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Forced Aspiration of bubbles into a capillary tube MELANIE DURTH, University of Seville, Spain, CHRISTOPHE CLANET, Ecole Polytechnique, France, JUAN FERNANDEZ, University of Seville, Spain — One way to remove lodged bubbles in small vena is to force the bubble to be completely aspirated into a fine needle. We study the aspiration of a bubble into a vertical capillary tube, for different bubble size relative to the capillary diameter (i.e. bubble confinement) and low Bond numbers (pipette diameter \ll capillary length). In this case, there is a critical condition of flow rate depending on the bubble confinement and the capillary number Ca beyond which the bubble is aspirated completely into the capillary. Below this value, the bubble breaks-up forming a liquid slug at the entrance of the tube. A simple model which takes into account the draining time of the annular liquid thin film and the characteristic time of the capillary instability, explains the observed experimental results and establish the characteristic time to aspirate completely the bubble.

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