CALIFORNIA STATE SCIENCE FAIR
2002 PROJECT SUMMARY

Name(s)

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Project Number

22865

Project Title

The Purification Process of Metallurgy

Abstract

Objectives/Goals

The basis of this experiment was to alter the properites and structure of natural accuring metals by heating and extracting impurities.

Methods/Materials

In order to perform this experiment it was nessesary to use a heat source significant for melting the metals lead, tin, aluminum, zinc, copper, nickle, and iorn. Finding the densities will require graduated cilinders, scales, bunson burner, crucibles, an oxyacetylene torch and proper saftey equipment. Density of each unmelted metal was taken by using a water displacement test in the graduated cylinder. A sample of each metal was melted using a heat source. If possible up to three trials were completed on each metal. Impurities were brushed off and the metal was then cooled to room temprature. The densties of each metal were taken again by using the water displacement test. All data was recorded and densities were compared.

Results

According to the data Zinc had the most impurities and Bismuth had the lowest amount of impurities. In melting the metals is was found that they all changed in density. All metals except copper and nickel incresed in density after being melted.

Conclusions/Discussion

A bunsen burner of constant tempeture made for a equal conditions of metals. All of the samples droped in volume at diffrent porportions. Using an oxy-acetylene torch for some of metals requiring excess heat had oxidized and caused a decrease in density in nickel and copper. This experiment successfully increased the densities of most of the mentals and cleared out a majority of the impurities.

Summary Statement

The project was to test the effect of melting on metal densities.

Help Received

Used classroom equipment at C.V.H.S. under supervision of Mrs. Poquette