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Evaluation of Clear VCI Film

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Project #:12-240-1125.bis

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Background: Jess Carpenter submitted clear VCI film and requested that it be tested to determine its effectiveness in preventing corrosion.

Sample Received:

1) Clear film, labeled 12-240-1125, received 11-26-12, good condition, manufactured by Laddawn.

Method:

1) VIA Test (CC-027)
2) Razor Blade Test (CC-004)*
3) FTIR Test (CC-006)

*Cortec Laboratory is not accredited for the test marked

Materials:

1. VIA Test Kit
2. Laboratory Grade Methanol
3. Copper Panels
4. Carbon Steel Panels
5. Control Film, Plain Polyethylene Film
6. Deionized Water
7. Paragon 1000 FTIR

Procedure:

1) The tests were performed according to their standard procedures.

Results:

Razor Blade Test – Carbon Steel

Sample	Panel 1	Panel 2	Panel 3
Clear Film	Fail	Fail	Fail
Control	Fail	-	-

Razor Blade Test - Copper

Sample	Panel 1	Panel 2	Panel 3
Clear Film	Fail	Fail	Fail
Control	Fail	-	-

VIA Test

Sample	Plug # 1	Plug # 2	Plug # 3	Pass / Fail
Clear Film	Grade 2	Grade 3	Grade 3	Pass
Control	Grade 0	N/A	N/A	Fail

Note: Grades 0 and 1 are considered failing. See below for grading scale example.

Results relate only to the items tested

Interpretations:

1) Based on the razor blade test results on copper and carbon steel, the clear film did not provide sufficient contact-phase corrosion protection.
2) The VIA test result determined that the film provides sufficient vapor-phase corrosion inhibition.
3) FTIR results showed that this film contains some salt of carboxylic acid.

Conclusion: this salt has limited solubility in water and that is why it doesn't pass razor blade test. The razor blade is very important for real life prediction of the situation when film is in direct contact with metals.