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**An Experimental Investigation of the Effects of Copolymer Surfactants on Coalescence** YOSANG YOON, ADAM HSU, Dept. of Chem. Eng., UCSB, L. GARY LEAL, Dept. of Chem. Eng. and Materials Dept., UCSB — We report on experimental studies of the effects of copolymer surfactants on the coalescence of two equal size drops in flows generated in a 4-roll mill. In this work, the drop is polybutadiene (PBd) and the suspending fluid is polydimethylsiloxane (PDMS). A copolymer is formed at the interface via the introduction of small quantities of end-functionalized PBd and PDMS that form an ionic complex. We consider the effects of the viscosity ratio of the bulk fluids, the mean surface concentration of copolymer, the molecular weight of the copolymer, the strength of the flow (measured via the capillary number), and the collision trajectory on the conditions for coalescence.

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