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A scaling theory for the hydrodynamic interaction between a pair of vesicles or capsules L. GARY LEAL, ARUN RAMACHANDRAN, UCSB Chemical Engineering — We present a scaling theory based on the analysis of A. K. Chesters [Chem. Eng. Res. Des. 69, 259-270 (1991)] that describes the time required to drain the thin, suspending fluid film that forms between two deformable capsules or vesicles as they are pushed towards each other by a constant force. Capsules and vesicles show a decrease in the drainage time with the pushing force, which results in the prediction that in a shear flow, the number of doublet formation events increases with the shear rate. Both trends are exactly opposite to what is expected and observed for deformable drops.

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