CALIFORNIA STATE SCIENCE FAIR
2003 PROJECT SUMMARY

Name(s)
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Project Number
J1516

Project Title
Calculating Thickness of Soap Films

Abstract

Objectives/Goals
The objective is to calculate the thickness of a soap film at a variety of constant downward velocities.

Methods/Materials
To create an adequate soap film solution, 12 teaspoons of regular dish detergent soap and 1 1/2 liters of water were mixed together. The frame of the apparatus was made of PVC pipe. Inside this frame was strung fishing line to form a geometric shape. This was used to provide structure to the flowing flat fluid. The downward velocity, the amount of solution collected per second, and the width of the film were measured and used to calculate film thickness.

Results
Film thickness increases along with downward velocity. The fastest rate of flow had the greatest film thickness, while the slowest rate of flow had the least.

Conclusions/Discussion
The results from the experiment support the hypothesis that as the downward velocity of a flat fluid increased, the thickness of the film will also increase.

Summary Statement
The project seeks to understand the relationship between downward velocity in a flat fluid and its effect on film thickness.

Help Received
Mrs. Bosquez taught scientific procedures and corrected work, father bought needed materials and helped construct the apparatus, Dr. Brent Daniel, Ph.D. (Ohio State University) provided needed equations, pipette tips, and brainstormed possible ideas for experiments, Kinko's helped by laminating display items.