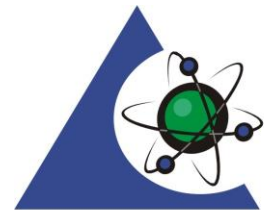




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PJLA
Testing

Accreditation # 116482

Film Testing for Our customer

From: Cortec Laboratories, Inc.
4119 White Bear Parkway
St. Paul, MN 55110

cc: Boris Miksic
Cliff Cracauer
Jessi Meyer
Mike Gabor
Scott Bryan
Ivana Radic Borsic
Eric Uutala

Project #: 23-161-1125.bis

Results reported by:

A handwritten signature in black ink that reads "Brian Benduha".

Brian Benduha
Lab Technician II

Results approved by:

A handwritten signature in black ink that reads "Rick Shannon".

Rick Shannon
Technical Services Manager



Background:

Our customer is a parts manufacturer looking for cost reduction on their VCI spend. Two different bags were submitted for testing to determine corrosion protection. The bags were supplied by our customer but there was no name on the bag. Our customer's website states they carry Armor bags.

Samples Received:

1. Film sample, 42x38x82 1.5mils
2. Film sample, 39x34x72 3mils

Method:

- NACE Standard VIA Test, TM 0208-2018
- Razor Blade Test, CC-004*

*The test marked is not covered under Cortec Laboratories, Inc. ISO 17025 Scope of Accreditation

Materials:

1. VIA test kit (testing jars with lid apparatus, steel plugs, 400grit sandpaper)
2. Buehler Plug Grinder, Ecomet V Polisher (manual turn table plug grinder)
3. Steel panels, SAE 1008/1010 (Q-Panel, S-35 DG, 3"x5"x0.032")
4. Copper panels
5. Glycerin (lot: Z01I006)
6. Methanol, ACS grade (CAS #67-56-1)
7. Scale I (0.0g)
8. Lint-free cotton wipes
9. DI water
10. Plain Polyethylene film
11. Calibrated thermometer (QA-CHQ-107)

Procedure:

All testing was conducted according to standard procedure.

Results:**Razor Blade Test- Steel Panels**

Sample	Panel #1	Panel #2	Panel #3	End Result
Film sample, 42x38x82 1.5mils	Fail	Fail	Fail	Fail
Film sample, 39x34x72 3mils	Fail	Fail	Fail	Fail
Control	Fail	-	-	Fail

Razor Blade Test- Copper Panels

Sample	Panel #1	Panel #2	Panel #3	End Result
Film sample, 42x38x82 1.5mils	Fail	Fail	Fail	Fail
Film sample, 39x34x72 3mils	Fail	Fail	Fail	Fail
Control	Fail	-	-	Fail

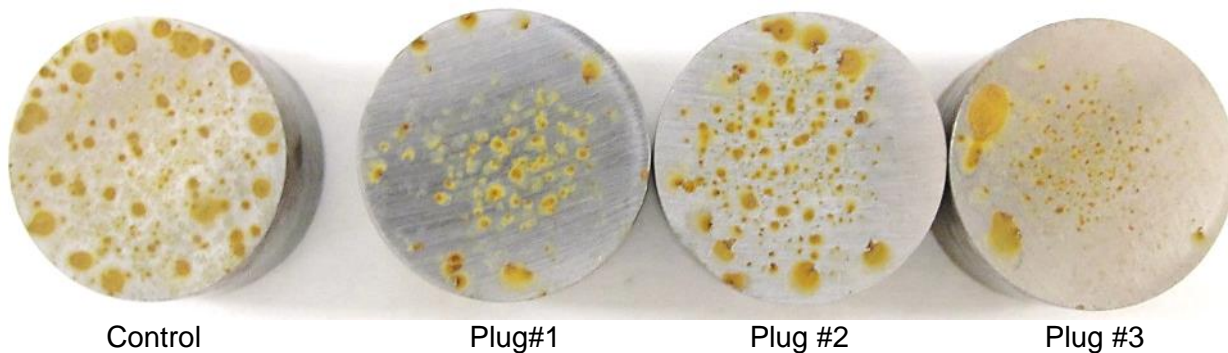
Results:

NACE VIA Test

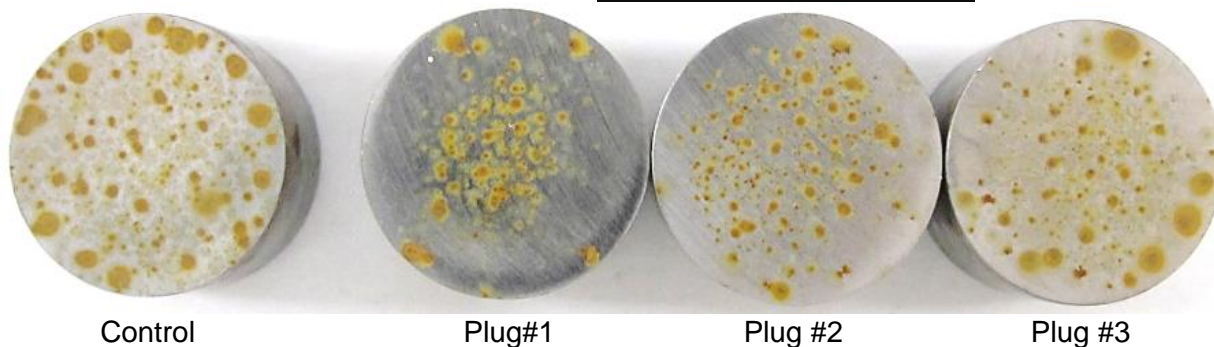
Sample	Plug #1	Plug #2	Plug #3	End Result
Film sample, 42x38x82 1.5mils	Grade 1	Grade 0	Grade 1	Slight to no corrosion protective effect
Film sample, 39x34x72 3mils	Grade 1	Grade 0	Grade 0	Slight to no corrosion protective effect
Control	Grade 0	-	-	No corrosion protective effect

Photo of VIA plugs after testing:

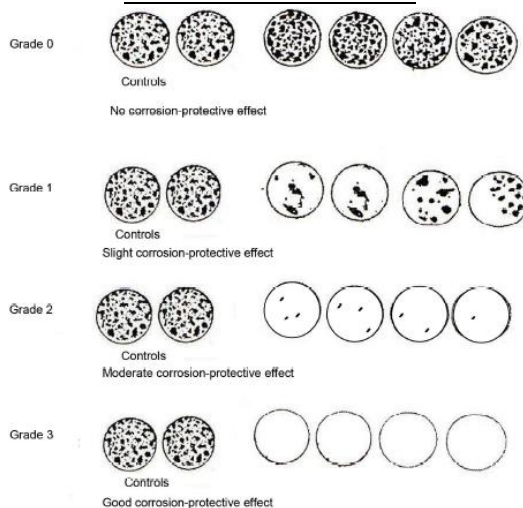
Film sample, 42x38x82 1.5mils



Film sample, 39x34x72 3mils



VIA Test Grades



Interpretations:

The submitted film samples do not provide sufficient contact corrosion protection to pass the razor blade testing for steel and copper. For vapor phase corrosion protection, these films both performed poorly, providing only a slight corrosion protective effect at best, according to the results of the NACE VIA test.