

Abstract Submitted
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Thickness dependence of drag and kinematic viscosity in quasi-two-dimensional flows¹ PAUL W. FONTANA, EDWARD TITMUS, ADRIAN KIRN, Seattle University — In many experimental and natural quasi-two-dimensional (Q-2D) flows the effects of internal viscosity and surface friction are significant but difficult to distinguish. We have made precise, independent measurements of both kinematic viscosity and coefficient of external drag as functions of film thickness in a Q-2D experiment using soap films in a circular Couette cell configuration, using a combination of vortex decay rates and steady-state shear lengths. Both the kinematic viscosity and the drag coefficient are found to depend inversely on film thickness, as expected theoretically. This result is enabling quantitative experimental study of stability thresholds in Q-2D basic flows.

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