

Abstract Submitted  
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**Influence of viscoelasticity on drop dynamics in shear flow<sup>1</sup>**

YURIKO RENARDY, Virginia Tech, K. VERHULST, P. MOLDENAERS, R. CARDINAELS, KU-Leuven, S. AFKHAMI, Virginia Tech — A computational and experimental study of drop dynamics under shear is conducted for fluid pairs in which one of the liquids is a Boger fluid. The drop to matrix viscosity ratio is either 0.75 or 1.5, Deborah numbers range to 2 and capillary numbers range to above breakup conditions. The results focus on three aspects: relaxation after cessation of shear, a novel viscoelastic drop breakup scenario, and the effect of shear flow history on drop breakup. Numerical simulations are performed with our in-house 3D volume-of-fluid PROST (Paraboloid Representation of the interface in the Surface Tension force) method.

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