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*Evaluating Rust Preventive Liquids for
Customer*

To: Jessica Carpenter

From: Cortec Corporation Laboratories
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Project #: 13-176-1825.bis

Test conducted by:

A handwritten signature in black ink that reads "Eric Uutala".

Eric Uutala
Technical Service Engineer

Approved by:

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

Margarita Kharshan
Laboratory Director

Date: October 18, 2013



Background: Customer is a global provider of world class deep drawn metal stampings in steel, aluminum, and other metals. Customer would like Cortec to compare the corrosion preventive properties of their current process fluids to similar Cortec products.

Sample Received: Four steel stampings
Milform 8050 (8 ounces)
Rust Veto 4240 (8 ounces)

Method: ASTM D-1735 Water Fog (100F, >95% relative humidity)

Materials: Steel stampings
L-590 Cleaner (-8 ounces)
Rust Veto 4240 (~8 ounces)
BioCorr (Batch #13013)
VpCI-377 (Batch #01663)
Deionized water

Procedure: The following procedure was used:

- 1) All steel stampings were visually inspected prior to testing.
- 2) After inspection, parts were prepared as follows:
 - a. The first part was not treated at all, and was tested as a control.
 - b. The second part was dipped in L-590 cleaner (neat), then immediately dipped in Rust Veto 4240.
 - c. The third part was dipped in L-590 (neat), then immediately dipped in BioCorr.
 - d. The third part was dipped in L-590 (neat), then immediately dipped in VpCI-377.
 - i. VpCI-377 was diluted to 7% solution, by weight, in deionized water.
- 3) After preparation, all parts were allowed to air dry overnight.
- 4) All parts were then placed in ASTM D-1735 water fog cabinet.
- 5) All parts were visually inspected periodically.
- 6) After 500 hours, all parts were removed from ASTM D-1735 water fog cabinet.
- 7) All parts were visually inspected and photographed.

Results: The following results were found:

Part Treatment	Time to Corrosion (Hours)
None (Control)	<24
Rust Veto 4240	168
BioCorr	500
VpCI-377 (10%)	408

Photos:



Figure 1: Steel stampings after 500 hours in ASTM D-1735 water fog cabinet. From left to right: Control, Current System, BioCorr, and VpCI-377.

Interpretations: After 500 hours in ASTM D-1735 water fog testing, BioCorr provided the best corrosion protection, followed by VpCI-377.