



**CALIFORNIA STATE SCIENCE FAIR  
2016 PROJECT SUMMARY**

<b>Name(s)</b> <b>Katherine G. Champness</b>	<b>Project Number</b> <b>J1305</b>
<b>Project Title</b> <b>The Effect of Rapid Temperature Change on Protective Coatings</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The objective of this study is to determine the impact rapid temperature change has on protective coatings.</p> <p><b>Methods/Materials</b> Ice, Water, Bucket, Lab, Oven, Gloves, Safety glasses, Infrared Thermometer, 8 - 3mm x 25mm x 200mm steel plates with fusion bonded epoxy.</p> <p><b>Results</b> The coated plates were heated from ambient temperature to a prescribed temperature. Once the plate reached this temperature the coated plate was immediately placed in ice water. After a series of trials the coating did not demonstrate failure.</p> <p><b>Conclusions/Discussion</b> The data did not support my hypothesis. Rapid temperature change did not effect the coating ability to protect the substrate. However, the coating performance did fail due to extreme temperature rather than rapid cooling.</p>	
<b>Summary Statement</b> I showed that rapid temperature change did not effect the protective coating, however high temperatures degrade the coating.	
<b>Help Received</b> My cousin provided the coated plates and supervised me while conducting the experiment.	