MCEN 4151

Team Second Report

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REPORT SUMMARY

Context

This photo is for the team second image project. Our team grew very interested in doing a project with dry ice. We were wanting to specifically put emphasis on the fog that dry ice produces. We ended up using props like a glass and gloves which made the photo more fun. The final image I chose combines the fog and the glove which produced this really eery image. To create this image there had to be proper lighting, someone pouring water, a camera person and preparation for setup. This final image is posted above in the report.

Apparatus and Flow

To achieve this image we put a black poster board against the wall and set the mason jar on top of a table that was pushed up against the paper. The jar rested on top of an iPhone that had its flashlight activated. The dry ice was put in the glass and the water was poured over the top of the dry ice until the chunks were completely covered. Then we commenced with taking photos of this initial response to the dry ice had to the water.
The flow captured demonstrates dry ice sublimation in water. My group figured out that this process occurs at -109.3 degrees Fahrenheit. The solid CO2 changes to gas CO2 and completely bypasses the liquid phase - which is the process of sublimation. The water speeds up the sublimation process to create the dense clouds of fog. The CO2 bubbles caused by this process then rise through the water to the top of the glass while the light from the iPhone shines through the bubbles and water - to create this glow-y feel. This occurs due to the variation of indices of refraction that exist between the gas bubbles and the liquid water - CO2 is around 1.0004, which water is around 1.33. We then figured out that we can estimate the speed of the bubbles using their movement, and keeping in mind the exposure time. We used a 1/200 shutter speed to capture this action.

Visualization Technique

We used very standard supplies such as dry ice from a grocery and tap water. We used a hammer to break the dry ice into pieces that could fit in the glass, which made it easier to capture. We then used insulated globes to arrange the dry ice in the mason jar. The water was poured in after. The lighting was really easy as well as we used a LED light from a iPhone. The mason jar was placed right on top of the iPhone camera light, so that the flow could be lit from below. I really liked how this came out, as I said before it created a glow-y look that enabled the bubbles and fog to become more visible.

Photographic Technique

The field of view was about two feet wide and the lens was about a foot and a half away from the mason jar. We used a Canon EOS Mark II camera at a focal length of 68 and F number of 2.8. The exposure time was 1/200 and the ISO was 800.

ORIGINAL PHOTO

EDITED PHOTO