

## **69a Hydrodynamic Entrainment of Viscous Fluids**

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Using boundary layer theory we develop a model for liquid entrainment driven by a sink above a fluid interface where locally the velocity field is pure extensional flow. The two fluid boundary layer analysis yields data for the interfacial stress as a function of the absolute and kinematic viscosities. For systems with finite surface tension we can solve the normal stress condition in the limit of small deformations and we present data for the interface shape as a functions of the Weber ( $<1$ ) and Reynolds ( $>1$ ) numbers.