shat-r-shield® INC.
The Protective Lighting Company

Shat-R-Shield Cree Chemical Compatibility Results

Jan 28, 2014 – Shat-R-Shield, Inc. provides data illustrating the successful completion of the Cree chemical compatibility test.

Shat-R-Shield's silicone conformal coating products are formulated to provide maximum protection with minimal effect to LED and circuit boards. Shat-R-Shield's silicone coating provides protection against moisture, dust, chemicals, salt spray, thermal shock, organic growth and corrosion. The conformal coating is dispensed with computer controlled machinery to ensure the material is applied only to areas specified by the customer in a repeatable manner.

Shat-R-Shield underwent the Cree compatibility test for their PRS424 product utilizing Cree's XP-E and MX6 test boards. The test was performed per Cree XLamp LEDs Chemical Compatibility document CLD-AP63 REV 4. The boards were mounted two inches from a support platform and supplied the appropriate drive current. A special adaptor was made so each LED could be measured in situ during the 1000 hour test. The information measured during test includes light output, CCT, CIE1976 color coordinate, and CRI. The data summarized in this report includes the relative change in light output and shift in color coordinate. CRI is not included due to no discernable shift in that metric.

Figure 1 Test board mount

Figure 2 LED close up

The XP-E product had no compatibility issues with PRS424. Visually there was no discoloration of the LED or LED package observed. Instead of relying on visual cues from the LEDs a summary of the measured data is provided below. Note how the control and the experimental data sets overlap and trend together over time.

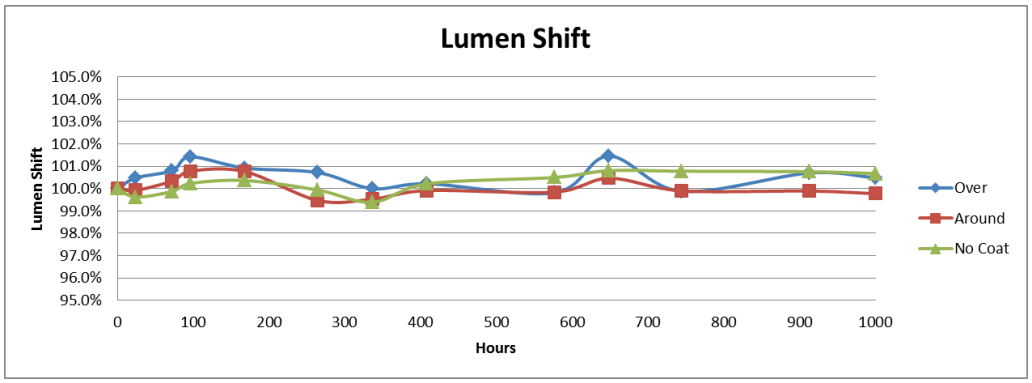

Figure 3 XP-E Lumen maintenance over time

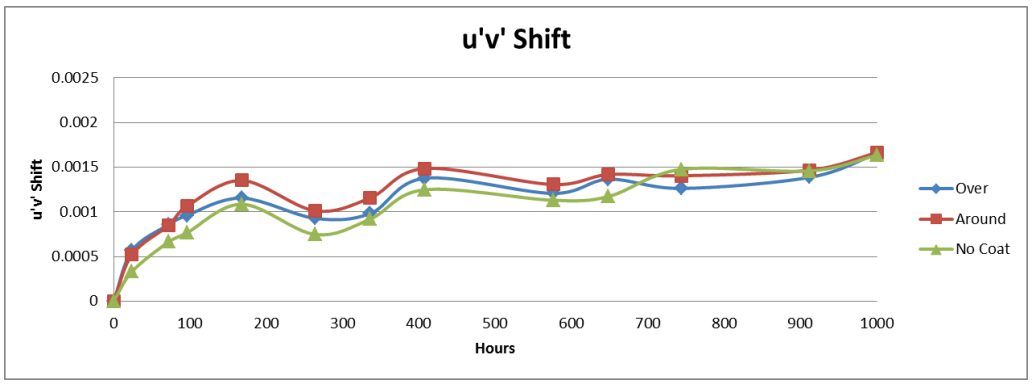

Figure 4 XP-E du'v' shift over time

Drive Current	700mA
Ambient Temperature	23C
Heat Sink	No
Lumen Shift	No Shift – Same as control
du'v' Shift	0.0015 shift at 1000 hours – Same as control

Figure 5 XP-E Summary

The XP-E data clearly indicates there are no compatibility issues with PRS424.

The MX-6 LED product also performed well with PRS424. The lumen performance over time for each sample was equivalent and du'v' was slightly higher for the LEDs exposed to PRS424. The difference between the coated and uncoated LEDs was only 0.0003 du'v' after 1000 hours.

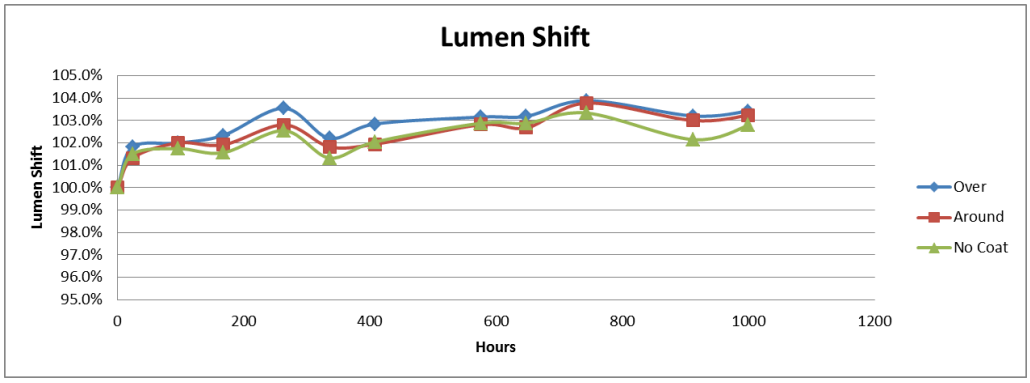

Figure 6 MX-6 maintenance over time

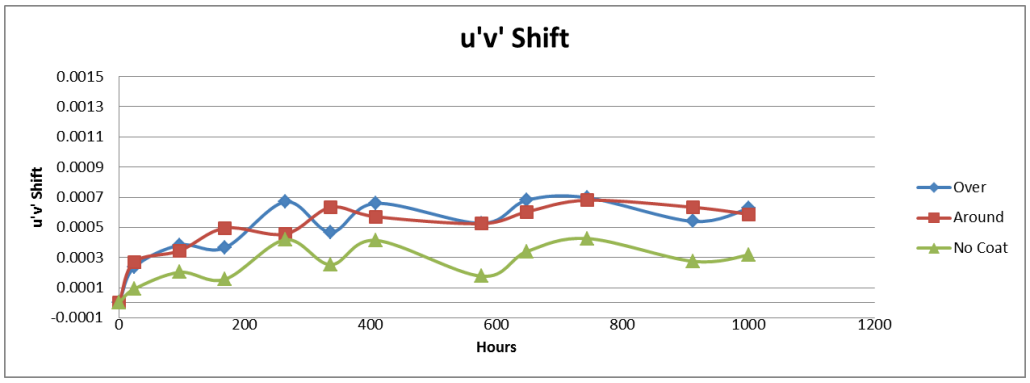

Figure 7 MX-6 du'v' shift over time

Drive Current	350mA
Ambient Temperature	23C
Heat Sink	No
Lumen Shift	No Shift – Same as control
du'v' Shift	0.0003 shift higher then control at 1000 hours

Figure 8 MX-6 Summary

Shat-R-Shield's PRS424 conformal coating material provides the needed protection to ensure LED boards will continue to function in hostile environments. As with any LED lighting solution conformal coating of LED boards offers design engineers another tool to bring their lighting ideas to life.

Additional information concerning Shat-R-Shield's conformal coating services can be found at www.shatrshield.com. Contact Shat-R-Shield today about your conformal coating needs.

Contact

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