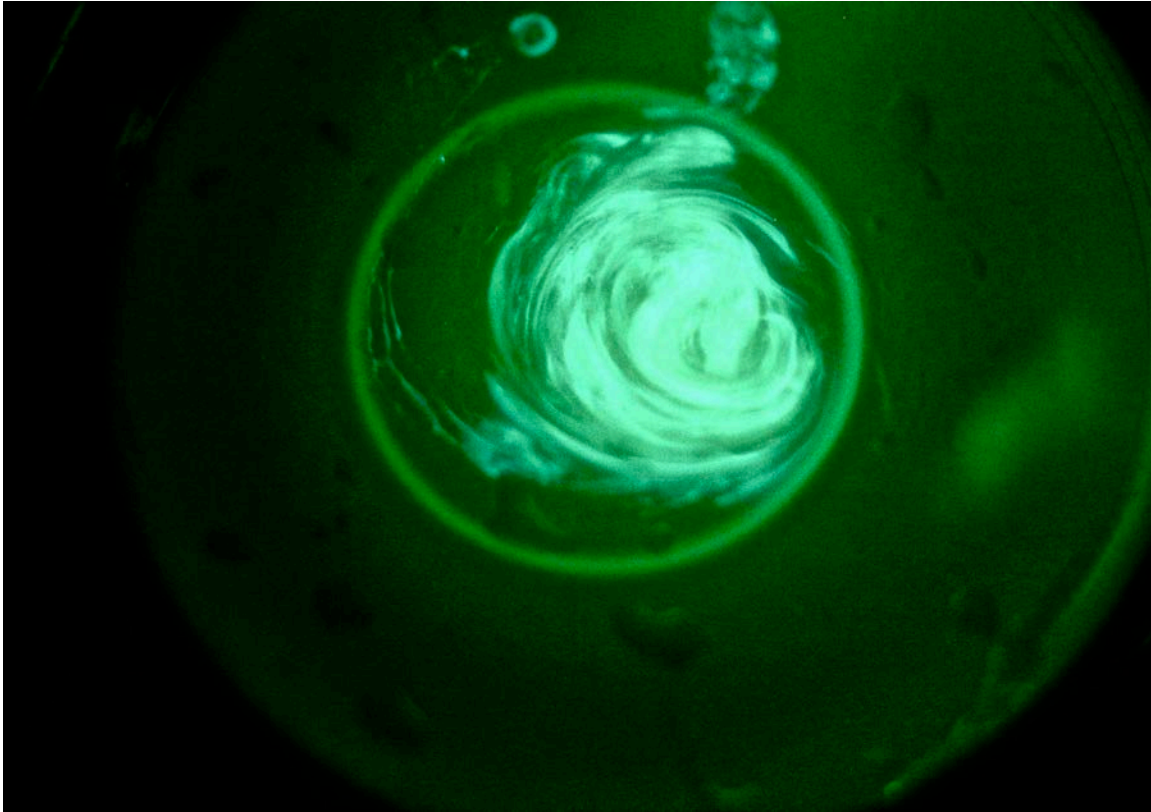


Flow Visualization



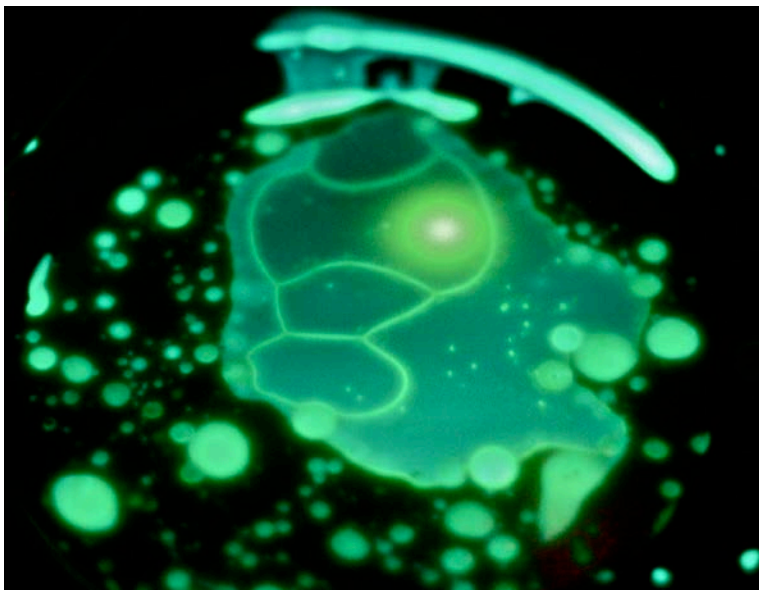
Glow Stick Fluid in Oil

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This image was intended to display the exciting glowing colors found from the fluid inside glow sticks. To achieve this I dropped glow stick fluid into a dish of vegetable oil. Before I did that I first experimented with a dish of milk and some glow stick fluid. This resulted in very interesting images and I almost used one of them instead of this one but changed my mind since this one shows more of a spiraling effect.

The pictures with oil also showed a little bit of depth and kept the streaks of glowing fluid more isolated. This is because the glow stick fluid, which is a mixture of peroxide and phenyl oxalate ester, sits on the surface of milk but is able to sink in the less dense vegetable oil. Since it is able to sink the fluid has more space and therefore doesn't form a thin film. It can also be observed that the glowing fluid has sunk into a circular depression that is part of the dish that the fluid was sitting in. This is because the fluid wants to sink down as far as possible and this ring is the lowest part of the dish. Here is an image using milk and a glow stick, the thin film on the surface can clearly be seen here.



To provide a dark and controlled environment I used a bathroom with the door shut and the lights off. Next I turned my camera's ISO all the way up to 1600 and adjusted the focus manually. The camera was slightly above and to the side of the dish. I estimate that the field of view was a square foot and the camera was two feet away from the fluid. The rest of the camera specifications are shown below.

Dimensions: 2228 x 1259
Device make: Canon
Device model: Canon EOS DIGITAL
REBEL
Color space: RGB
Color profile: Camera RGB Profile
Focal length: 50
Alpha channel: No
Red eye: No
F number: 2.2
Exposure time: 1/60

I like this image because it shows the swirling effect that is created when a fluid is disturbed in a circular motion. To create this disturbance I simply stirred the oil with a q-tip. Next I used iPhoto to enhance the contrast between the green fluid and the oil in the final image. It is interesting how turbulence can be seen at certain parts of the spiral, such as on the outer edges. This shows the complexity of nature, a perfect spiral would be impossible to achieve.

References

1) http://en.wikipedia.org/wiki/Glow_stick