



**CALIFORNIA STATE SCIENCE FAIR
2003 PROJECT SUMMARY**

Name(s) Patrick R. McKeown	Project Number J0519
Project Title Electrolyte Electrolysis	
Abstract Objectives/Goals The objective is to determine whether Sulfuric acid or Sodium Sulfate is a stronger electrolyte in electrolysis (which one causes Hydrogen gas to be produced more). Methods/Materials Equipment needed includes a power source with voltage and current gages, 2 carbon electrodes, 2 test tubes, test tube holders, a large bowl, plenty of distilled water, Sodium sulfate and sulfuric acid as electrolytes. Fill the bowl high enough so that the electrodes are under water with room to spare. Make sure that you fill it the same amount every time. Place electrodes that are connected to power source into water. Put funnels above electrodes to assure all the gas produced goes into test tubes. Add a half gram of one electrolyte and stir to dissolve it for approximately one minute. Fill the test tubes with solution. Place them in the test tube holders and insert them upside down over the electrodes and the funnels into the bowl full of water. Turn on the power and adjust the voltage so that the voltage stays at 25 volts. Measure the amount of time it takes for the tube containing hydrogen to produce 1 and 2 ml of gas from the top of the test tube as noted by a line on test tube. Repeat several times to produce an average time. Continue adding half grams and repeating steps 3 through 5 until you have a total of 6 grams in the water. Repeat steps 2 though 6 with a fresh bowl of water. Repeat all steps with the other electrolyte. Results Results showed that Sulfuric acid was consistently faster than Sodium Sulfate at all amounts of electrolyte added. Conclusions/Discussion In conclusion I discovered that Sulfuric acid was a stronger electrolyte than Sodium sulfate. When measured in inverse time form it was approximately 2.25 times faster than Sodium Sulfate. This might be related to the fact that Sulfuric acid is highly reactant to many substances while Sodium Sulfate is not.	
Summary Statement Adding 2 different chemicals to distilled water and seeing which causes electrolysis to be faster.	
Help Received Mom helped with ideas and suggested improvements, Dad with building the experimental setup. Both helped pour dangerous chemical.	