



4119 White Bear Parkway, St. Paul, MN 55110 USA
 Phone (651) 429-1100, Fax (651) 429-1122
 Toll Free (800) 4-CORTEC, E-mail info@cortecvci.com
 Internet http://www.cortecvci.com

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
 SO₂ 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
 SO₂ 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

SO₂ 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



Grade 0



Grade 1



Grade 2



Grade 3

SO₂ 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

