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Modelling the Segmental Relaxation Time Distribution of Miscible Polymer Blends JANE LIPSON, Dartmouth College, RALPH COLBY, Pennsylvania State University — In considering the relaxation of segments in a blend whose components have reasonably disparate glass transition temperatures, local concentration fluctuations and density fluctuations each play a role. The result is a distribution of environments around a given segment in the blend, which translates into a distribution of segmental relaxation times. In this work we focus on concentration fluctuations, making use of a simple lattice model to generate a distribution of environments which we then translate into a dielectric relaxation spectrum. We analyze experimental data for several polymer blends and show that, by accounting for the relatively strong composition dependence of the blend glass transition temperature, it is possible to model the dielectric relaxation spectrum using a Kuhn length which is both composition and temperature independent.

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