

The glass transition temperature of nitrated polystyrene/poly(acrylic acid) blends. Al-Najjar, Mohammed M.; Hamid, S. Halim; Hamad, Esam Z. Chemical Engineering Department, King Fahd University Petroleum Minerals, Dhahran, Saudi Arabia. Polymer Engineering and Science (1996), 36(16), 2083-2087. Publisher: Society of Plastics Engineers, CODEN: PYESAZ ISSN: 0032-3888. Journal written in English. CAN 125:197282 AN 1996:547002 CAPLUS (Copyright (C) 2008 ACS on SciFinder (R))

Abstract

Low-mol.-wt. polystyrene was nitrated to different levels. The nitrated polystyrene was blended with different mol. wts. of poly(acrylic acid), PAA. The glass transition temps. (T_g) for the mixts. were investigated by differential scanning calorimetry. A single T_g was obsd. for all blends, indicating single-phase blends. In general, it was found that the T_g increases with the mol. wt. of PAA. The T_g values of the blends showed a pos. deviation from the linear av. T_g as a result of strong hydrogen bonding between the segments of the component polymers. The obsd. T_g values were not adequately represented by simple predictive equations or by single-parameter fitting equations. However, two-parameter fitting equations gave a reasonable representation of the data.