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Protection of Steel Part Prior to Powder Coating

To: Customer

From: Cortec Corporation Laboratories
4119 White Bear Parkway
St. Paul, MN 55110

cc: Boris Miksic
Cliff Cracauer
Mike Gonzalez

Project #: 13-236-1625.bis

Test conducted by:

A handwritten signature in black ink that reads "Caleb Pheneger".

Caleb Pheneger
Technical Service Engineer

Approved by:

A handwritten signature in black ink that reads "M. Kharshan" followed by a horizontal line.

Margarita Kharshan
V.P. of R&D

Date: December 6, 2013



Background: The customer has angled brackets that need protection before powder coating to help ensure no negative affect on their powder coat performance.

Sample Received: 9-20-13 received in rusted conditions: 5 angled brackets and 16 ounce samples of cleaner and sealer

Method: Rust Removal and Cleaning (with flash rust observation)

Materials: Zirtech 100M Cleaner
SecureKote 200 Sealer
VpCI-440
VpCI-418 LM
VpCI-422
DI Water

Procedure: The following procedure was used:

1. All 5 parts were immersed in VpCI-422 for 1 hour to remove rust and then immediately rinsed with VpCI-418 LM to neutralize the rust remover.
2. The parts were then treated with the following with drip drying between each step:
 - a. 3 parts = Methanol → VpCI-418 LM → VpCI-440
 - b. 2 parts = Methanol → Zirtech 100M → SecureKote 200
3. Each product was used at the following dilutions:
 - a. VpCI-440 = 0.5% in water
 - b. VpCI-418 LM = 5.0% in water
 - c. Zirtech 100 M = 5.0% in water
 - d. SecureKote 200 = 5.0% in water
4. All parts were observed after each step for corrosion or any other visual change to the part.
5. Two of the Cortec treated parts and 1 of the competitor treated parts was returned to the customer for powder coating. The other 2 parts (1 of each type) were left at the lab to be available for further testing if needed.

Results: Flash Rust Observation

Product	Visual Change in the Part
Methanol	No visual change
VpCI-418 LM	No visual change
VpCI-440	No visual change
Zirtech 100M	No visual change
SecureKote 200	Flash rust on any flat section and darkening/streaking elsewhere

Interpretations: Cortec treatment maintained the color and finish of the parts while the SecureKote 200 product caused flash rust and streaking on the part. The streaking may have no negative affect on the powder coat, but the flash rust will likely affect adhesion of the coating in this area. Please see the photo below to see the difference. Note that any change in the finish of the parts occurred during the rust removal process and not from the VpCI-418 LM and VpCI-440.

Photos:

