



**CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY**

Name(s) Rachel E. Palfini	Project Number S0518
Project Title Is Mercury Released from Dental Amalgam in an Acidic Environment?	
Abstract Objectives/Goals The purpose of this experiment was to determine if mercury is released from silver amalgam dental fillings in different acidic environments that simulate the human body. Methods/Materials Dental amalgam fillings were placed in 12 extracted wisdom teeth. The teeth soaked in 3 different pH solutions of pH1, pH4 and pH7 for 48 hours. After 48 hours, the teeth were removed and the solutions were tested for the presence of mercury. A mercury test swab was used to that detects the presence of 2 micrograms of mercury in solution. Results The solutions of pH 4 and pH7 all tested positive for the presence of mercury while the solutions of pH1 tested negative. I observed the same result in all 4 trials of each pH solution. Conclusions/Discussion My tests indicate that mercury is released from dental amalgam fillings in an environment of pH4 and pH7 but not pH1. Although the pH4 and pH7 solutions tested positive for mercury, I was not able to quantitate the amount of mercury released. Numerous health authorities have concluded that trace amounts of mercury do not adversely effect human health. This was an unexpected result as I expected the mercury in dental amalgam to react more in an acidic environment, not a neutral or mildly acidic solution.	
Summary Statement I wanted to test if mercury is released from dental amalgam in pH environments similar to the human body.	
Help Received Chemicals and equipment were borrowed from Annie Tibbets at Laguna Hills High School, Dr. Roberta Dornan (mother) let me use her office to drill teeth and place amalgam fillings, Dr. Richard Mandel provided the extracted wisdom teeth.	