CALIFORNIA STATE SCIENCE FAIR
2002 PROJECT SUMMARY

Name(s)

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Project Number

22520

Project Title

The Effect of Insulation on the Distillation Process

Abstract

Objectives/Goals

The objective of my experiment is to determine whether or not insulation materials increase the distillation rate of water.

Methods/Materials

The experiment includes two identical model distillers with one of the distillers was wrapped in a R-6 Value fiber glass material. The inside of both distillers were painted black to maximize the amount of solar heat absorbed. I then placed the distillers outside, filled both distillers with the same amount of tap water, and placed a glass pane over each distiller. This glass pane condenses the evaporated water and leads the water into the catch basin. The catch basin is placed under the edge of each glass pane. Two tiles were placed at the back end of each distiller to cause the distiller to slant. Data regarding the distilled water, outside temperature, and water temperature were recorded over a period of four days.

Results

The experimental data collected over a period of four days for the insulated and non-insulated pans show that the insulated distiller produced a total of 180.6 milliliters of distilled water and the non-insulated pan produced a total of 57 milliliters of water. Therefore, the insulated pan produced about three times more distilled water than the non-insulated pan.

Conclusions/Discussion

After I analyzed the data collected during the experiment, the result of this data led me to conclude that insulation materials do increase the distillation rate. I also concluded that the insulation material was the one variable that resulted in the greater abundance of distilled water.

Summary Statement

The purpose of this experiment is to determine how insulation materials effect the distillation process.

Help Received

My father provided me with helpful tips about the experimental setup. My mother and father provided me with the materials needed to complete this project.

Preliminary