



**CALIFORNIA STATE SCIENCE FAIR
2005 PROJECT SUMMARY**

Name(s) Kevin R. Kocher	Project Number S0509
Project Title The Effect of an Acidic Environment on Dental Amalgam	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective is to determine if dental amalgam will release mercury when it is placed in an acidic environment for 48 hours.</p> <p>Methods/Materials Three different acids (citric, phosphoric, and sulfuric) as well as tap water were collected. These acids were used to create solutions with pH levels of 7, 5, 3, 2, 1, and 0. Dental amalgam was created by combining silver, tin, and copper with mercury in an amalgamator instrument. That amalgam was placed inside six nylon fasteners that simulated teeth. These "teeth" were each placed in one of the different acidic solutions and left for 48 hours. Then mercury test swabs were swirled around in each solution for one minute. If mercury was present, the swabs turned purple. This process was repeated twice.</p> <p>Results In all three trials, solution #6 (pH 0) was the only solution in which mercury was released and the nylon fastener completely dissolved. In solutions #1 (pH 7), #2 (pH 5), #3 (pH 3), #4 (pH 2), and #5 (pH 1), no mercury was released and the nylon fasteners were not dissolved.</p> <p>Conclusions/Discussion My conclusion is that mercury can be released from dental amalgam, but only at a pH level of 0 or below, which is far below what human saliva can consistently be.</p>	
Summary Statement My project is about whether or not mercury can be released from dental amalgam when placed in an acidic environment	
Help Received Mother helped paste project; borrowed test tubes from school; borrowed dental materials from father's dental office	