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Splash Dynamics of Falling Surfactant-Laden Droplets NUR SULAIMAN, LEWIS BUITRAGO, EDUARDO PEREYRA, The university of Tulsa — Splashing dynamics is a common issue in oil and gas separation technology. In this study, droplet impact of various surfactant concentrations onto solid and liquid surfaces is studied experimentally using a high-speed imaging analysis. Although this area has been widely studied in the past, there is still not a good understanding of the role of surfactant over droplet impact and characterization of resulting splash dynamics. The experiments are conducted using tap water laden with anionic surfactant. The effects of system parameters on a single droplet impingement such as surfactant concentration (no surfactant, below, at and above critical micelle concentration), parent drop diameter (2-5mm), impact velocity and type of impact surface (thin and deep pool) are investigated. Image analysis technique is shown to be an effective technique for identification of coalescence to splashing transition. In addition, daughter droplets size distributions are analyzed qualitatively in the events of splashing. As expected, it is observed that the formation of secondary droplets is affected by the surfactant concentration. A summary of findings will be discussed.

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