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Image Video Report 2

I. For my second image/video report, I wanted to do something layering fluids in a small glass vial. I started with kitchen oil and water, then laundry detergent and water. I soon realized that the bubbles that were being created from the detergent and water mixture were much more interesting than the layering effects that I was creating inside of the vial. I began pouring small amounts of detergent into the vial and putting the vial directly under the flow of a faucet. The bubbles from the mixture would burst up and create interesting formations inside the vial. Unfortunately many of the bubbles would pop before I could return the vial to my camera setup, so I was unable to capture some

of the largest and most spectacular bubbles that were created. I took many images, but decided to stick with this one because of the way the bubbles clung to the sides in island-like formations. I also like the variety in the size of the bubbles in this particular image.

II. Soap molecules are key for a bubble to form. The molecules of soap line both sides of water. One side of the soap molecule is hydrophilic and attaches to the water molecules. When air is forced into this sandwiched layer, a bubble is formed. The surface tension of the water is decreased from the layers of soap molecules, which allows the bubble to not pop right away. The Marangoni Effect stabilizes the surface tension of the bubble where parts of it have been thinned and stretched. The bubble snaps back to a uniform thickness and spherical shape. The spherical shape is the smallest surface area and it creates even surface tension all the way around.

III. As stated earlier, I used a mixture of Arm and Hammer laundry detergent and tap water. The detergent is the most basic type that you can buy from any store. For the background of the image, I created an all white landscape using two pieces of poster board. For lighting, I used 3 small LED lights on stands. One light was semi from the rear, and the other 2 lights were from either side of the vial at around a 45 degree angle. I placed my camera directly on the table in front of the vial, about 8 inches away from the lens. Again, I used my Panasonic GH5 Camera with a 12-60 mm lens. The shutter speed was at 80, and I shot at an aperture of F 5.0. The ISO was 400. The focal length

was 48 mm. For post processing work, I attempted to bump up the brightness a bit, as the photo was a tad bit underexposed. Besides that, I did not do any other major adjustments to the image in post processing.

IV. I think that my image reveals many nicely formed bubbles and displays the phenomena that holds them together. A video of the bubbles being formed would better inform the audience of the fluid flow, but since I did a video for my first assignment, I decided to go with a still image for this one. To improve this image, I would have liked to find a system where I could have captured images of the larger bubbles before they popped, which was rather quickly. I believe that there are many possibilities in experimenting with bubbles, including different sizes, materials, and methods of creation,

Works Cited

1. “Bubbles.” *Science World*, 25 June 2020, https://www.scienceworld.ca/resource/bubbles/.
2. Helmenstine, Anne Marie, Ph.D. "What's the Science Behind Bubbles?" ThoughtCo, Aug. 26, 2020, thoughtco.com/bubble-science-603925.