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Pinching dynamics, rheology and elastic instabilities of Boger fluids ALEXANDER KUBINSKI, FAHED ALBREIKI, University of Illinois at Chicago, PRERANA RATHORE, University of Massachusetts at Amherst, VIVEK SHARMA, University of Illinois at Chicago — Boger fluids refer to viscoelastic that exhibit rate-independent shear viscosity. The absence of rate-dependent viscosity allows identification of purely elastic instabilities and comparison with Oldroyd-B model, which is a constitutive model that includes elasticity without allowing for shear thinning. In this study, we investigate the shear and extensional rheology response of Boger fluids to identify the role played by enhancement in solvent viscosity at a fixed polymer concentration. The increase in solvent viscosity and relative contribution of viscous and elastic stresses is contrasted in experiments carried out using dripping-onto-substrate rheometry, as well as viscoelastic fingering.

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