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## ***Evaluation of VCI2000 Film***

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**For:** Metals Preservation Group

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**Project #:** 23-019-1125

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## Background:

Three samples of VCI2000 Film were submitted for VIA and razor blade testing.

## Samples Received:

1. Blue VCI2000 film, 4mil
2. Blue VCI2000 film, 1.5mil
3. Blue VCI2000 film, 1.5mil

## 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. Glycerol (lot #R28H033)
6. Methanol, ACS grade
7. Scale I (0.0g)
8. Lint-free cotton wipes
9. DI water
10. Plain Polyethylene film
11. Calibrated thermometer (964536, QA-CHQ-185)

## Procedure:

The VIA and razor blade tests were conducted according to standard procedure.

## Results:

### Razor Blade Test- Steel Panels

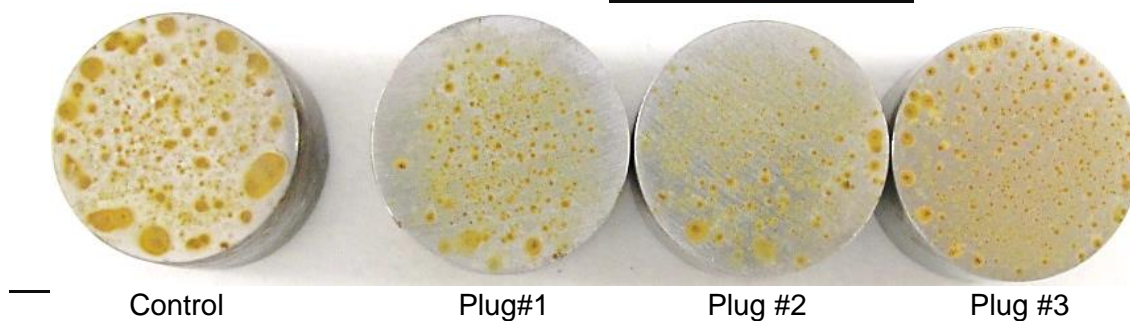
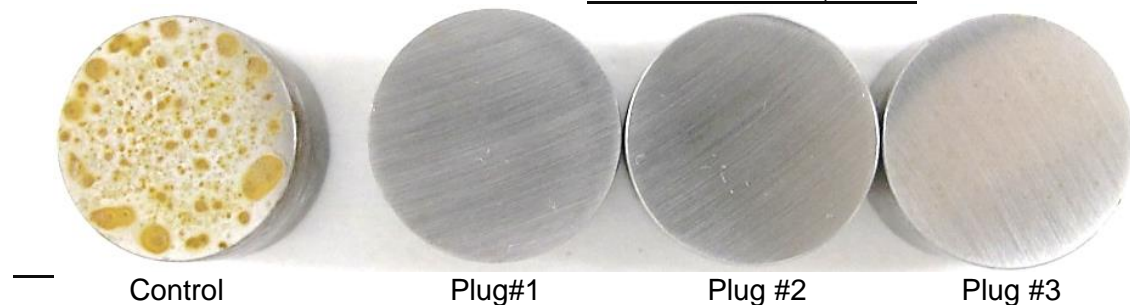
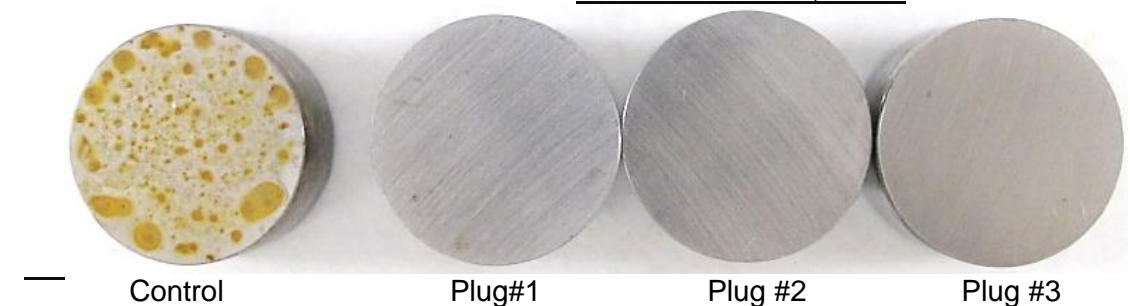
Sample	Panel #1	Panel #2	Panel #3	End Result
Blue VCI2000 film, 4mil	Fail	Fail	Fail	Fail
Blue VCI2000 film, 1.5mil	Pass	Pass	Pass	Pass
Blue VCI2000 film, 1.5mil	Pass	Pass	Pass	Pass
Control	Fail	-	-	Fail

### Razor Blade Test- Copper Panels

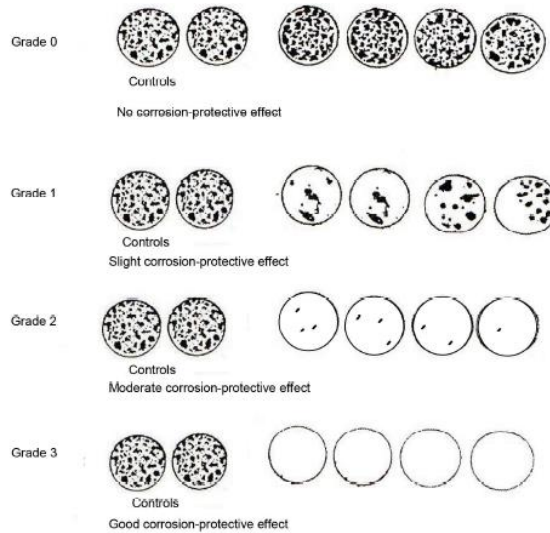
Sample	Panel #1	Panel #2	Panel #3	End Result
Blue VCI2000 film, 4mil	Fail	Fail	Fail	Fail
Blue VCI2000 film, 1.5mil	Fail	Fail	Fail	Fail
Blue VCI2000 film, 1.5mil	Fail	Fail	Fail	Fail
Control	Fail	-	-	Fail

**Results:****NACE VIA Test**

Sample	Plug #1	Plug #2	Plug #3	End Result
Blue VCI2000 film, 4mil	Grade 0	Grade 0	Grade 0	No corrosion protective effect
Blue VCI2000 film, 1.5mil	Grade 2	Grade 2	Grade 2	Moderate corrosion protective effect
Blue VCI2000 film, 1.5mil	Grade 2	Grade 2	Grade 2	Moderate corrosion protective effect
Control	Grade 0	-	-	No corrosion protective effect

**Photo of VIA plugs after testing:**Blue VCI2000 film, 4milBlue VCI2000 film, 1.5milBlue VCI2000 film, 1.5mil

## VIA Test Grades



### **Interpretations:**

Both samples of 1.5mil VCI2000 film provide moderate vapor phase corrosion protection according to the results of the NACE VIA test. For contact corrosion protection, both films provide sufficient protection to pass the razor blade test for steel, but not for copper.

The 4mil VCI2000 film does not provide sufficient corrosion protection to pass the razor blade test or the NACE VIA test.