



**CALIFORNIA STATE SCIENCE FAIR
2004 PROJECT SUMMARY**

Name(s) Taras B. Dreszer	Project Number J0808
Project Title Hydrogen Factory in a Bottle: Getting Hydrogen from Organic Waste and Anaerobic Bacteria	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals I am trying to produce hydrogen as a clean energy source. The two current methods to obtain hydrogen are either expensive or pollute. Can I get hydrogen from anaerobic bacteria and organic waste? Hypothesis: It is possible to obtain hydrogen from organic waste using anaerobic bacteria.</p> <p>Methods/Materials In this experiment I baked dirt to isolate heat resistant spores of anaerobic bacteria. I then chopped and boiled corn stalk and combined it with the dirt in a bottle, removing oxygen. From this I collected biogas, and attempted to isolate hydrogen by having it leak from a balloon. Finally, I used a mass spectrometer to determine if I had produced and isolated hydrogen.</p> <p>Results I got a total of 109 ml. of biogas, but only 1.5 ml of gas escaped the balloon. With the mass spectrometer, I proved that this was almost pure hydrogen.</p> <p>Conclusions/Discussion I believe that I have proven my hypothesis, but my methods have also proven to be inefficient. Although I did not prove that you could run a hydrogen economy on organic waste I did learn a great deal.</p>	
Summary Statement I obtained hydrogen from organic waste using anaerobic bacteria.	
Help Received Father helped with set up, take down and transportation; Kirk Gilmore provided access to a Mass Spectrometer.	