CALIFORNIA STATE SCIENCE FAIR
2015 PROJECT SUMMARY

Name(s)
Zara Mubin

Project Number
J0621

Project Title
Lead: The Hidden Enemy

Abstract

Objectives/Goals
The objective of this project was to see what the most effective way for testing lead is. Prior to beginning this project, I believed that pure water solutions would work better than vinegar as it would help speed up the chemical reaction, yet it wouldn#t interfere too much with the actual reaction (apart from speeding it up) as it has no acetic acid.

Methods/Materials
Sixteen Plastic Cups were filled with 50 mL of liquid each (different concentrations of vinegar and water) and labeled accordingly. There were two controls: one containing 100% water and the other containing 100% vinegar. The fourteen cups were then split into two groups of seven # one being for the four hour testing cups and the other being for the twenty-four hour testing cups. Both groups had cups with the same solutions. The pH levels of these solutions were then checked. Then, lead sinkers were placed into the fourteen cups which weren#t controls. After four hours, I tested the controls and all the four hour testing cups. Using an eyedropper, I took 0.75mL out of the solution being tested and placed it into a 3mL test tube. I then dipped a cotton swab into a container containing sulfide solution, put this cotton swab into the test tube, and waited 90 seconds. The color of the solution in the test tube changed if there was lead present. After twenty-four hours, I repeated this process with the controls and the seven cups in the twenty-four hour testing group.

Results
I repeated this project three times and every time this project was repeated, the results were the same. The controls were always detected to have no lead. The more vinegar in the solution, the more lead was detected. Also, the twenty-four hour testing group mostly detected more lead than the four hour testing group.

Conclusions/Discussion
The results disproved my hypothesis. In this experiment, I discovered that acidic substances are better for testing for lead than neutral substances. Next time I conduct a project like this, I will focus on other acidic substances more to see if the acidity is the factor which affects lead testing, or if it is some other factor present in vinegar.

Summary Statement
My project was about discovering the ideal solution to test for lead.

Help Received
My father helped take pictures and proofread my board material.