

**RESULT SUMMARY FOR SAMPLE TESTING**

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| Customer:    | Luminore  |
| Material:    | MC-156 Crystal MicroClear   |
| Test:        | Corrosion/UV resistance of MC-156 Topcoat over Luminore architectural coating |
| Report Date: | 05/28/09  |

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**Test Summary:**

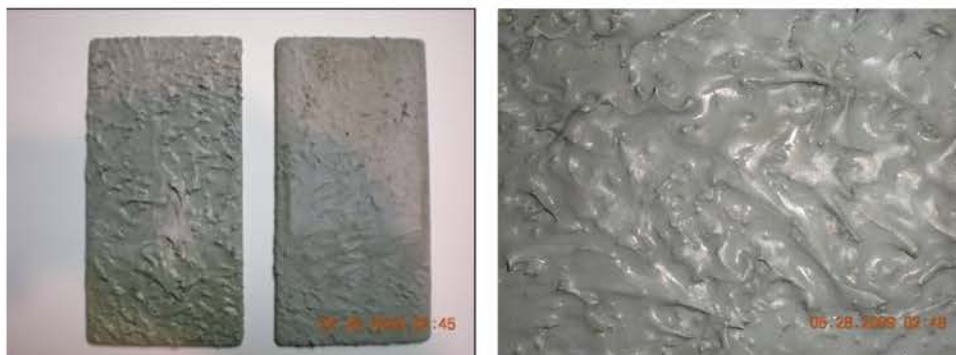
A test was conducted to determine the environmental protection capabilities of MC-156 Crystal MicroClear as a topcoat for a Luminore architectural coating. Test panels were supplied by Luminore and coated with MC-156 Crystal MicroClear by NIC Industries, Inc. Following the application of MC-156, the panels were allowed to cure for 5 days at ambient temperature. When the cure cycle was complete, testing was initialized to determine the corrosion resistance and ultraviolet light (UV) stability of the MC-156/Luminore system. Corrosion resistance testing was performed in accordance with ASTM B117. Under the guidelines of this standard, the panels were subjected to a continuous spray of 5% salt solution at ASTM specified temperatures. The UV stability was tested by using a QUV machine under the guidelines of ASTM G154. During this test cycle, the test panels were exposed to UV light in 4 hour cycles alternating with condensation at ASTM specified temperatures. A summary of the test results is shown below.

**Test Results:**

Testing for the MC-156/Luminore panels began in September 2008 and continued until May 2009. These tests were designed to proceed until the point of failure or a satisfactory result was obtained. Each sample set was checked every 48 hours during the course of the testing period. Any changes in color, gloss, or corrosion were noted at that time.

**UV/Condensation Testing:**

The UV/condensation stability of the MC-156/Luminore system was excellent. Exposure to high humidity and UV light did not result in any corrosion of the surface. Additionally, the MC-156 remained clear and glossy following 5750 hours of exposure. An image of this test panel is shown in the left photograph in Figure 1. The panel coated with MC-156 (left side of the photo) is compared to an uncoated Luminore test panel (right side of the photo). As shown, the MC-156 remained lustrous and did not yellow. There was no corrosion evident on the surface of the panel (as shown in the second photograph in Figure 1). Ultimately the MC-156 topcoat prevented the loss of gloss from the bare Luminore coating. Additionally, one of the test panels was subjected to rust by an outside source. The MC-156 topcoat prevented staining of the underlying substrate.



**Figure 1.** (Left Photo) Comparison of MC-156 coated panel (left side) to an uncoated Luminore test panel (right side) taken after 5750 hours of exposure. (Right Photo) Enhanced view of the surface of the MC-156 coated Luminore panel.

**Corrosion Testing:**

The MC-156 topcoat was successful in preventing corrosion of the surface. The topcoat remained glossy and clear without any signs of corrosion on the substrate up to 3500 hours (left photograph in Figure 2). Past this point, localized areas of low luster began to appear. At 5000 hours the surface was determined to be “failed.” The “failed” surface had low gloss and appeared more “chalky” when compared to other test samples (right photograph in Figure 2).



**Figure 2.** (Left Photo) Surface of MC-156 coated panel following 3500 hours in 5% salt solution. (Right Photo) MC-156 coated Luminore panel following 5000 exposure to 5% salt solution.

Cerakote™ MC-156 Crystal MicroClear is a viable solution to prevent deterioration due to ultraviolet light, humidity, and oxidation. The long exposure times studied for this test indicate that MC-156 will significantly increase the service life of Luminore.