CALIFORNIA STATE SCIENCE FAIR
2010 PROJECT SUMMARY

Name(s)
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Project Number
J1515

Project Title
Temperature's Effect on Magnets

Abstract

Objectives/Goals
The objective of this experiment was to find how the temperature of a magnet affects its magnetic strength.

Methods/Materials
Six ceramic magnets were tested at three different temperatures, 0C, 100C, and -79C. 0C was reached by placing the magnets in ice water. 100C was reached by placing the magnets in boiling water. -79C was reached by placing the magnets under two blocks of dry ice. The magnets were dipped into a bowl of ball bearings, which were removed and counted to find the magnetic strength of the magnet. Each magnet was then tested at each of the three temperature three times.
Ceramic magnets (6); Containers (2400 BBs each) of 4.5mm steel ball bearings (2); Dry ice (2 blocks); Ice; Large shallow pot; Large pair of wooden tweezers; Measuring cup (¼ cup); Medium bowl; Notebook; Open indoor area; Open outdoor area; Pair of insulated gloves; Pencil; Permanent marker; 0.65L plastic containers (6); 81/2 x 11 poster board; Protective clothing (sweatshirt, jeans, etc.); Safety goggles; Small bowls (7); Small sticky notes; Small Ziploc bags (6); Stove; Water (2L)

Results
It was found that the magnets tested at 0C had the greatest strength and the magnets tested at 100C had the least strength. The magnets picked up an average of 547 BBs at 0C, 425 BBs at 100C, and 470 BBs at -79.

Conclusions/Discussion
The results of this experiment did not support the hypothesis, as the magnets tested at -79C did not have a greater strength than the tests at 0C. The theory as to how the results did not support the hypothesis is that the magnets decreased in strength overall as they were in contact with the ball bearings

Summary Statement
In this experiment, 6 ceramic magnets were tested at three temperatures to find how temperature affects the magnetic strength of a magnet.

Help Received