

## CALIFORNIA STATE SCIENCE FAIR 2002 PROJECT SUMMARY

Name(s) **Project Number** Stephen J. Steckbeck 22269 **Project Title Fender Bender Damage Resistance Abstract Objectives/Goals** nobile collision The objective of this project is to determine which material will resist low spee impact damage the best and potentially meet the Highway Transportation requirem Methods/Materials The researcher used four materials with the same thickness and size. Each material was formed into x U-shaped channel to simulate a bumper of an automobile. Each pumper was impacted by an 18.18 Kg weight at 34.9 Km/Hr which simulates the kinetic energy of a 1364 Kg car travelling at 4 Km/hr. Thex 34.9 Km/Hr was achieved by dropping the weights down a chore from 4.8 Kn high. the dent in the bumper was measured after each impact. Titanium had the least damage with a dent of only 2.0 mm. The remaining materials had an average depth of 104.6 mm for aluminum and 50 mm for stainless steel. Rlexiglas was also tested but shattered upx **Conclusions/Discussion** The researcher's conclusion is that titanium resist low speed automobile impact damage better than any of the other materials tested. Summary Statement scovering a material that won't dent in a low speed automobile collision. **Help Received** Grandmother's neighbor owns a sheet metal shop and supplied most of the material and formed all of the test specimens; Father helped me pour the foundation, build the wooden chute, and drop the 18.18 Kg weights during the testing; Grandmother allowed use of her back yard and garage for testing.