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Viscous drop collisions on surfaces of varying wettability DANIEL BOLLEDDULA, University of Washington, AL BERCHIELLI, Pfizer Inc., ALBERTO ALISEDA, University of Washington — We present an experimental study of increasingly viscous acetone rich and Newtonian equivalent liquid drops colliding on surfaces of varying wettability. This class of liquids applies directly to spray coating processes in pharmaceutical industries. The results from this study will elucidate the physics in a regime where resisting viscous forces and the restoring forces of capillarity are balanced, $Oh \sim 1$. Early spreading dynamics $\tau = Ut/D \ll 1$ indicate negligible dependence on contact angles while longer times demonstrate deviations from Tanner's law, $D \sim t^{1/10}$. We will compare our results with recent theory to demonstrate the feasibility of modelling complex rheology spreading characteristics over short and long time scales. Preliminary results indicate an intermediate spreading regime following the inertial phase where the diameter, $D \sim t^n$ with $1/7 < n < 1/5$.

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