Abstract Submitted
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Synergy, Effect and Mechanism on Different Scale of organoclay Filled an Elastomer Blends by Rheological Method[1] XIA DONG, XIANGGUI LIU, CHARLES C. HAN, DUJIN WANG, Beijing National Laboratory for Molecular Sciences, CAS Key Laboratory of Engineering Plastics, Institute of Chemistry, CAS, Beijing — The influence of organoclay on the phase separation temperature and phase separation kinetics of solution polymerized styrene butadiene rubber (SSBR)/low vinyl content polyisoprene (LPI) blends was investigated by rheological methods. The WAXD and the dynamic rheological test showed that the two components had similar interaction with the organoclay and could partially penetrate into the silicate layers. The intercalated clay could restrict the movement of polymer chains and act as a compatibilizer to reduce the phase separation temperature. The intercalated clays localized at the interface could act as an interface agent to reduce the interfacial tension, and also could act as a physical barrier to restrict the coarsening of the domains. Those two effects could slow down the phase separation kinetics and reduce the phase domain size. This effect became more obvious with increasing organoclay concentration. In addition, the addition of 3wt% clay could form a rigid three-dimensional clay network which could dominant the rheological properties of the blend samples and stabilize the phase morphology permanently.

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