



**CALIFORNIA STATE SCIENCE FAIR
2005 PROJECT SUMMARY**

Name(s) Michael T. Bobich	Project Number 25375
Project Title The Efficacy of Several Detergents against Various Stains and Soils	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals This project determined the efficacy of several detergents against various stains and soils.</p> <p>Methods/Materials The experiment began with the application of each of 15 stains to 12 standard cloths (flags). Two flags were washed in each washing machine with a measured dose of a designated detergent and 6 lbs. of pillow cases and then rinsed. Each load of laundry was dried in its own dryer at a controlled temperature. The flags were then evaluated with a computerized colorimeter.</p> <p>Results Performance is summarized with an overall cleaning percentage. Tide with Bleach had the highest percentage at 81.22% against stains and 74.39% against soils. It was followed by Arm & Hammer (stains: 70.94%, soils: 66.96%) and Surf (stains: 64.38%, soils: 67.84%).</p> <p>Conclusions/Discussion My hypothesis that Tide with Bleach would be best proved correct. I observed vast differences in removal of grass stains and BPI stains. Efficacy on grass stains was due to the enzymes in Tide w/ Bleach and Arm & Hammer. Surf has none. On the BPI stain, Tide w/ Bleach dominated because it contains bleach. Finally gravy, make-up, and FPI stains, and the Sharpsburg soil, proved most difficult, as no detergent had a removal percentage over 70% on any of these.</p>	
Summary Statement This project determined the efficacy of several detergents against various types of stains and soils.	
Help Received I performed my science experiment at the Clorox Tech Center under the supervision of Dr. Gregory Van Buskirk.	