



**CALIFORNIA STATE SCIENCE FAIR
2003 PROJECT SUMMARY**

Name(s) Jessica L. Wertheim	Project Number J1135
Project Title Sodium Polycrilate: Out with the Old, Absorb with the New	
Abstract Objectives/Goals The objective is to determine which different type of disposable diaper and cloth diaper can absorb the most water, and how the sodium polycrilate affects the absorbency. Methods/Materials Twenty Huggies diapers, twenty Pampers diapers and five cloth diapers were tested by pouring water from a 50 mL beaker into them until they started to leak. Each time after the cloth diaper was tested, it was washed in the washing machine. The sodium polycrilate was taken out of the Huggies diaper and weighed on a scale as well as the sodium polycrilate from the Pampers diaper. Results The Huggies diaper weighed 50 grams, had the average absorbency of 507.6 mL and had 22.27 grams of sodium polycrilate inside. The Pampers diaper weighed 45.65 grams, had an average absorbency of 392.1 mL and had 17.29 grams of sodium polycrilate inside. In both cases the absorbency of the polycrilate was approximately 23 mL of water/gram of polycrilate. There was a difference of 5 grams in total weight of the disposable diapers and a difference of 5 grams on the polycrilate. The weight of the cloth diaper was 31.6 grams and could only hold an average of 14.2 mL of water. Conclusions/Discussion The Huggies diaper was the most absorbent diaper out of the other two by far. About half of the Huggies diaper was filled with the sodium polycrilate and that's what made it have the best absorbency. A pack of 40 Huggies diaper costs about 10 dollars whereas the Pampers diapers which costed around 12 dollars for a pack of 40. Even though the amount of polycrilate is higher in Huggies, the Huggies are less expensive. Because the cloth diapers are made of 100% cotton, they shrank every time they were washed and became very thin. The cost of each cloth diaper was around five or six dollars. With less leaks from the disposable diapers, there will be less waste produced because they can be used on the child longer. With cloth diapers, there would be more soiled laundry which would increase the use of water in both cleaning the diapers and having to clean other clothing that might have gotten soiled. Although the disposable diapers contribute to the landfill issue, they are saving water and electricity.	
Summary Statement My project is about the sodium polycrilate that are inside the disposable diapers, and how it affects the absorbency.	
Help Received My Mother helped me test the diapers. My teacher helped me with my abstract.	