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Evaluating Corrosion Inhibiting Properties of Polyethylene Film Used by Customer

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Results reported by:

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Background:

Our customer is a world leader in the design and manufacture of fine blanked and formed components for a variety of industries. The customer in Cincinnati is currently using a blue polyethylene (PE) bag as part of their packaging process for automotive components. This bag is purported to be VCI; the customer thinks it is from Daubert, but there is no identification on the bag. The customer has been experiencing corrosion on shipments to Mexico.

Given the repeated problems, the customer has requested that this film be evaluated for corrosion inhibiting properties. VIA and razor blade testing will be performed, along with FT/IR and nitrite/nitrate analysis.

Sample Received:

Unlabeled blue polyethylene film (1.5-2 mil thick), received in good condition

Method:

VIA Test, CC-027
FT/IR Spectroscopy CC-006
Razor Blade Test, CC-004*
Nitrite/Nitrate Test*
*Cortec Laboratories, Inc. is not accredited for the test(s) marked.

Materials:

Paragon 1000 FTIR
VIA Test Kit
Razor Blade Test Kit
Nitrite/Nitrate Test Strips – HC553793

Procedure:

All tests were performed according to their respective work instructions.

Results:

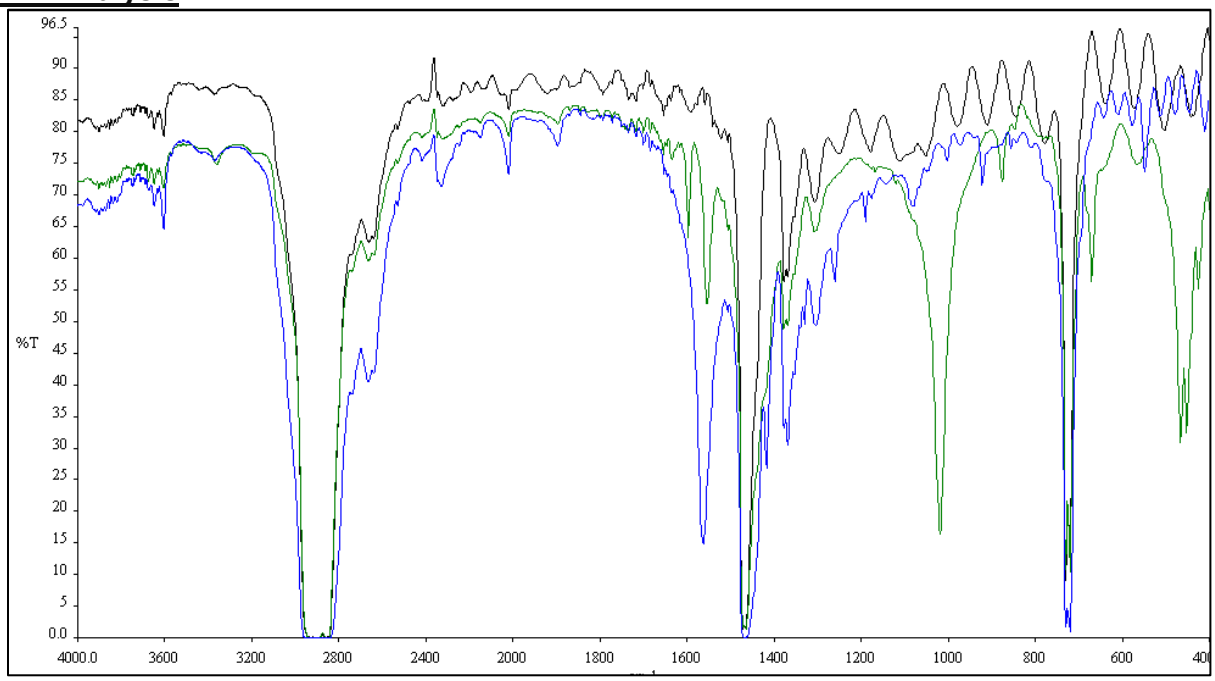
VIA Test Results

Sample	Plug 1	Plug 2	Plug 3	Overall
Blue Film	0	1	0	Fail
Control	0	-	-	Fail

Razor Blade Test Results

Metal Tested	Plug 1	Plug 2	Plug 3	Control	Overall
Carbon Steel	Fail	Fail	Fail	Fail	Fail
Copper	Fail	Fail	Fail	Fail	Fail

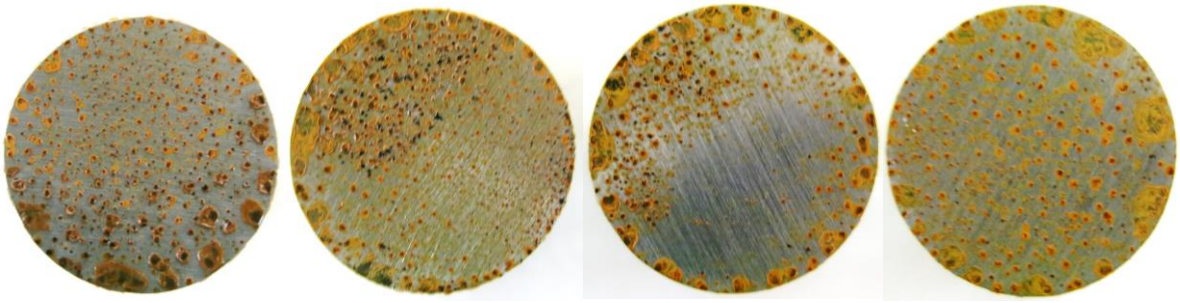
FTIR Analysis



Above: Submitted blue film sample (green), compared to plain polyethylene (black, highest %T), and VpCI-126 (blue, lowest %T)

Photos:

VIA Test

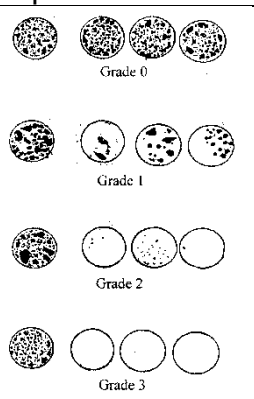


Control | Plug 1 | Plug 2 | Plug 3

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: The blue film submitted by the customer does not provide sufficient corrosion protection. It does not provide contact corrosion protection for either carbon steel or copper, according to Razor Blade test results. Further, it does not provide vapor phase corrosion protection, according to VIA test results.

According to FTIR analysis, the submitted film may contain desiccant, as well as additives neutral to corrosion prevention. If desiccant is a component in the film, the sample received has been saturated and is no longer effective, based on the corrosion test results. No nitrite was found.