CALIFORNIA STATE SCIENCE FAIR
2003 PROJECT SUMMARY

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Project Number
23541

Project Title
Ionic Concentration vs. Electrical Conductivity in a Saline Solution

Abstract

Objectives/Goals
The objective was to determine if there was an optimum level of concentration (OLC) in a saline solution. Another thing i wanted to find out, was if the temperature had any affect on where the OLC is, if there was an OLC.

Methods/Materials
After figuring out .25 mole of NaCl was 14.608 grams, I measured the tare weight (a plastic cup) and I added the 9.3 grams to the 14.608 grams and got the number I could use to measure out the .25 mole. I measured out 1 liter of distilled water. After the water was measured, I mixed the .25 mole of NaCl and the 1 liter of water together. I waited 10 minutes for the NaCl to dissolve, then measured out 400 ml. into a 2 cup measuring cup. I put the ohmeter into the water and gave it 10 minutes to satblize. After the reading was recorded, I dumped out the solution and measured another liter of distilled water and then mixed .5 mole of NaCl into the water. I repeated the steps until I got 2 readings that showed that the conductivity worsened instead of getting better.

Results
The lower temperatues needed larger amounts of NaCl before the optimum level of concentration was found. The gigher the temperature, the less amont of NaCl was needed to reach teh optimum concentration Level (OCL).

Conclusions/Discussion
My data shows that there is an optimum level of concentration in a saline solution. During my testing, I noticed that the higher temperatures needed less NaCl to reach that level than the colder temperatures did.

Summary Statement
I tested to see if there was an optimum level of concentration in saline solutions.

Help Received