Testing Results for Rust Grip®-E plus Enamo Grip Coating System after 2000 Hours of Exposure in Salt-Spray Chamber in Accordance with ASTM B117

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1 Introduction

This report documents testing data and results of a coupon coated with Rust Grip®-E plus Enamo Grip coating after 2000 hours of exposure in accordance with ASTM B117 (ASTM International, 2007). Three Rust Grip®-E plus Enamo Grip coated coupons were provided to Southwest Research Institute® (SwRI®). Enamo Grip was applied on top of Rust Grip®-E. The average dry film thickness of the coating on the coupons was approximately 8.5 mils (215 µm). Images of the as received coupons are provided in Figure 1(a). The coupons were conditioned for the testing by placing them in a low humidity environment at 25 °C for 24 hours. Following this, the coupons were placed in a salt-spray chamber where they were exposed to 5 percent sodium chloride solution at 35 ± 2 °C for 2000 hours (12 weeks) as per ASTM B117. This test is used to evaluate performance of coatings in outdoor corrosive environments, especially marine environments, and it can be used to assess corrosion performance of coatings subjected to relatively hotter and corrosive environmental conditions. At the completion of the test, the coupons were cleaned with distilled water immediately after their removal from the chamber, and then evaluated for coating performance. The coupons were analyzed for blistering in accordance with ASTM D714 (ASTM International, 2002) and for rusting in accordance with ASTM D610 (ASTM International, 2008).

2 Testing Data and Results

The testing data is presented in form of coupon's images in Figure 1 (b) after 2000 hours of exposure. The before- and after-exposure images are analyzed to determine the degree and cause of blistering on the coupons. Only very minute blistering was observed on top and side edge of one two of the coupons. This is due to the edge effect and not due to the coating performance. The rust like slither that runs down the coupon comes from a paint-type solution that was applied to the edges and back of the coupon. The paint-type solution is red, and produces reddish-brown leachate when it contacts the salt solution used during the exposure. No corrosion spots were observed on the coupons' surfaces.

3 Conclusions

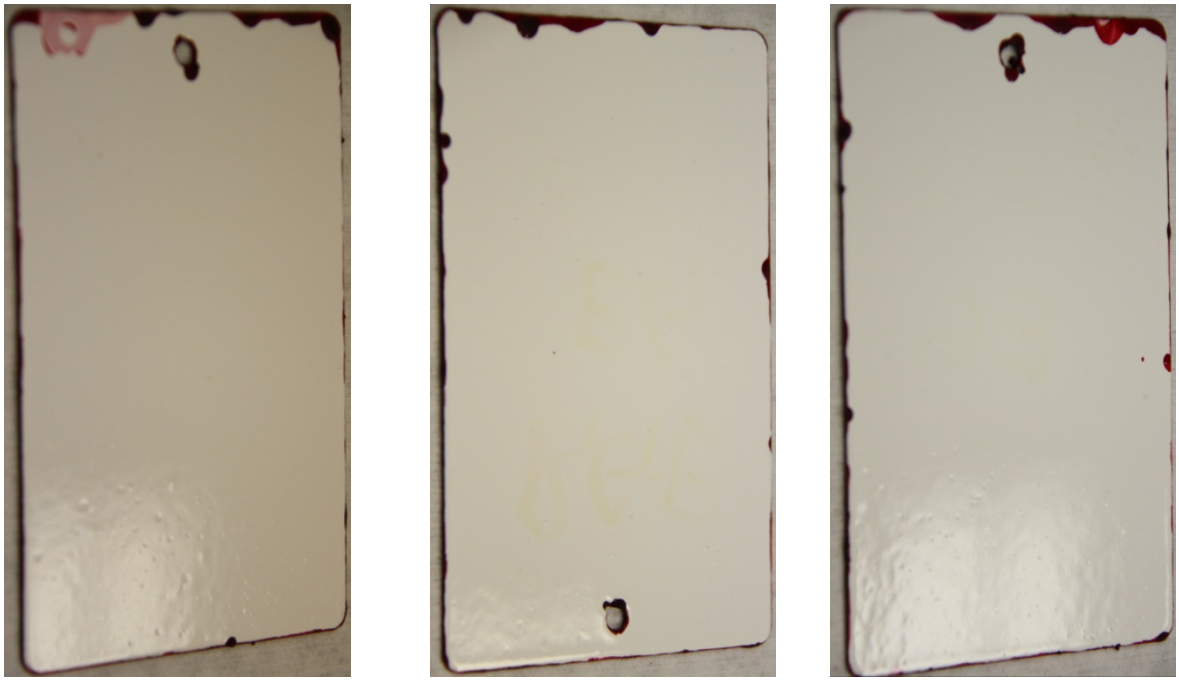
No blistering was observed and no corrosion spots were detected after 2000 hours of exposure in accordance with ASTM B117. As per ASTM D714 and ASTM D610, Rust Grip®-E plus Enamo Grip is rated 10 for its performance.

4 References

ASTM International. ASTM B117–11, "Standard Practice for Operating Salt Spray (Fog) Apparatus." West Conshohocken, Pennsylvania: ASTM International. 2007.

——. ASTM D714–02, "Standard Test Method for Evaluating Degree of Blistering of Paints." West Conshohocken, Pennsylvania: ASTM International. 2002.

——. ASTM D610–08, "Standard Practice for Evaluating Degree of Rusting on Painted Steel Surfaces." West Conshohocken, Pennsylvania: ASTM International. 2008.



(a) Before Exposure

(b) After Exposure

Figure 1. Images of the Rust Grip®-E plus Enamo Grip Coupons (a) Before and (b) After 2000 hours of Exposure in Accordance with ASTM B117