

Abstract Submitted
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Impact of a complex fluid droplet on wettable and non wettable surfaces DANIEL BOLLEDDULA, ALBERTO ALISEDA, Department of Mechanical Engineering, University of Washington — The impact of liquid droplets is a phenomenon prevalent in many natural and industrial processes. Such events include rain drops, fuel injection, and ink-jet printing. To date, research in atomization and droplet impact has been focused on Newtonian fluids. In the coating of pharmaceutical tablets, the coating solutions contain polymers, surfactants, and large concentrations of insoluble solids in suspension which inherently exhibit non-Newtonian behavior. In this work, we will present ongoing droplet impact experiments using complex rheology fluids under a wide range of Weber and Ohnesorge numbers. Both hydrophilic and hydrophobic surfaces are been studied, and the effect of surface roughness has also been considered. We will describe the limits of bouncing, spreading, and splashing for these complex fluids. We will also discuss quantitative information such as spreading rates and contact angle measurements on wettable and non-wettable surfaces obtained from high speed images.

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