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***Comparison of Cortec and Commercially Available
Rust Preventatives***

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Project #: 12-266-1625 Part III.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" with a horizontal line extending to the right.

Margarita Kharshan
Laboratory Director

Date: March 22, 2013



Background: It was requested that testing be completed to compare commercially available rust preventatives to Cortec products.

Materials: EcoAir VpCI-377
EcoAir BioCorr
EcoSpray VpCI-325
EcoLine 3690
EcoLine 3220
Evapo-Rust Rust-Block
Dry Coat Rust Preventative
Rust-Oleum Rust Inhibitor
Laboratory Grade Methanol
1010 Carbon Steel Test Panels

Method: ASTM D-1748 (120 °F and ~99% relative humidity)

Procedure: The following procedure was used:

- 1) Clean 9 carbon steel test panels with methanol and wipe dry with lint-free wipe.
- 2) Set 1 test panel aside to not be coated.
- 3) Coat 1 panel with each of the following treatments by dip application:
 - a. EcoLine 3220
 - b. EcoLine 3690
- 4) Coat 1 panel with each of the following treatments by spray application as directed on the product:
 - a. Rust-Block
 - b. VpCI-325
 - c. VpCI-377
 - d. BioCorr
 - e. Dry Coat RP
 - f. R-O Rust Inhibitor
- 5) Allow the panels to hang on plastic coated wire hooks for 24 hours.
- 6) Hang each of the 9 panels in the ASTM D-1748 humidity cabinet by the plastic coated wire hooks.
- 7) Visually inspect the test panels daily for corrosion failure
 - a. Failure is determined by 3 spots of visual corrosion
- 8) Remove the panels from the test chamber after 1000 hours and photograph

Results: The following results were found:

Table 1: Results of ASTM D-1748 Testing

Rust Preventative Used	Time to Failure
EcoAir BioCorr	648 hours
EcoAir VpCI-377	864 hours
None (control)	24 hours
EcoLine 3220	984 hours
EcoLine 3690	DNF*
VpCI-325	696 hours
Evapo-Rust Rust-Block	48 hours
Dry Coat Rust Preventative	48 hours
Rust-Oleum Rust Inhibitor	144 hours

DNF* = Did Not Fail during 1000 hours of testing

Interpretations: Based on the humidity testing conducted according to ASTM D-1748, Cortec products performed better than the tested commercially available products. EcoLine 3690 performed best, as no failure was reached in 1000 hours of testing. All Cortec products failed after 600 hours, while the best commercial product (Rust-Oleum Rust Inhibitor) failed at only 144 hours. The photos below verify the higher performance of Cortec products over the commercially available rust preventatives.

Photos: All photos below taken after 1000 hours of testing.



R-O Rust Inhibitor

VpCI-325

VpCI-377



BioCorr



EcoLine 3220



EcoLine 3690



Dry Coat RP



Rust-Block