CALIFORNIA STATE SCIENCE FAIR
2002 PROJECT SUMMARY

Name(s)
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Project Number
S1517

Project Title
Radiation Absorption

Abstract

Objectives/Goals
The objective of my project was to determine the characteristics of radiation and to find the best overall shield to stop the penetrating power of my radiation sources (Gamma, beta, and alpha).

Methods/Materials
The radiation sources included Strontium 90 for the Beta source, Cobalt 60 for the Gamma, and Polonium 210 for the Alpha source. A gieger counter was used to measure the counts and analyza the pentrating power of each source, using different shields, thickness, number of layers, and type (lead, aluminum, copper). The geiger counter was also used to determine the absorption coefficient and inverse square law.

Results
Using the data derived from my experiment, lead proved to be the best overall shield. Due to the nature of alpha particles, they were easily stopped by all shields. The inverse square law proved the electrogmagnet charateristics of gamma rays and the linear absoprtion coefficient showed the penetrating power of the three different types of radiation, gamma being the most potent.

Conclusions/Discussion
Gamma rays showed to be the strongest of all three types of radiation. Using the equation derived from the linear absorption coefficient the effectivness of the thickness compared to the strength and type of source can be analyzed. The nature of radiation is also explained through the inverse square law and statistics.

Summary Statement
Analyze the strength of radiation through different types of radiation and they're nature.

Help Received