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Packaging Product Testing

To: Brian Coles
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For: Jerry Moule
MTB

From: Cortec Corporation Laboratories
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cc: Boris Miksic
Dario Dell'Orto
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Project #: 14-025-1125

Results reported by: Brian Benduha
Brian Benduha
Lab Technician

Approved by:
Margarita Kharshan
Vice President of R&D

Date: February 18, 2014

Background: Brian Coles provided:
1)two competitors films for comparison testing with VpCI-126
2)Cor-Pak Linerboard which passed shelf life

Purpose: To compare the corrosion protection of the two submitted yellow films with VpCI-126, and to test the old sample of Cor-Pak Linerboard to see if it still has any VCI left.

Sample Received: 1) Yellow VCI film (4.5mils) from MTB
2) Pale yellow VCI-2000 film (4mils)
3) Cor-Pak linerboard

Method: VIA Test, CC-027
Razor Blade Test, CC-004*
*Cortec Laboratory is not accredited for the test marked

Materials: VIA test kit
Razor blade test kit
VpCI-126 film (2 mils)

Procedure: The tests were conducted according to standard procedures for each test.

Results:

Razor Blade Test- Carbon Steel Panels

Film Sample	Panel #1	Panel #2	Panel #3	Pass / Fail
VCI-2000 film	Pass	Pass	Pass	Pass
MTB Film	Fail	Fail	Fail	Fail
Cor-Pak Linerboard	Pass	Pass	Pass	Pass
VpCI-126 film	Pass	Pass	Pass	Pass
Control	Fail	-	-	-

Razor Blade Test- Copper Panels

Film Sample	Panel #1	Panel #2	Panel #3	Pass / Fail
VCI-2000 film	Pass	Fail	Fail	Fail
MTB Film	Fail	Fail	Fail	Fail
Cor-Pak Linerboard	Pass	Pass	Pass	Pass
VpCI-126 film	Pass	Pass	Pass	Pass
Control	Fail	-	-	-

VIA Test

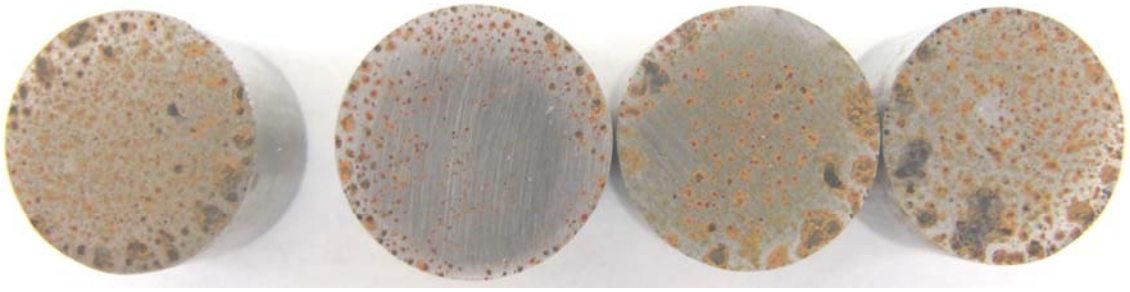
Film Sample	Plug #1	Plug #2	Plug #3	End Result
VCI-2000 film	Grade 1	Grade 1	Grade 0	Fail
MTB Film	Grade 2	Grade 1	Grade 1	Fail
Cor-Pak Linerboard	Grade 3	Grade 3	Grade 3	Pass
VpCI-126 film	Grade 3	Grade 3	Grade 2	Pass
Control	Grade 0	-	-	-

The VIA grading system is attached to the end of the report

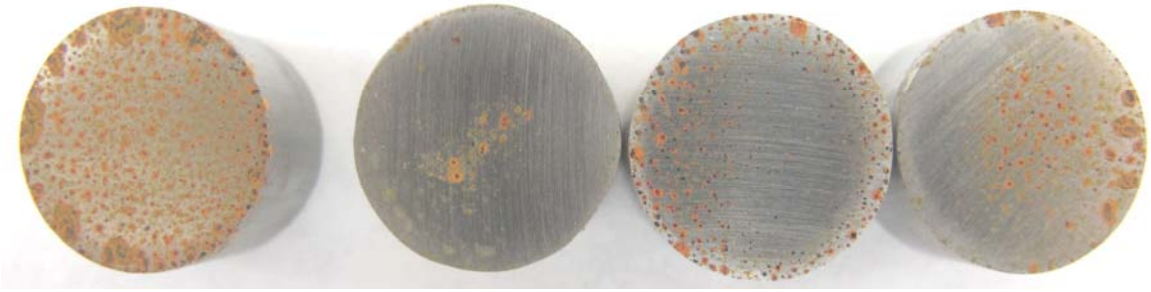
Photos:

VIA Testing

Yellow VCI 2000 film



MTB Film



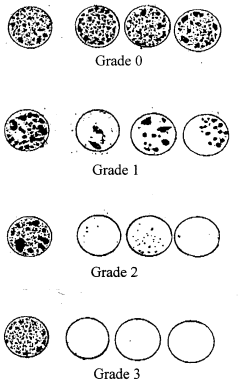
Cor-Pak Linerboard

VpCI-126 film, 2mils

Control Plug#1 Plug #2 Plug #3

VIA Test Grades (Grade 2 or 3 are passing)
All three plugs must be grade 2 or better to pass the test

Grade 0:	Blind test No corrosion inhibiting effect
Grade 1:	Blind test Minute corrosion inhibiting effect
Grade 2:	Blind test Medium corrosion inhibiting effect
Grade 3:	Blind test Good corrosion inhibiting effect



Interpretations:

1) The yellow VCI-2000 film passed the razor blade test on carbon steel, but not for copper. This film also failed the VIA test. VCI 2000 is nitrite-based film.
2) The yellow MTB film failed both razor blade tests for carbon steel and copper, and also failed the VIA test.
3) VpCI-126 film passes the VIA and razor blade tests with excellent results. (Even in 2 mil thickness vs 4-4.5 mils of tested films)
4) The old sample of Cor-Pak Linerboard still passes the VIA and razor blade tests with excellent results.