CALIFORNIA STATE SCIENCE FAIR
2006 PROJECT SUMMARY

Name(s)
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Project Number
S0205

Project Title
Effects of Agitation on Black and White Film Developing

Abstract

Objectives/Goals
To design a mechanism that allows one to test how the frequency of agitation and stroke length affect a print's contrast, thoroughness of development and overall quality, and to conduct the related tests.

Methods/Materials
I designed and built a mechanical film agitator that performs the agitation duty cycle with an adjustable stroke length and frequency regulator. I tested four combinations of frequency and stroke length for contrast, thoroughness of development and overall quality using the device.

Results
Fast frequency and large stroke length gave the greatest contrast, thoroughness of development and therefore, greatest overall quality. The developing process with slow frequency and large stroke length gave the worst contrast, development and overall quality. Fast frequency and short stroke length resulted in fair contrast, development and overall quality. The experiment with slow frequency and short stroke length resulted in poor contrast, thoroughness of development and overall quality.

Conclusions/Discussion
In order to obtain maximum contrast, thoroughness of development and overall quality, the mechanical developer must be set at a fast frequency of agitation (seven strokes per five seconds) and a large stroke length (three centimeters long).

Summary Statement
Inventing a mechanical film developer and using it to test the effects of frequency of agitation and stroke length on black and white film developing.

Help Received