

Joe Zahorik  
Get Wet #1 Report  
2/21/18

This image is of a glass filled with vegetable oil placed in front of a white backdrop. Olive oil was then poured into the glass in an attempt to capture the mixture of the oils along with their viscosity. I knew that the different densities would help keep the oils somewhat separate to allow visual distinction between the olive and vegetable oils and was curious as to if I could capture two very similar densities.

In order to create my flow, I started by pouring about three cups of vegetable oil into a clear glass. To help better see the flow, I placed the glass of oil in front of a white background. The olive oil was poured into the glass from the bottle about six inches away from the vegetable oil. When poured, the gravity acting upon the olive oil allowed it to push past the particles of vegetable oil, causing it to hit the bottom, spread, and re-direct up the sides of the glass. Due to this re-direction and the shear force of the oil, we can see swirls where the olive oil started to mix with the vegetable oil. Over time, the oils slowly mixed together and became more and more unnoticeable. I hypothesize that this is most likely due to the similar densities of the liquids.

One of the aspects of my experiment that I wish I would have thought of more would be my visualization technique. Although there is a slight variation in the colors of olive and vegetable oil, it would have been better if I were to darken the olive oil through some sort of dye. Darkening the olive oil would have allowed for us to better see the fluid motion in addition to providing a more interesting image. I lit the setup with three 35w fluorescent lamps in addition to sunlight coming in from a window.

For my camera setup I had my aperture set at  $f/9$ , allowing me to have a more shallow depth of field to focus on the flow without calling attention to anything in the background. The camera was about 6-8 inches away from the mixture, with a focal length of 24mm. My ISO was set at 800 and my shutter speed was at 0.004 of a second to make sure no motion blur was taken. With these settings, I was able to create a bright enough environment that pushes focus onto the mixture as the main subject.

Overall, this image reveals the fluid flows of a mixture with each fluid having a similar density. This image also reveals the viscous nature of oils and how easy it is to trap air in bubbles within the mixture. I would have loved to have had a better visualization technique in addition to slightly better focus to help show the detail in the air bubbles. If I were to develop my experiment I would love to have this become a slow-motion video to better see the flow in motion.