CALIFORNIA STATE SCIENCE FAIR
2007 PROJECT SUMMARY

Name(s)
Jessica J. Pilgram

Project Number
J1627

Project Title
The Monstrosity of Viscosity

Abstract

Objectives/Goals
The objective of my experiment was to investigate the influence of temperature on a liquid's flow. I believe that if a liquid's temperature is increased the viscosity (resistance to flow) will decrease and if a liquid's temperature is decreased the viscocity will increase.

Methods/Materials
My test apparatus consisted of a fluid container, a 480mm length stainless steal tube and a 6.35mm control ball valve which was installed between the fluid container and the stainless steal tube. I measured the viscocity of three liquids (water, motor oil and syrup) at three different temperatures(10 degrees Celsius, 50 degrees Celsius and 90 degrees Celsius) by timing how long it took the liquids to flow down the stainless steal tube after the control ball valve was opened. I tested each fluid at each temperature 10 times and averaged the values. I also determined the percent change in viscosity for all of the tests.

Results
My results showed that a liquid's viscosity increases when a liquid is cooled and that a liquid's viscosity decreases when a liquid is heated. When I determined the percent change in viscosity, I noticed that viscosity is not a linear function. Syrup and motor oil had the same chatacteristics and showed the same percent change in viscosity. Water, on the other hand, was not very viscous and did not show the same percent change in viscosity as the other fluids.

Conclusions/Discussion
My conclusion is that my hypothesis is correct and that temperature does affect a liquid's viscosity.

Summary Statement
My experiment is about the influence of temperature on a liquid's viscosity.

Help Received
My mom (Kathy Pilgram) helped with my board and revisions. My dad (Mark Pilgram) helped me make my test apparatus and opened the control ball valve. My teacher Mrs. Bloom helped me with revisions.