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***Evaluation of Blue VCI Film Manufactured by ORVIC do Brasil***

**To:** Dario Dell'Orto

**For:** Humberto Paiva  
CorrSolutions do Brasil

**From:** Cortec Laboratories, Inc.  
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**cc:** Boris Miksic  
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**Project #:** 16-235-1125

**Results reported by:** *Brian Benduha*  
Brian Benduha  
Lab Technician

**Approved by:** *Eric Uutala*  
Eric Uutala  
Technical Service Manager



**Background:** Humberto Paiva from CorrSolutions do Brasil sent a blue film to Cortec Labs for evaluation. This film is produced by ORVIC do Brasil, and it is supposed to have VCI properties. This film will be evaluated via all standard VCI testing.

**Sample Received:** Blue film, manufactured by ORVIC do Brasil, 6 mil (150 micron), received on 10/7/16 in good condition.

**Method:** VIA Test, CC-027  
FTIR analysis, CC-006  
Razor Blade Test, CC-004\*  
Nitrite/Nitrate Test\*  
\*Cortec Laboratories, Inc. is not accredited for the test(s) marked.

**Materials:** VIA test kit  
Razor blade test kit  
Paragon 1000 FTIR  
Glycerol (lot #Q10A018)  
Nitrite/Nitrate Test Strips (lot #HC553793)  
Methanol, ACS grade (lot #032916C)  
Oven set for 40°C (oven #10)  
Plain polyethylene film (control film)

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

**Results:**

**VIA Test**

Sample	Plug #1	Plug #2	Plug #3	End Result
ORVIC film	Grade 2	Grade 1	Grade 1	Fail
Control	Grade 0	-	-	Fail

**Razor Blade Test – Carbon Steel Panels**

Sample	Panel #1	Panel #2	Panel #3	End Result
ORVIC film	Pass	Pass	Fail	Pass
Control	Fail	-	-	Fail

**Razor Blade Test – Copper Panels**

Sample	Panel #1	Panel #2	Panel #3	End Result
ORVIC film	Pass	Pass	Pass	Pass
Control	Fail	-	-	Fail

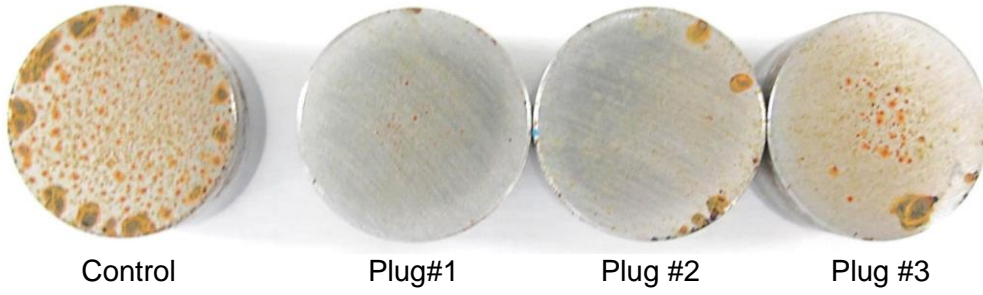
**Nitrite/Nitrate Test Strips**

Sample	Results
ORVIC film	Contains nitrates but no nitrite

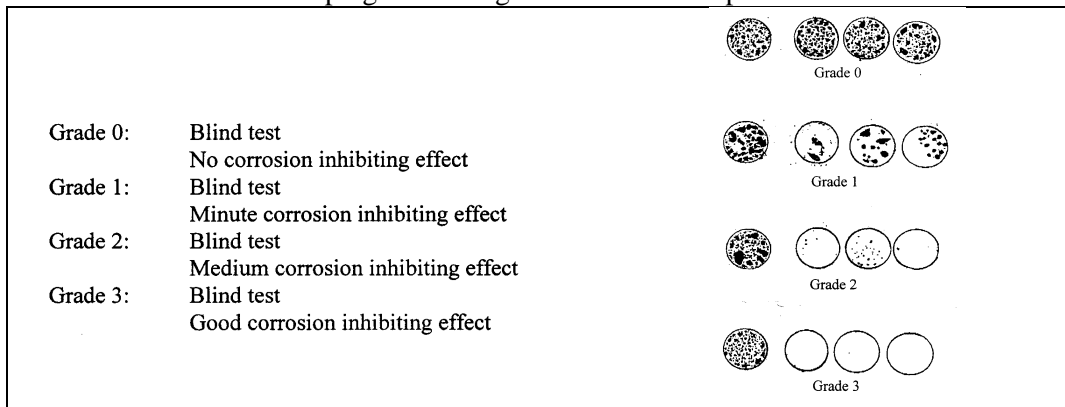
**Interpretations:** The submitted ORVIC film provides adequate contact corrosion protection for carbon steel and copper, but does not provide sufficient vapor phase corrosion protection to pass the VIA test. This film does not contain any nitrite, but does contain nitrates. The FTIR analysis does not show any other distinct VCI peaks.

**Photos from VIA Testing:**

**ORVIC film**



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



**FTIR Analysis**

**ORVIC film**

