Glass transition temperatures as a function of composition in binary systems: Poly(ethylene oxide) + epoxy system VINCENT PARIS, WITOLD BROSTOW, University of North Texas, IOAN-NIS KALOGERAS, AGLAIA (LILA) VASSILKOU-DOVA, University of Athens, LAPOM-PHYSATHENS TEAM — The glass transition temperatures ($T_g$) of PEO + epoxy resin blends in the full concentration range were analyzed. They were obtained by differential scanning calorimetry (DSC) and thermally stimulated current (TSC) depolarization. We have focused on the deviation from a linear relationship defined as $\Delta T_g = T_g - X_A T_{g,A} - X_B T_{g,B}$, where $T_g$ is the glass transition temperature of the blend, $X_i$ is the weight fraction of $i$ component in the blend, while $T_{g,i}$ is the glass transition temperature of the $i$ component. A new equation for the $T_g$ as a function of concentration was developed, based on an analysis of $\Delta T_g$. The results predicted with the new equation are better than those from the earlier $T_g$ equations, such as the Kwei equation, the Gordon-Taylor equation, and the Fox equation.

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