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Comparing Daubert and Zerust-Excorr Film to VpCI-126 Film

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Project #: 21-061-1125.bis

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Background: A sample of Daubert Film and Zerust-Excorr Film has been submitted for testing compared to VpCI-126 film.

Sample Received: The following samples were received on 5-3-21:
1. Yellow Zerust-Excorr Film, 4mils
2. Green Daubert Film, 2.5mils
3. Three different metal parts individually wrapped in Yellow Zerust-Excorr film

Method: NACE Standard VIA Test, TM 0208-2018
Razor Blade Test, CC-004*
FTIR Analysis, CC-006
Nitrite/Nitrate Test*
*The tests marked are not covered under Cortec Laboratories, Inc. ISO 17025 Scope of Accreditation

Materials: VIA test kit (testing jars with lid apparatus, steel plugs, 400grit sandpaper)
VpCI-126 film, 4mil (batch #510220)
Steel panels, SAE 1008/1010 (Q-Panel, S-35 DG, 3"x5"x0.032")
Copper panels
Glycerol (lot #W20E023)
Methanol, ACS grade (lot #18F066507)
DI water
Kimwipes

Procedure: For VIA testing, the procedure was followed according to the NACE VIA Test, TM0208-2018 option 2 (option 2 uses machine-aided grinding and polishing for the steel plugs).

Note- the VIA test was conducted using two strips of sample per jar (1" X 6" per strip)

The razor blade testing and FTIR analysis was followed according to standard procedure.

Results: The following results were found:

Razor Blade Test- Steel Panels

Sample	Panel #1	Panel #2	Panel #3	End Result
Yellow Zerust-Excorr Film	Pass	Pass	Pass	Pass
Green Daubert Film	Pass	Pass	Pass	Pass
VpCI-126 Film*	Pass	Pass	Pass	Pass
Control	Fail	-	-	Fail

Razor Blade Test- Copper Panels

Sample	Panel #1	Panel #2	Panel #3	End Result
Yellow Zerust-Excorr Film	Fail	Fail	Fail	Fail
Green Daubert Film	Pass	Pass	Pass	Pass
VpCI-126 Film*	Pass	Pass	Pass	Pass
Control	Fail	-	-	Fail

*Note- The razor blade results for VpCI-126 film were previously tested (from 16-083-1125)

Results:

The following results were found:

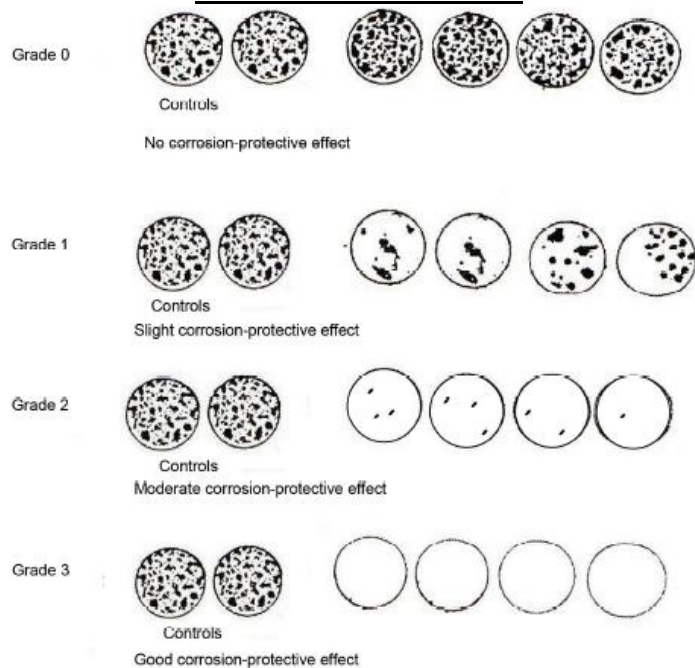
Nitrite/Nitrate Test Strips

Sample	Results
Yellow Zerust-Excorr Film	Contains nitrite/nitrate
Green Daubert Film	Contains nitrite/nitrate

NACE VIA Test

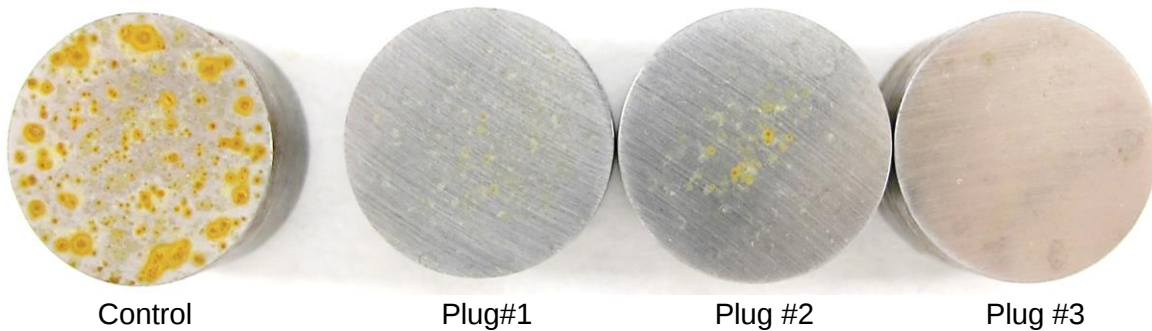
Sample	Plug #1	Plug #2	Plug #3
Yellow Zerust-Excorr Film	Grade 1	Grade 1	Grade 1
Green Daubert Film	Grade 3	Grade 1	Grade 1
VpCI-126 Film*	Grade 3	Grade 3	Grade 2
Control	Grade 0	-	-

*Note- The VIA results for VpCI-126 film were previously tested (from 16-083-1125)

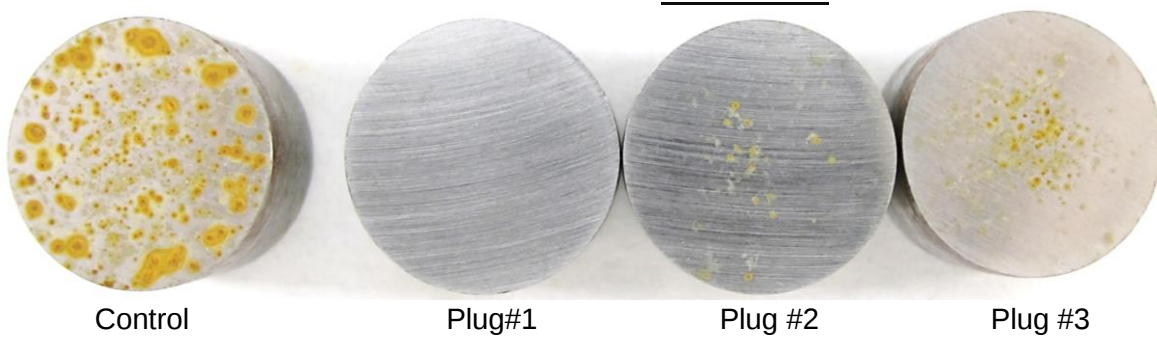
VIA Test Grades

Photos from the NACE VIA test:

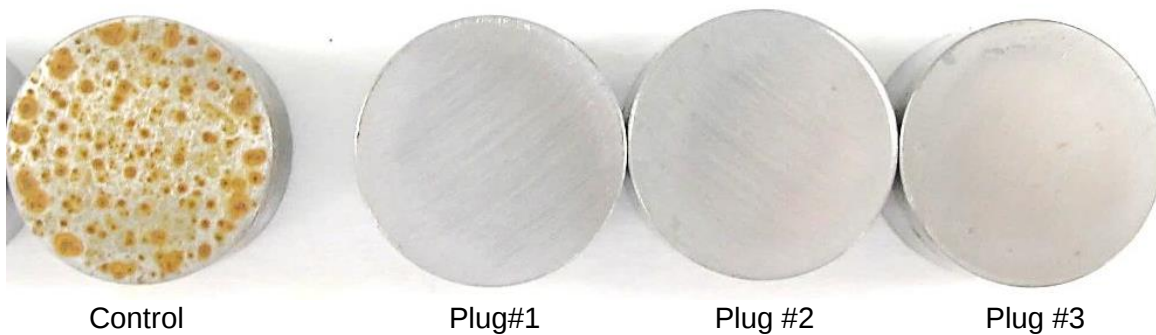
Zerust-Excorr Film



Daubert Film

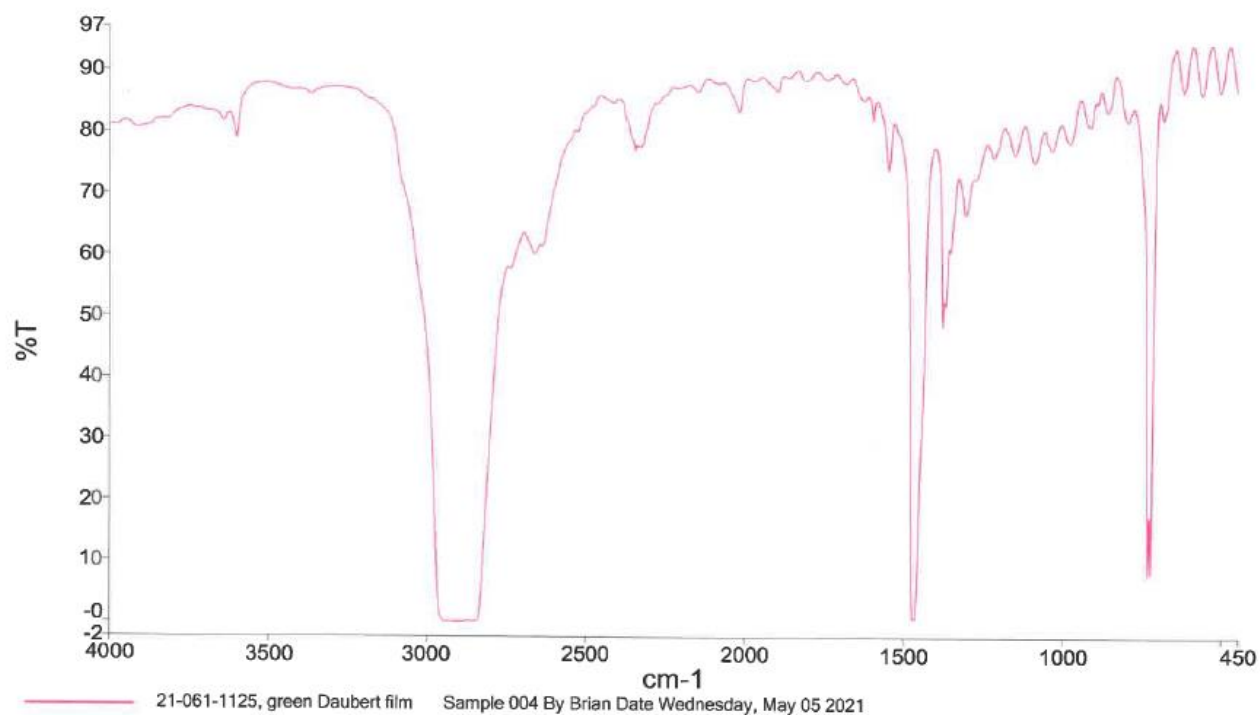


VpCI-126 film

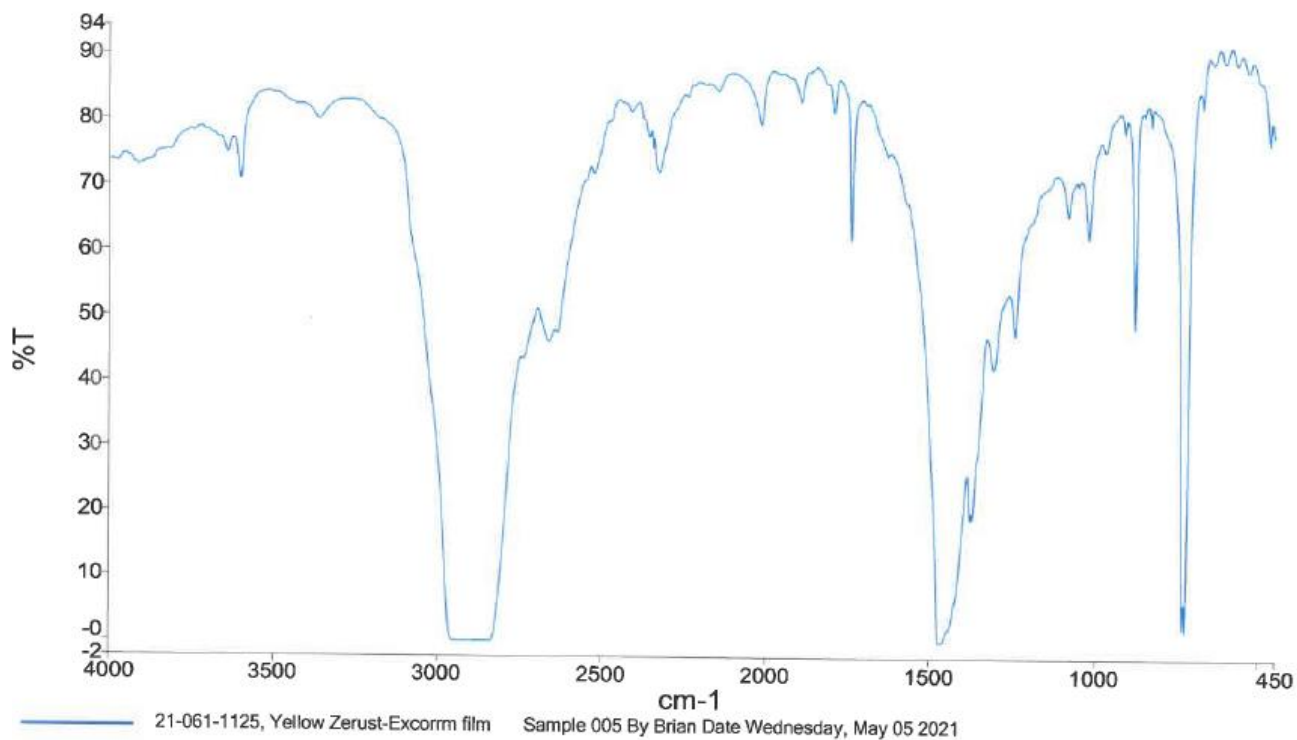


FTIR Analysis:

Daubert Film



Zerust-Excorr Film



Interpretations: According to the results of the NACE VIA test, Cortec's VpCI-126 film provides better vapor phase corrosion protection than the submitted yellow Zerust-Excorr film and green Daubert film. Furthermore, the results of the razor blade testing shows that VpCI-126 film and the Daubert film provide good contact corrosion for both steel and copper while the Zerust-Excorr film only provides contact corrosion for steel, but not copper.