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Porod Scattering Study of Coarsening in Immiscible Polymer Blends KRISTIN BRINKER, WESLEY BURGHARDT, Northwestern University — Studies of immiscible blend compatibilization often involve laborious microscopy methods to characterize the changes in the droplet size distribution with time in the melt. Here we explore a simple alternative approach based on Porod scattering from the two phase structure. Although micron-sized droplets in immiscible polymer blends are too large to be fully characterized by small-angle x-ray scattering, Porod scattering measurements of the interfacial area combined with knowledge of the blend volume fraction allows determination of an average droplet diameter from a single scattering measurement. This technique is illustrated in experiments monitoring coarsening of droplet sizes in immiscible PS/PMMA blends prepared either by melt blending or by solid-state shear pulverization.

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