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**Intermolecular Interactions in Polymer/C60 Blends** PETER MIRAU, AFRL/RXBN, Air Force Research Lab, Bio-Nano Branch, Wright-Patterson AFB, OH 45433, MARJAN LYONS, Wright State University, Dayton, OH — Solid-state NMR and x-ray scattering are used to study intermolecular interactions in blends of C60 with polystyrene, poly(9-vinyl carbazole) and poly(ethylene oxide). Miscible C60 blends prepared by solution precipitation with polystyrene and poly(9-vinyl carbazole) are purple in color, show intermolecular C60-polymer cross polarization and do not show the scattering peaks from C60 crystallites. In contrast, phase separation is observed in poly(ethylene oxide) blends. The C60 dynamics in the miscible blends are measured using the chemical shift anisotropy filter NMR pulse sequence, and the results show that the C60 is rotating rapidly enough at ambient temperature to average the 18 kHz-wide chemical shift anisotropy line shape. Blending with C60 has no effect on the polystyrene dynamics as measured by the carbon spin-lattice relaxation times but leads to a narrowing of the proton line shapes as measured by 2D wide line correlation NMR. These results show that C60 interacts weakly with polymers, and the implications for weak interactions between polymers and carbon nanotubes are considered.

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