

Compatibilization of poly(ethylene oxide)/poly(styrene) blends: Effect of the molecular weight of the compatibilizer

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Abstract

The effect of the molecular weight and concentration of the compatibilizer maleic acid-alt-styrene copolymer (MAaS) on the compatibility behavior of incompatible poly(ethylene oxide)/poly(styrene) (PEO/PS) blends was studied by differential scanning calorimetry (DSC) and polarized light microscopy (PLM). PEO with $(M)_{w} = 100,000$ (PEO100) and PS with $(M)_{w} = 225,000$ (PS225) were used for this study. DSC measurements showed two T-g values that were shifted relative to those of the pure components. This result should be indicative that MAaS acts as a compatibilizer for the blend. Diminishing of the spherulitic growth rate G was observed as the content and molecular weight of MAaS increased in the blend. This result was confirmed by morphological analysis, by which it was possible to observe that the amorphous component diminished its droplike domains. Contact angle measurements suggest that the wettability of PEO drops on a PS/MAaS surface are larger in the system containing MAaS as the compatibilizer.

Palabras clave

Palabras clave de autor: [compatibilizer](#); [contact angle](#); [maleic acid-alt-styrene](#); [poly\(ethylene oxide\)](#); [poly\(styrene\)](#)

KeyWords Plus: [CRYSTALLIZATION](#); [COPOLYMER](#)

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