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Evaluating Protection Properties of Daubert Film

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Project #: 16-170-1125.bis

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Background: The customer is a full-service supplier of cast metal components to the transportation and industrial markets. The customers facility currently uses Daubert VCI Film for protection of finished castings. Cortec Laboratories was asked to evaluate the corrosion protection properties of this film. The performance of the Daubert film will be compared to Cortec VpCI-126 film.

Sample Received: Daubert Green VCI Bag, about 4 mils, received in good condition.

Method: VIA Test, CC-027
FTIR Analysis, CC-006
Razor Blade Test, CC-004*
Nitrate/Nitrite Test*

*Cortec Laboratories, Inc. is not accredited for the test(s) marked.

Materials: VpCI-126 Blue Film, 4-mil (lot 410210)
Polyethylene film, used as a control
VIA Test kit
Razor Blade test kit
Nitrate/Nitrite test strips (lot HC553793)
Paragon 1000 FTIR

Procedure: All testing was performed according to standard procedures.

Results:

VIA Results

Sample	Plug 1	Plug 2	Plug 3	Control	Overall
Daubert Green Bag	2	2	3	0	Pass
Cortec VpCI-126	3	2	2	0	Pass

Copper Razor Blade Results

Sample	Panel 1	Panel 2	Panel 3	Control	Overall
Daubert Green Bag	Fail	Fail	Fail	Fail	Fail
Cortec VpCI-126	Pass	Pass	Fail	Fail	Pass

Carbon Steel Razor Blade Results

Sample	Panel 1	Panel 2	Panel 3	Control	Overall
Daubert Green Bag	Pass	Pass	Pass	Fail	Pass
Cortec VpCI-126	Pass	Pass	Pass	Fail	Pass

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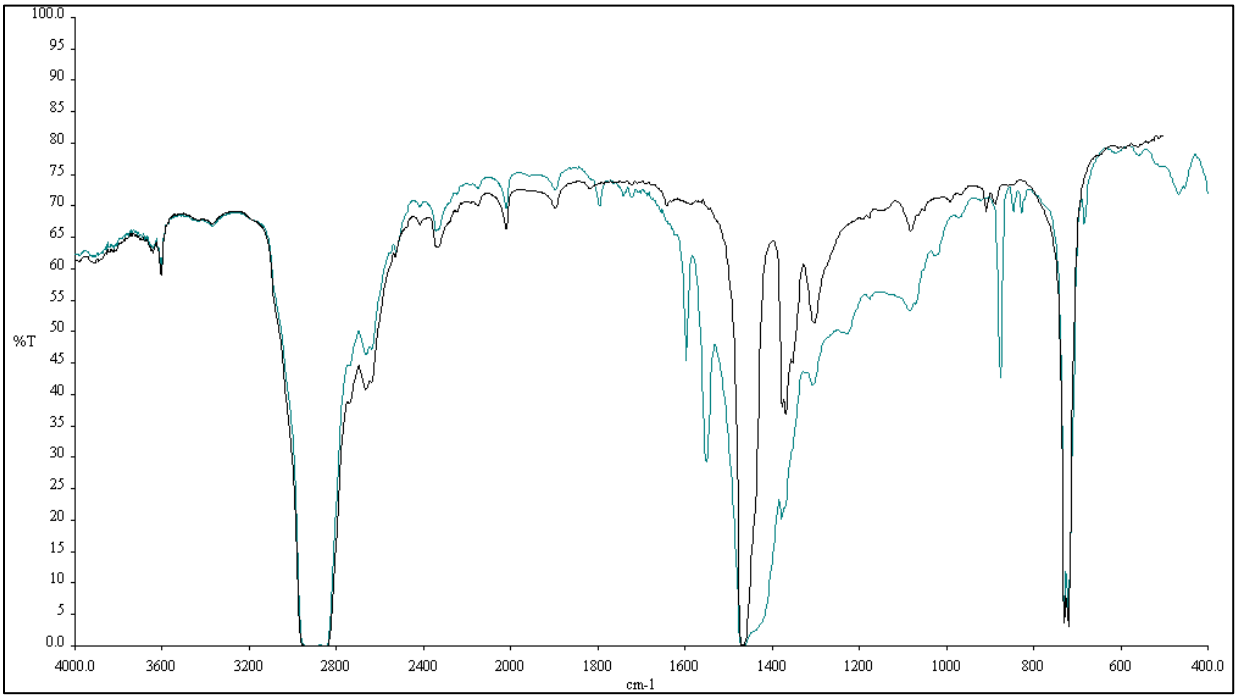
FTIR Analysis

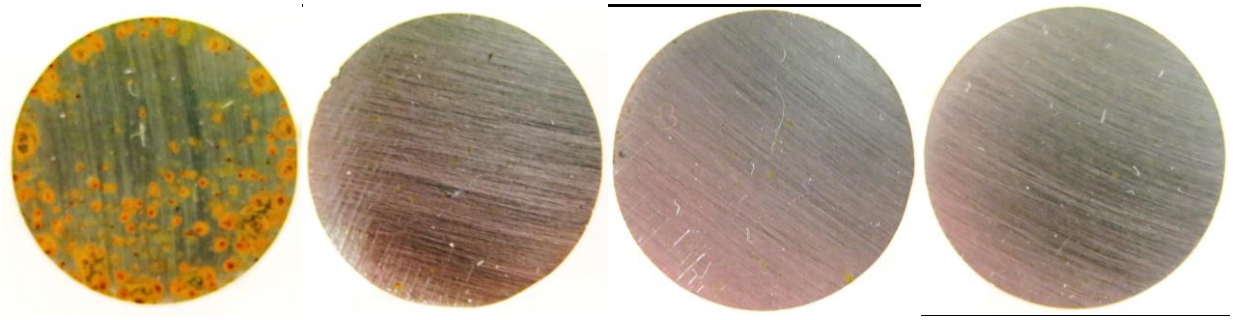


Above: Green Daubert Film (blue) compared to non-VCI polyethylene film (black).

Results relate only to the items tested

Photos:

Daubert Film VIA Results



Control Plug 1 Plug 2 Plug 3

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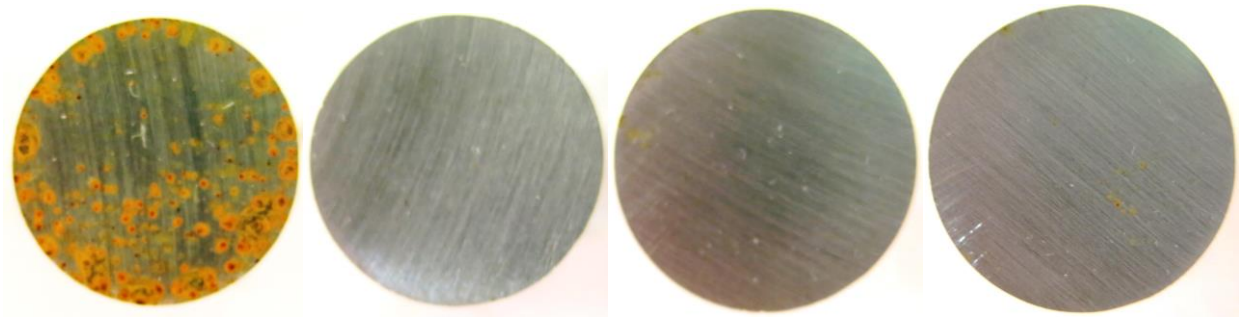
Cortec VpCI-126 Film VIA Results

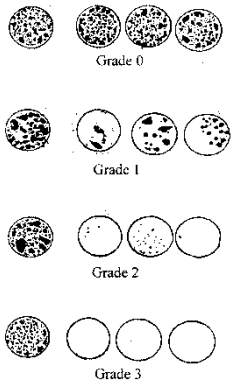


Control Plug 1 Plug 2 Plug 3

VIA Test Grading

All three plugs must be grade 2 or better to pass the test.

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



Interpretations: According to the results above, Daubert's Green VCI Bag provides sufficient corrosion protection for steel in both the contact phase and vapor phase. However, it doesn't provide protection for copper, according to Razor Blade testing.

The protection provided by Daubert's Green Bag is likely due to nitrite. FTIR analysis shows the presence of nitrites, and this was confirmed by a nitrite test strip. While nitrite does provide rust protection for steel, it is considered hazardous.

Conversely, VpCI-126 film provides effective contact phase protection for both ferrous and yellow metals, according to VIA and Razor Blade test results.

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