Effect of surfactants on the film thickness in the drag-out coating problem PRABIR DARIPA, Texas A&M University — In this paper, we give a simple proof of the thickening effect of surfactant on the thin film deposited when a flat plate is withdrawn from a liquid bath. This problem without the effect of surfactant was first considered in the seminal paper of Landau and Levich (1942). Our proof here is based on an asymptotic analysis of the lubrication model for the Navier-Stokes equations. Our result is consistent with the results obtained numerically and experimentally on similar problems by other investigators. We will discuss our result against the backdrop of these known numerical and experimental results. This result has been obtained in collaboration with Gelu Pasa.

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Date submitted: 03 Dec 2007   Electronic form version 1.4