



**CALIFORNIA STATE SCIENCE FAIR
2007 PROJECT SUMMARY**

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Project Title
Hydrogen Peroxide and Salt Water Battery

Abstract

Objectives/Goals
To measure the voltage/amperage generated by magnesium and iron electrodes immersed in a NaCl and H₂O₂ solution; and to demonstrate that a small light bulb can be illuminated through this process.

Methods/Materials
First, I screwed the miniature light base to the wood. I used a large plastic container and clipped the red wire to one screw and the black wire to the other screw. I had to connect the red alligator clip to the iron electrode and secure it to the side of the container. Next, I connected the black alligator clip to the magnesium electrode and secured the side to the opposite end by using tape. In one pitcher, I prepared salt water. I made sure the electrodes were not touching and that the alligator clips were not touching the water. I poured the water with salt into the pitcher. No results. I added more salt. Nothing happened. I made the water warmer and still nothing happened. I read in the research I did that the oxygen in the air may not be enough to get light. In case this happened, I was supposed to add hydrogen peroxide to the salt water. I added the hydrogen peroxide. I stirred it and a little light was produced. I added more hydrogen peroxide and stirred and the bulb lit up for a longer duration and at a higher voltage. The voltage/amperage was measured throughout the process.

Results
The pitcher with water and salt produced no results. The addition of more salt to the water and the increase in temperature of the water also did not affect the water and salt solution.

Once hydrogen peroxide was added to the water and salt solution, light was produced. The more hydrogen peroxide that was added and the more the molecules were stirred, the more amperage/volts were produced, and therefore the light bulb was able to shine.

Conclusions/Discussion
Hydrogen peroxide when mixed with water and salt can illuminate a light bulb.

A few changes were made to the original design, but in the end it all worked out and the light bulb was able to glow.

Maybe one day, I will have a big tank with salt water and metal outside my house supplying me with electricity.

Summary Statement
H₂O₂ mixed with NaCl and H₂O produces enough electricity to illuminate a bulb.

Help Received
My mother purchased the supplies and typed the report, and my father helped me physically construct the project.