

Abstract Submitted  
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**Morphology and Rheology of the Phase-separating Polybutadiene /Polyisoprene Blend under Small Amplitude Oscillatory Shear**<sup>1</sup> XIA DONG, FASHENG ZOU, DUJIN WANG, CHARLES C. HAN, Joint Laboratory of Polymer Science and Materials, Institute of Chemistry, Chinese Academy of Sciences — We are mainly focusing on the late stage of phase separation process where the two phases have reach their equilibrium compositions and the droplet dimension or interface area is the key factor in influencing the dynamic moduli. Two kinds of phase-separating structure evolutions of the PB/LPI blend have been investigated. For the near-critical and symmetric blend LPI50, the co-continuous phase-separating structures are observed and lead to a power law behavior of the dynamic storage modulus at low frequencies. With the growth of the co-continuous structure, the storage modulus at low frequency decreases dramatically. For the off-critical and asymmetric blend LPI70, the droplet/matrix two-phase structures appear and result in a rather complex elastic behavior at the mediate and low frequency region. It is observed that with the droplet size increases, the storage modulus at the mediate frequencies generally decreases while the storage modulus at the low frequencies usually increases. Besides, the platform and terminal moduli at a given frequency can be scalable with the phase separation time and the characteristic relaxation time and domain size of the droplets can be obtained by rheology.

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