Fluids as an Artform

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The Rayleigh-Taylor Instability is a phenomenon that occurs when two fluids of different densities are mixed and interface with each other; this takes place when the heavy fluid pushes on the lighter fluid to create spikes and bubbles. The instability will be created by flipping the container in a chalkboard like fashion to cause the heavy fluid to be on top of the lighter one and then have them separate when they settle within an hour of activation. This project aims to design a visually appealing product by using the properties of the Rayleigh-Taylor Instability (RTI) with two immiscible fluids. The purpose of this is to create a consumer product that may be used as an art piece and to improve the overall atmosphere of the work space or general environment. The device will consist of a plexiglass container, wooden frame, LED light strips, and an aluminum stand with wheels for display. While many fluids were considered, oil and water with polysorbate was chosen to be cost effective and create the instability that will be repeatable over a long period of time.

Keywords: Rayleigh-Taylor instability, immiscible fluids, artform, Atwood number