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## **KTA-TATOR, INC.**

115 Technology Drive, Pittsburgh, PA 15275

April 15, 2004

Mr. J. W. Ahn, President  
SKS Co., Ltd.  
384-4 Cheong Cheon Dong  
Bupyeong-GU  
Incheon, Korea

**SUBJECT: Results of IICL Paint Testing of Exterior System – KTA Project No. 240004**

Dear Mr. Ahn:

In accordance with your transmittal of January 2, 2004, KTA-Tator, Inc. (KTA) has completed the application and testing of one (1) exterior coating system in accordance with the general and detailed procedures of the Institute of International Container Lessors (IICL). This report contains the application and testing procedures as well as the results of the corrosive, mechanical and cosmetic evaluations conducted on the test specimens.

### **SUMMARY**

One (1) three-coat exterior system (SA2.5, Zinky #200Z/Fostite #5000-HB, MS-800/Hiurelon NY-HB – MS-465) manufactured by SKS Co., Ltd. was tested on Docol Plate in accordance with IICL procedures. The final rating of the system was (95), which is between the minimum and maximum rating of 70/100. Supporting data for the rating is provided in Tables IV - IX, appended.

### **LABORATORY INVESTIGATION**

The laboratory investigation consisted of specimen preparation, testing and evaluation.

#### **Specimen Preparation**

The substrate materials used to fabricate the panels reportedly consisted of 75 x 150 mm Docol Plate, supplied to KTA by SKS Co., Ltd. Prior to coating application, all test panels were solvent cleaned to remove grease and oil contamination (SSPC-SP1), then abrasive blast cleaned to ISO SIS 05 5900 SA2.5 (near-white metal) with a nominal surface roughness ( $R_z$ ) of 25 to 40 micrometers.

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After surface preparation, a three coat system consisting of Zinky #200Z primer, Fostite #5000-HB (MS-800) intermediate coat and Hiurelon NY-HB (MS-465) topcoat, manufactured by SKS Co., Ltd. was applied by KTA in accordance with the manufacturers instructions, using conventional (pressure pot) spray application. Test panel preparation forms are attached.

Table I (see appendix) contains a summary of the system tested during this program. The application instructions used to prepare the specimens is attached herein.

Table II in the appendix is a summary of the curing conditions for the coating system. The final coating system was force cured at 70°C for 10 minutes. The completed coating system was permitted to cure a minimum of seven (7) days at room temperature prior to testing.

Table III in the appendix is a summary of the target and actual dry coating thickness data obtained on the test specimens for each of the coating layers. Actual coating thickness measurements are contained in the Test Panel Records.

### **Testing and Evaluation**

The testing of the cured coating system entailed color and gloss before and after cyclic weathering, and evaluations for blistering, degree of rusting, undercutting, adhesion, and impact resistance after cyclic weathering.

The coating system was subjected to cyclic testing (exterior cycle). The cycle consisted of 72 hours in an ASTM G-53 UV/condensation apparatus (QUV) programmed for eight hours of UV at 60°C (using UVA-340 lamps) and four hours of condensation at 50°C. Following the 72 hours in the QUV chamber, the panels were placed in a Q-Fog (Prohesion) cabinet and subjected to 96 hours of a cycle consisting of four hours wet at 30°C followed by two hours dry at 40°C. Accordingly, each cycle consisted of 72 hours in the QUV cabinet followed by 96 hours in the Prohesion cabinet, for a total of eight (8) cycles (56 days).

At the end of the 56 days of cyclic weathering, the coated specimens were evaluated for blistering (ASTM D714), rusting (ASTM D610), undercutting (ASTM D1654, modified), adhesion (ASTM D3359), and reverse/direct impact resistance (ASTM D2794). In addition, the system was evaluated for pre- and post-exposure color difference (ASTM D2244) and gloss (ASTM D523) reduction.

The blistering and rusting results are shown in Table IV, appended, along with the IICL unit value and points scores. The undercutting results are contained in Table V, also appended, along with the IICL unit value and points scores. The adhesion and impact resistance results are contained in Table VI, along with their respective scores, and the color and gloss results are contained in Tables VII and VIII, respectively. All evaluations and scoring methods were performed in accordance with the instructions in the IICL method. The final tabulation of test scores is contained in Table IX in the appendix.

## DISCUSSION

One (1) three-coat interior system (SA 2.5/ Zinky #200Z primer/Fostite #5000-HB [MS-800] intermediate coat/Hiurelon NY-HB [MS-465] topcoat) manufactured by SKS Co., Ltd. was applied, tested and evaluated in accordance with the IICL procedures. Table IX in the appendix summarizes the performance of the system. Briefly, scores are obtained for three categories for exterior systems (corrosive, mechanical, and cosmetic). The IICL procedures list a suggested minimum score for each category, and also for the final point total. In terms of the total score, the system scored an (95), which exceeded the IICL recommended minimum (70). Detailed scores for the coating system for each category are included in Table IX.

If you have questions regarding the information contained herein, please do not hesitate to contact this office.

Very truly yours,

**KTA-TATOR, INC.**



William D. Corbett  
*Technical Services Administrator*

WDC/FAM:wc

**NOTICE:** This report represents the opinion of KTA-TATOR, Inc. This report is issued in conformance with generally acceptable industry practices. While every precaution was taken to ensure that all information gathered and presented is accurate, complete and technically correct, it is based on the information, data, time, materials, and/or samples afforded.