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Nitrite and Corrosion Protection Testing

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Project #: 16-078-1125.bis

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Background: Customer needs nitrite free products for their application. They are currently using Metpro film and foam from Marshall Plastics. A sample of their film was sent to Cortec Laboratories to test for the presence of nitrite as well as to test overall corrosion protection properties. A foam sample was also sent in and was only tested for nitrite/nitrate, as it was not large enough to perform extensive corrosion protection testing.

Sample Received: Blue foam, ¼" thick, about 6"x2"
Blue film, 1-mil

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: VIA test kit
Paragon 1000 FTIR
Razor Blade test kit
Nitrite/Nitrate test strips, lot#HC435784
Polyethylene film (control)

Procedure: All tests were followed according to standard procedure.

Results:

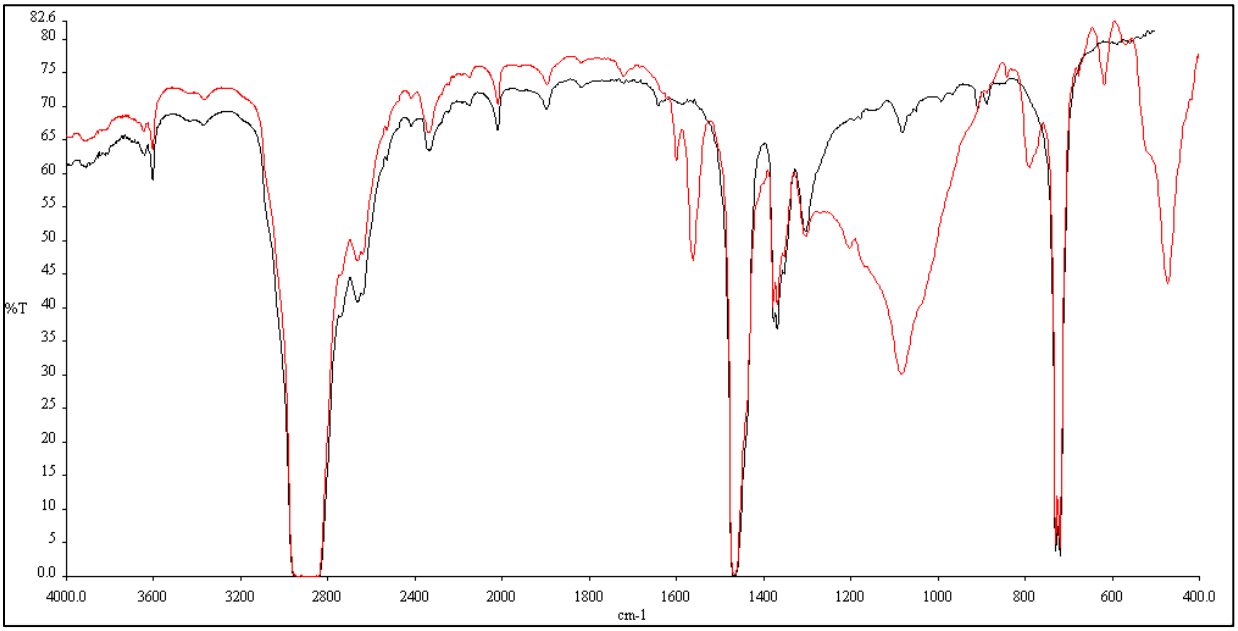
Razor Blade Test

Metal	Control	Panel 1	Panel 2	Panel 3	Overall
Copper	Fail	Fail	Pass	Pass	Pass
Carbon Steel	Fail	Fail	Fail	Fail	Fail

VIA Test

Control	Plug 1	Plug 2	Plug 3	Overall
0	2	2	2	Pass

FTIR Results

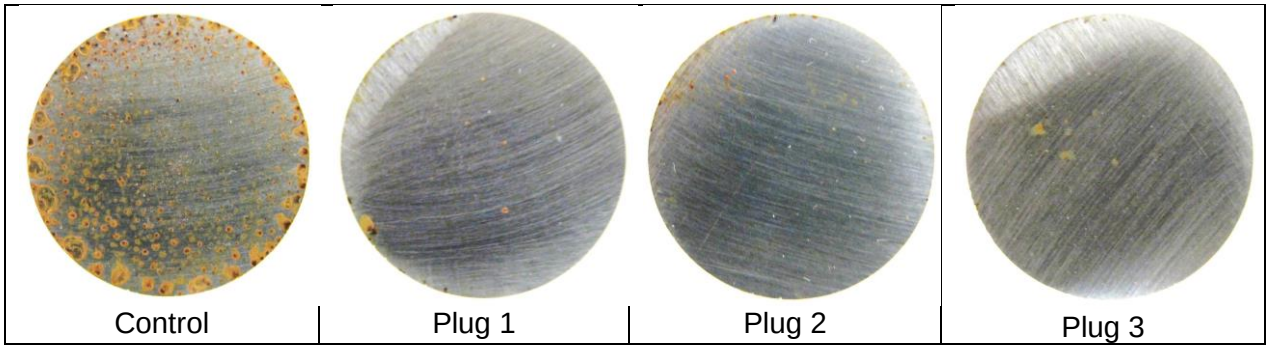


Above: Metpro film (red, higher %T), compared to polyethylene control (black, lower %T)

Results relate only to the items tested

Photos:

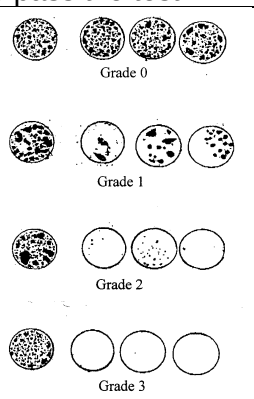
VIA Test



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 Metpro film does not provide contact protection for steel, but it does provide protection for copper, according to the Razor Blade test.

According to FTIR analysis, the film contains desiccant. This agrees with the passing VIA test results, which measure vapor phase corrosion protection. Desiccants absorb the humidity that causes corrosion in the vapor phase, but they are not effective after saturation.

No nitrate or nitrite was found in either the film or the foam.