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LABORATORY ACCREDITATION BUREAU
ACCREDITED ISO/IEC 17025
Certificate # L2267 Testing

Evaluation of Armor Film

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Project #:14-043-1825.corrected.bis

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Background: It was requested that the submitted Armor film be tested to determine if it provides good corrosion protection.

Sample Received:

1) Armor film, received 02/25/14, good condition, clear film 2 mil

Method:

1) VIA Test Method, CC-027
2) Razor Blade Test Method, CC-004*
3) Paragon 1000 FTIR, Method CC-006
4) Nitrite Test*

*Cortec Laboratory is not accredited for the test marked

Materials:

1) VIA Test Kit
2) Razor Blade test kit
3) Methanol, lab grade
4) Nitrite Test Strips, from VWR, part number EMD-10020-1
5) Deionized Water
6) Paragon 1000 FTIR
7) Plain polyethylene, control film
8) VpCI-126 lot# 33659

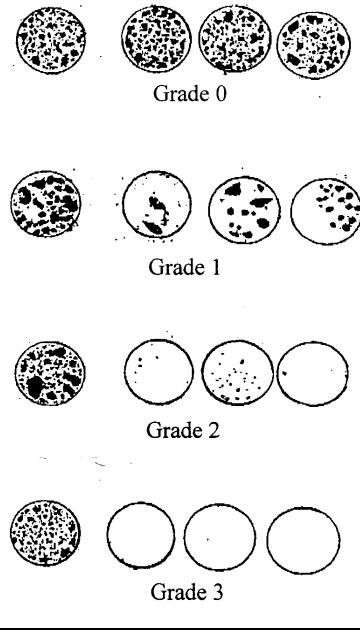
Procedure:

1) The tests were performed according to standard procedure. The Armor film was tested as a monolayer film, with 1"x6" strips. The VpCI-126 was tested as part of the random QA testing.
2) The VIA test was graded according to the following system:

VIA Test Plug Grading Scheme

Picture A.2

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



Results:

Razor Blade Test – Carbon Steel

Sample	Panel 1	Panel 2	Panel 3
Armor	Pass	Pass	Pass
VpCI-126	Pass	Pass	Pass
Control	Fail	-	-

Razor Blade Test – Copper

Sample	Panel 1	Panel 2	Panel 3
Armor	Pass	Pass	Pass
VpCI-126	Pass	Pass	Pass
Control	Fail	-	-

VIA Test

Sample	Plug # 1	Plug # 2	Plug # 3	Pass / Fail
Armor	Grade 0	Grade 1	Grade 1	Fail
VpCI-126	Grade 3	Grade 3	Grade 3	Pass
Control	Grade 0	Grade 0	N/A	N/A

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

Results relate only to the items tested

Interpretations:

1. Based on the razor blade test results the Armor film provides sufficient contact-phase corrosion protection for copper and carbon steel.
2. The VIA test results determined that the Armor film did not provide vapor-phase corrosion inhibition.
3. The test results for VpCI-126 determined that it provided vapor-phase and contact-phase corrosion inhibition.
4. The FTIR test results determined that the Armor film has sodium salt of carboxylic acid. The Armor film was also found to contain nitrite.