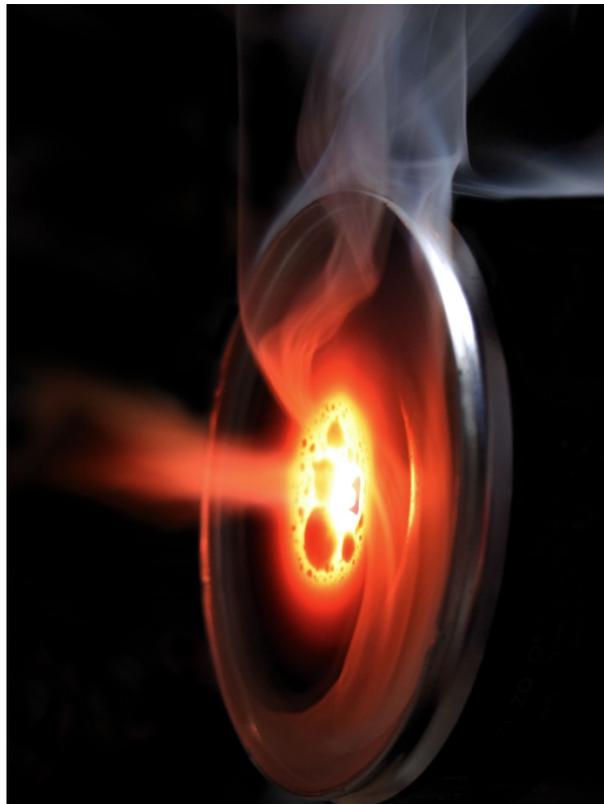


# **Team Second Report**

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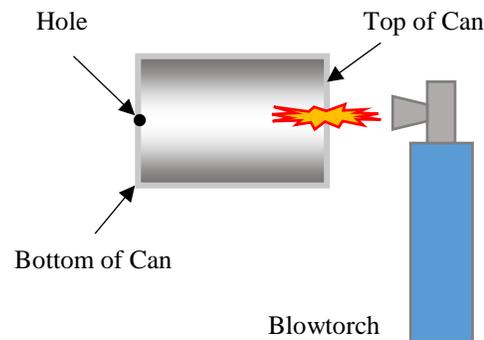
Flow Visualization: The Physics and Art of Fluid Flow



In this image, the flow of heat transfer through the end of an aluminum can was the intended capture. Aiming a blow torch at a small opening in the bottom of a recycled illy® espresso aluminum can created an expansion of vibrant yellows and oranges and a mesmerizing flow of smoke. Materials for the setup are as follows:

1. 1 empty can of illy® espresso
2. Blowtorch
3. Screwdriver
4. Safety goggles
5. Welding gloves
6. Pliers

Safety goggles were worn throughout the entire procedure. Using a screwdriver, a hole was poked through the bottom of the can. The can was held with a pair of pliers at a safe distance away from the body, and welding gloves were worn to hold the pliers, considering it would be very close to the flame. The blowtorch was turned on and aimed inside the can from the top, as shown below.



The aluminum can glowed bright orange and yellow around the hole in the center. The smoke in this image would either rise up over the can immediately, or would get caught in the rim of the can and follow its circular shape before rising. The smoke was moving quite fast due to the force of the blowtorch, so the smoke was able to circle the entire circumference of the can before rising above with the rest of the smoke.

The editing of this image was done using Adobe Photoshop CS6. The curves tool was used to enhance the appearance of the glow of molten aluminum. The saturation of the image was also boosted, creating more of a contrast between the dark background and the bright colors of the focal point. The background of this image initially contained a lot of clutter (it was performed in a garage), therefore the background was edited away with the use of the clone stamp tool. Afterwards, the image was cropped slightly to get rid of some of the unnecessary black space in the background. I wanted the edits to allow the image to still remain in good focus while leaving the image itself an enigma. I didn't want it to be obvious that this was a

picture of an aluminum can and a blow torch, so instead I went for the appeal of bright colors and ominous smoke in an attempt to hide the full context of the procedure.

A Nikon D3300 camera was used for this image. The specs were as follows:

- Exposure time: 1/60 sec.
- ISO Speed: ISO-1000
- Focal length: 34 mm
- Max Aperture: 4.4

The dimensions of the original image were 6000x4000 pixels, whereas the final image was 2556x3392 pixels. Aside from cropping, there didn't seem to be a huge loss in data from the original image.

This image is the ominous capture of molten aluminum and directed smoke. Without needing to change too much, the final image turned out quite well.