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Evaluating unknown blue colored film distributed by Larco

Background: A blue colored film from unknown manufacturer distributed by Larco, was submitted to Cortec Corporation. Customer is Royal Oak Industries. An evaluation of the film and comparison with Cortec VpCI-126 ES film is sought.

Purpose: Evaluate the corrosion inhibition performance of blue colored film

Method:
Razor Blade Test
VIA Test
SO_2 Test
FT-IR Analysis
Tensile Strength at Break, ASTM D 882
% Elongation at Break, ASTM D 882A
Tensile Strength at Peak, ASTM D 882
Tear Test, ASTM D 1922

Materials:
Razor Blade Test Kit
VIA Test Kit
SO_2 Test Kit
Perkin Elmer FT-IR Spectrometer
Instron Mechanical Properties Tester
Unknown blue colored film distributed by Larco (4 mil)
Cortec VpCI-126 ES film (3 mil), Shop order 22840

Procedure: The above tests were performed according to standard procedures for each.

Results:

Razor Blade Test

Material	Panel #1	Panel #2	Panel #3
Unknown blue colored film distributed by Larco (4 mil)	Fail	Fail	Fail
Cortec VpCI-126 ES Film (3 mil)	Pass	Pass	Pass
Control	Fail	Fail	Fail

VIA Test

Material	Plug #1	Plug #2	Plug #3
Unknown blue colored film distributed by Larco (4 mil)	Grade 1	Grade 1	Grade 1
Cortec VpCI-126 ES Film (3 mil)	Grade 3	Grade 3	Grade 3
Control	Fail	Fail	Fail

SO_2 Test

Material	Panel #1	Panel #2	Panel #3
Unknown blue colored film distributed by Larco (4 mil)	Grade 2	Grade 2	N.A.
Cortec VpCI-126 ES Film (3 mil)	Grade 4	Grade 4	Grade 4
Control	Fail	Fail	Fail

Mechanical Properties Data

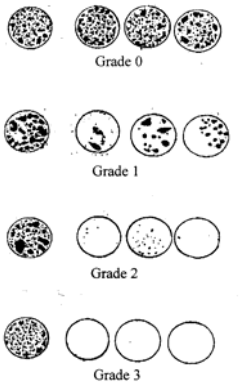
Test	Unknown blue colored film distributed by Larco (4 mil)	Cortec VpCI-126 ES Film (3 mil)
Tensile Strength at Break, ASTM D 882, (psi)	2991.05/3488.84	3689.83/3645.8
% Elongation at Break, ASTM D 882A, (%)	381.3/370.7	484.9/424.1
Tensile Strength at Peak, ASTM D 882, (psi)	3143.89/3488.84	3689.83/3646.1
Tear Test, ASTM D 1922, (N)	5598.24/13,864.80	8475.84/15,643.68

Machine Direction/Cross Direction

Conclusion:

(1) Unknown blue colored film distributed by Larco, fails to provide sufficient corrosion inhibition, even in direct contact (see razor blade test).
(2) Unknown blue colored film distributed by Larco at 4 mil, provides less strength than Cortec VpCI-126 ES film at 3 mil.
(3) From FT-IR analysis, unknown blue colored film distributed by Larco looks to contain a desiccant only.

VIA Test Grades (Grade 2 or 3 are passing)



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

SO_2 Grades (Grade 3 and 4 are passing):
Grade 0- Extensive corrosion covering 25% or more of panel surface
Grade 1- Moderate corrosion covering 10-25% of panel surface
Grade 2- Slight corrosion covering 5-10% of panel surface
Grade 3- Very slight corrosion covering 0-5% of panel surface
Grade 4- No visible corrosion on panel surface