Bubble

Moving Image: Alejandra Abad - MFA Art Practices Candidate
Music: Paperloom
Team 4: : Alejandra, Nebiyu Tadesse, Jared Moya
Dimario Cancanon, Jamie Frankel
Assignment: Team Second
Class: Flow Visualization - ARTF 5200-001
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First Paragraph: In the assignment Team First, our objective was to document with a high speed camera the way in which bubbles form and pop. A team of scientists conducted a similar experiment where they explained the phenomenon as “a contest between the pressure on the film of the bubble, and the surface tension of the film, which resists any increase in curvature.” Bubbles form when the jet’s pressure is large enough to deform the film into a hemispheric dimple of the same width as the jet. At that point, the film has reached its maximum curvature, and the bubble can fill with gas and float away spread before drying”(Conover, 2016).

Jamie Frankel blowing bubble

Second Paragraph: Our experiment relied on the right amount of soap and water. Dimario and I made sure that the water and soap had the right ratio. We poured approximately one ½ a cup of soap to 3 cups of water. Then we had Jamie blow the

perfect bubbles. Jared and Nebiyu were in charge of the equipment and Jared captured the bubbles as I facilitated Jamie with the bubbles. The phenomena occurs with the right amount of air and surface tension so that the bubble wouldn't burst so quickly.

Third Paragraph: We used the visualization technique of dropping food coloring, however, propylene glycol is water soluble and therefore it did not work.So we moved on from that idea to focus on what happens at the moment the bubble bursts. A bubble contains air that is held by a thin layer of liquid and depending on the weather the more dry the air is, the easier it is for the bubble to pop. In order to stabilize it we had to add extra soap. We were able to capture the phenomena of the bubble bursting. This happens because "the donut shape is unstable, so the film breaks up into little droplets all around the donut shape. Because these smaller spheres can have a lower surface area than the larger donut, they are more stable" (Bubble Bursted).

Fourth Paragraph: We ITTL space near the computer lab. We had an industrial lamp. We used a white background from a projector screen and also Jaime's black sweater.

- The size of the field 12 inches inches from the bubble.
- The width 6 inches.
- The Distance from the bubble to lens 12 inches.
    - High Speed Camera, Phantom Micro C110
    - Bits per Color 8, bpc 12, Sample Rate 900 fps
    - Exposure 1100
    - Resolution 1280 x 1014
    - Imovie & Photohop

Fifth Paragraph: Using the high speed camera was very effective when documenting the bursting of a bubble.I think this phenomena is very interesting because the ocean also creates these type of foam bubbles, The physics behind bursting appears to be independent of the material of the bubble. The investigators were surprised to find that the ring effect is still seen with fairly viscous liquids like oil and even in solutions up to 5,000 times as viscous as water. (Discovery in 'Pop', 2010). I would have liked to use a black background so that the colors of the bubbles show up more. Other than that I am very content with the results.

Works Cited

Conover, Emily. “Focus: Physics of Blowing Bubbles.” Physics, American Physical Society, 19 Feb. 2016, https://physics.aps.org/articles/v9/21.

“Bubble Bursted on the Science of Bursting Bubbles.” LiveScience, Purch, https://www.livescience.com/6562-bubble-bursted-science-bursting-bubbles.html.

“Discovery in 'Pop' Science Reveals the Elegant, Complex Way Bubbles Burst.” ScienceDaily, ScienceDaily, 13 June 2010, https://www.sciencedaily.com/releases/2010/06/100609131633.htm.