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Evaluating Corrosion Protection Systems for Bar Stock

Background: Customer sent bar stock to Cortec and would like various coatings compared and evaluated in salt fog testing. The corrosion inhibiting benefits of VpCI-126 will also be tested.

Purpose: To evaluate and compare, in salt fog testing, corrosion protection on bar stock.

Method: ASTM B-117 Salt Fog (95°F, 5% NaCl solution)

Materials: 10 pieces of bar stock
 VpCI-126 Blue film bags
 VpCI-368
 VpCI-369

Procedure: The following procedure was used:

- 1) Ten pieces of bar stock were sent by customer.
- 2) The bars were labeled 10-20, and were treated as follows:

	VpCI-126	VpCI-368	VpCI-369	Starbrite	Cosmoline
11					
12	X				
13		X			
14	X	X			
15			X		
16	X		X		
17				X	
18	X			X	
19					X
20	X				X

- 3) Starbrite and Cosmoline were applied by the customer.
- 4) VpCI-368 and VpCI-369 were applied via dip.
 - a. After dip, the bars were allowed to drip dry overnight prior to packaging in VpCI-126.
- 5) After treating, all the bars were placed in ASTM B-117 salt fog.
- 6) All bars were visually inspected periodically.
- 7) After 500 hours, all bars were removed from ASTM B-117 salt fog.
- 8) All bars were unwrapped, visually inspected and photographed.

Results: The following results were found:

Bar number	Time to Failure (Hours)
11	<8
12	240
13	DNF*
14	DNF*
15	DNF*
16	DNF*
17	<24
18	500
19	120
20	264

DNF – Did not fail during 500 hours of testing.

Conclusion: The products currently used by customer did not provide good corrosion protection. The Starbrite product provided very little protection, while Cosmoline provided slightly more. VpCI products provided increased protection throughout this test. As stand alone products, VpCI-368 and VpCI-369 provided more than 500 hours of corrosion protection. Similarly, VpCI-126 blue film provided a great protection increase in all cases.

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