CALIFORNIA STATE SCIENCE FAIR
2010 PROJECT SUMMARY

Name(s)
Jacob Ryan Moe

Project Number
J1024

Project Title
Gas of the Future

Abstract

Objectives/Goals
The objective of this project was to determine which kind of wood could produce the greatest volume of wood gas in the fastest time during gasification? My hypothesis was: Almond wood will produce the greatest volume of wood gas during gasification in the quickest time.

Methods/Materials
Three types of wood were tested, almond, cedar, and redwood. They were tested five times each using a volume of 30 grams of wood each time. The gases were collected and measured by filling a 9 inch balloon that was attached to the end of the exhaust hose leading out of the gasifier. As soon as the heat was applied to the bottom of the gasifier, the stop watch was started. It was then stopped once the balloon reached 5 inches in diameter measured by the calipers. After each test, I also weighed the wood samples again to compare any differences in beginning and ending weights of the wood samples.

Results
The almond wood samples produced wood gas the quickest, filling the balloon in an average time of 40 seconds with a 4 gram loss in sample weight. Redwood was the second fastest, filling the balloon in an average time of 41 seconds with a 4 gram loss in sample weight. Cedar came in last, filling the balloon in an average time of 46 seconds with a loss of 5 grams.

Conclusions/Discussion
The results of my experiment supported my hypothesis. Almond wood did produce the greatest amount of wood gas in the quickest time when gasified. It also had less weight loss than cedar wood.

Summary Statement
The object of this project was to find out which type of wood would produce the greatest volume of wood gas in the quickest time when gasified..

Help Received
My mom and dad supervised my project. I also received advice in designing/building the gasifier and how to accurately measure the gases produced from two chemical engineers, Mr. Kurt Koehler and Mr. Chris Ecker.