The self-diffusion of macromolecules in binary blends of poly(ethylene glycol)

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Abstract

The concentration and molecular mass dependencies of the self-diffusion coefficients were obtained for higher molecular mass component in binary blends of the homopolymer poly(ethylene glycol) (PEG) by a nuclear magnetic resonance method with pulsed magnetic field gradient. The shape of the diffusion decay and its dependence on the diffusion observation time in binary PEG blends have been investigated. The experimental results were explained by hypothesizing the existence of cluster formation in polymer melts and polymer blends and the possibility of molecular exchange between clusters. The entanglement time in such systems was evaluated. Copyright © 1999 John Wiley & Sons, Ltd.

Keywords

Blend, NMR, Poly(ethylene glycol), Polydispersity, Self-diffusion