



**CALIFORNIA STATE SCIENCE FAIR
2006 PROJECT SUMMARY**

Name(s) Vitorio N.G. Lorenzini	Project Number J0718
Project Title Controlling Static Electricity in Critical Environments	
Abstract Objectives/Goals My objectives/goals were to determine what was the best method to remove static electricity from different common materials in various environments. Methods/Materials I used 17 different common materials. I induced a charge by tribo-electric charging, or charge generation by separation. I then measured the materials with a static meter and recorded the results. Then, I used two most commonly used static control methods. The first method was grounding, utilizing a wrist strap and grounding mat. The second method was ionization. An ionizer emits an equal amount of both positive and negative ions, which then mate with their opposite neutralizing the charge created. These experiments were conducted in three separate and different environments; ambient temperature and relative humidity, elevated temperature and relative humidity, and lowered temperature and relative humidity. Results My results were in ambient temperature and relative humidity the charge results varied considerably day by day. Certain materials such as polystyrene and low density polyethelene were susceptible to considerable charge generation. In elevated temperatures and relative humidity, the charge results were lower than the other trials. In the lowered temperature and relative humidity, the charge results were extremely high compared to other trials and environments. In almost all cases ionization was the most effective method to remove charges. Conclusions/Discussion Grounding was not an effective method of charge elimination on non-conductive materials. Ionization, in almost all cases, was the most effective and efficient method of eliminating charges. Furthermore, the best environment for controlling static electricity is an elevated temperature with elevated relative humidity.	
Summary Statement Controlling static electricity in various environments with different materials	
Help Received Dad helped me understand project and theories, Interviews were conducted with professionals in manufacturing, Mom helped assemble display board, Mrs. Reed provided guidance and suggestions for project success.	