

Abstract Submitted
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Determination of Order-Disorder Transition of Polystyrene-block-poly(n-pentyl methacrylate) Copolymer by Temperature-dependent FTIR Spectroscopy¹ JIN KON KIM, HYE J. KIM,

Dept. of Chemical Engineering, Pohang U. of Science and Technology, YOUNG M. JUNG, SEUNG B. KIM, Dept. of Chemistry, Pohang U. of Science and Technology, DU YEOL RYU, KRISTOPHER LAVERY, THOMAS P. RUSSELL, Polymer Sci. Eng. Univ. of Mass at Amherst — The lower disorder-to-order transition (LDOT) and the upper order-to-disorder transition (UODT) temperatures of polystyrene-block-poly(n-pentyl methacrylate) (PS-PnPMA) were measured by temperature-dependent Fourier transform infrared (FTIR) spectra with principal component analysis (PCA) and two-dimensional (2D) correlation spectroscopy. These two transitions are determined from sudden changes of the intensity (A) at specific wavelength as a function of temperature. We found that when the first derivative of A with respect to temperature (dA/dT) is plotted against temperature, the maximum in dA/dT at all wavelengths was observed at these two transitions.

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