



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

Evaluation of Corrosion Protection of Michelman Coated Corrugated Folder

From: Cortec Corporation Laboratories
4119 White Bear Parkway
St. Paul, MN 55110

cc: Boris Miksic
Anna Vignetti
Cliff Cracauer
Bob Boyle

Project #: 10-136-1125(bis)

Test conducted by:

A handwritten signature in black ink that reads "Liz Austin".

Liz Austin
Sr. Lab Technician

Approved by:

A handwritten signature in black ink that reads "M. Kharshan" followed by a horizontal line.

Margarita Kharshan
Laboratory Director

Date: July 13, 2010



Background: Customer requested that the submitted Michelman coated corrugated folder be tested to determine if it was an effective corrosion inhibitor.

Sample Received:

Sample(s) labeled: Not labeled

Method:

- 1) VIA test, CC-027
- 2) Razor Blade test, CC-004

Materials:

- 1) Michelman Coated Corrugated Folder
- 2) VIA test kit
- 3) Razor Blade test kit

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

Results:

Razor Blade Test Performed on Carbon Steel Panels

Sample	Panel 1	Panel 2	Panel 3
Michelman Coated Corrugated Folder	Pass	Pass	Pass
Control	Fail	-	-

VIA Test

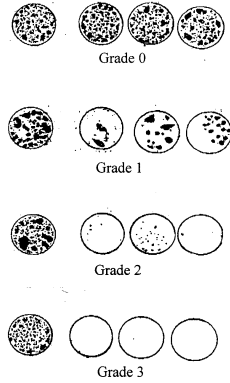
Sample	Plug #1	Plug #2	Plug #3
Michelman Coated Corrugated Folder	Grade 2	Grade 1	Grade 2
Control	Grade 0	-	-

Note: VIA Grading system is attached below

Interpretations:

- 1) Michelman Corrugated Folder contains nitrite.
- 2) Based on the VIA test results, the Michelman Corrugated Folder does not provide sufficient vapor-phase corrosion protection.
- 3) The Michelman Corrugated Folder does provide adequate contact-phase corrosion inhibition for carbon steel.

VIA Test Grades (Grade 2 or 3 are passing)

<p>Grade 0: Blind test No corrosion inhibiting effect</p> <p>Grade 1: Blind test Minute corrosion inhibiting effect</p> <p>Grade 2: Blind test Medium corrosion inhibiting effect</p> <p>Grade 3: Blind test Good corrosion inhibiting effect</p>	 <p>The visual reference chart shows four rows of circular test results. The first row, labeled 'Grade 0', contains four circles completely filled with black dots. The second row, labeled 'Grade 1', contains four circles with varying degrees of black dot coverage, from nearly full to about half. The third row, labeled 'Grade 2', contains four circles with very few black dots, mostly in the center. The fourth row, labeled 'Grade 3', contains four circles that are almost entirely white, with only a few scattered black dots in the first circle.</p>
---	---