

Abstract Submitted
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Poly(ethylene oxide) Dynamics in Blends with Poly(vinyl acetate) JUNSHU ZHAO, MARK EDIGER, University of Wisconsin-Madison — ^2H NMR relaxation measurements were performed to study the segmental dynamics of perdeuteropoly(ethylene oxide) (d_4PEO) in miscible blends with poly(vinyl acetate) (PVAc). For two compositions (2% and 50% d_4PEO), spin-lattice relaxation times were measured in a temperature range well above T_g . Over the temperature range studied, the segmental dynamics of the PEO component in 2% PEO/PVAc blend is almost the same as that in 3% PEO/PMMA blend reported by Lutz et al. (*Macromolecules* 2003, 36, 1724-1730), even though the T_g of PVAc is 100K lower than that of PMMA. In the 2% d_4PEO blend, the segmental dynamics of PEO is 9 orders of magnitude faster than PVAc segmental dynamics at the blend T_g . For the two compositions studied, segmental dynamics of the PEO component can be well described by L-M model with a self-concentration of 0.3. By comparing the segmental correlation times of the PEO component with viscoelastic shift factors reported by Urakawa et al. (*J. Non-Crystalline Solids* 352, 2006 5042-5049), it is found that the temperature dependence of the segmental dynamics of the PEO component is weaker than the temperature dependence of the PEO terminal dynamics.

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