

Abstract Submitted
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Rupture process during drop coalescence at a planar interface: time scales and instabilities PIROUZ KAVEHPOUR, HAMARZ ARYAFAR, MAE, UCLA — As a drop approaches the surface of an undisturbed pool of its own liquid, it can develop a protective layer of the ambient fluid underneath it, such that it will not immediately coalesce across the interface. The current work analyzes the time dependent behavior of the ambient fluid film as it ruptures during coalescence. Identifying Ohnesorge number as the dimensionless parameter for coalescence processes, relevant power laws have been found to describe the time dependent radial retraction of the fluid film in viscous and inertial dominated regimes. For a range of Ohnesorge number, the rim of the ruptured film becomes unstable and forms tendril-like structures. The conditions for this phenomenon to occur will be presented.

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