

Abstract Submitted
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Shear flow behavior of a dynamically symmetric polymeric bicontinuous microemulsion NING ZHOU, TIMOTHY LODGE, FRANK BATES, University of Minnesota — Soft materials with complex internal structure often exhibit fascinating rheological behavior. For example, under flow the poly (ethylene) (PEE)/poly(dimethyl siloxane) (PDMS)/PEE-PDMS polymeric bicontinuous microemulsion ($B\mu E$) showed shear-induced macrophase separation.¹ This was tentatively attributed to the extreme dynamical asymmetry of the two homopolymers, i.e., their viscosities differed by three orders of magnitude. To understand the role of the dynamic symmetry of a $B\mu E$ when subjected to shear flow, we have developed a new ternary polymer blend system poly(butylene oxide) (PBO)/poly(ethylenepropylene) (PEP)/PEP-PBO, which is dynamically almost symmetric. We will report on the shear flow behavior of this new $B\mu E$. Reference: [1] Krishnan *et al. Phys. Rev. Lett.* 2001, 87, 098301

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