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Effect of Copolymer-Nanoclay Interactions on Intercalation Kinetics[1] LOAN VO, HARIS RETSOS, EMMANUEL GIANNELIS, Cornell University — We use X-ray diffraction to measure the melt intercalation kinetics of a series of surface-modified clay nanoparticles (nanoclay) with styrene-butadiene-rubber (SBR). Since SBR is a copolymer, both the styrene and the butadiene components interact with the nanoparticles contributing to the nanoclay miscibility and the intercalation kinetics. We are able to directly measure the butadiene-nanoclay interaction strength by using dielectric relaxation spectroscopy to probe the butadiene-nanoclay interfacial relaxation mode, and by varying the nanoclay surfactant and copolymer composition, we can indirectly measure the styrene-nanoclay interaction strength. We will present the spectroscopy results and discuss the relation to the intercalation kinetics.

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