like melt behavior, including a matrix/disperse type morphology for these samples. From the results of relaxation time distribution ($H(\lambda)$) it was found that the PS/PVME samples which were irradiated in their single and two phase states exhibit a two phase behavior at a temperature which is irradiated samples showed that the irradiation can be induced copolymerization and/or crosslinking between two phases whose extent was found to be increased with increasing the radiation dose.