

Evaluating Zerust VCI MM, Zerust VCI NE and yellow colored Zerust VCI (specific style not labeled) films for Corrosion Inhibition

Background: Boris Miksic submitted three samples of Zerust film to the Cortec lab. The samples are from a recent packaging show. The samples are labeled as Zerust VCI MM film, Zerust VCI NE film and Zerust VCI film (yellow in color).

Purpose: Evaluate the corrosion inhibiting ability of the three different Zerust films.

Method: Razor Blade Test
VIA Test
Nitrite Test

Materials: Razor Blade Test Kit
VIA Test Kit
Cortec VpCI-126 film
Zerust VCI MM film
Zerust VCI NE film
Zerust VCI film (yellow colored)
EM Quant Nitrate/Nitrite Test strips (lot # OC398325, Exp Nov 05)

Procedure: The above tests were performed according to standard procedures for each. Assuming that VCI MM means VCI for multimetals, razor blade test for copper was performed as well.

Results:

Razor Blade Test

Material	Panel #1	Panel #2	Panel #3
Zerust VCI MM Film	Pass	Pass	Pass
Zerust VCI NE Film	Fail	Fail	Fail
Zerust (yellow colored) film	Pass	Pass	Pass
Cortec VpCI-126 Film*	Pass	Pass	Pass
Control	Fail	Fail	Fail

Razor Blade Test (Copper)

Material	Panel #1	Panel #2	Panel #3
Zerust VCI MM Film	Fail	Fail	Fail
Zerust VCI NE Film	Fail	Fail	Fail
Zerust (yellow colored) film	Fail	Fail	Fail
Cortec VpCI-126 Film*	Pass	Pass	Pass
Control	Fail	Fail	Fail

*Typical results for Cortec VpCI-126 film



VIA Test

Material	Plug #1	Plug #2	Plug #3
Zerust VCI MM Film	Grade 1	Grade 1	Grade 1
Zerust VCI NE Film	Grade 1	Grade 0	Grade 1
Zerust (yellow colored) film	Grade 1	Grade 1	Grade 1
Cortec VpCI-126 Film*	Grade 3	Grade 3	Grade 3
Control	Fail	Fail	Fail

*Typical results for Cortec VpCI-126 film

Nitrite Test: Zerust VCI MM film is a nitrite based film. Zerust VCI NE film is a non nitrite based film. Zerust VCI film (yellow colored) is a nitrite based film.

Conclusion: Film labeled as Zerust VCI MM film is a nitrite based film that possibly has as another corrosion inhibitor, benzoate according to FT-IR analysis. The film fails to provide adequate vapor phase corrosion inhibition or protection for yellow metals. Film labeled as Zerust VCI NE film is a non nitrite based film and does not appear to contain any corrosion inhibitor. Film labeled as Zerust VCI film, (yellow in color) is a nitrite based film that appears to only contain nitrite, as the only corrosion inhibitor.

Project #: 03-226-1125

Estimated Cost of Project: 3 hours

To: Cortec

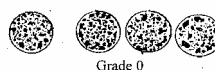
From: Bob Berg

Date: 12/10/03

cc: Boris Miksic
Anna Vignetti
Art Ahlbrecht
Rita Kharshan
Cliff Cracauer
Vanessa Schultz

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

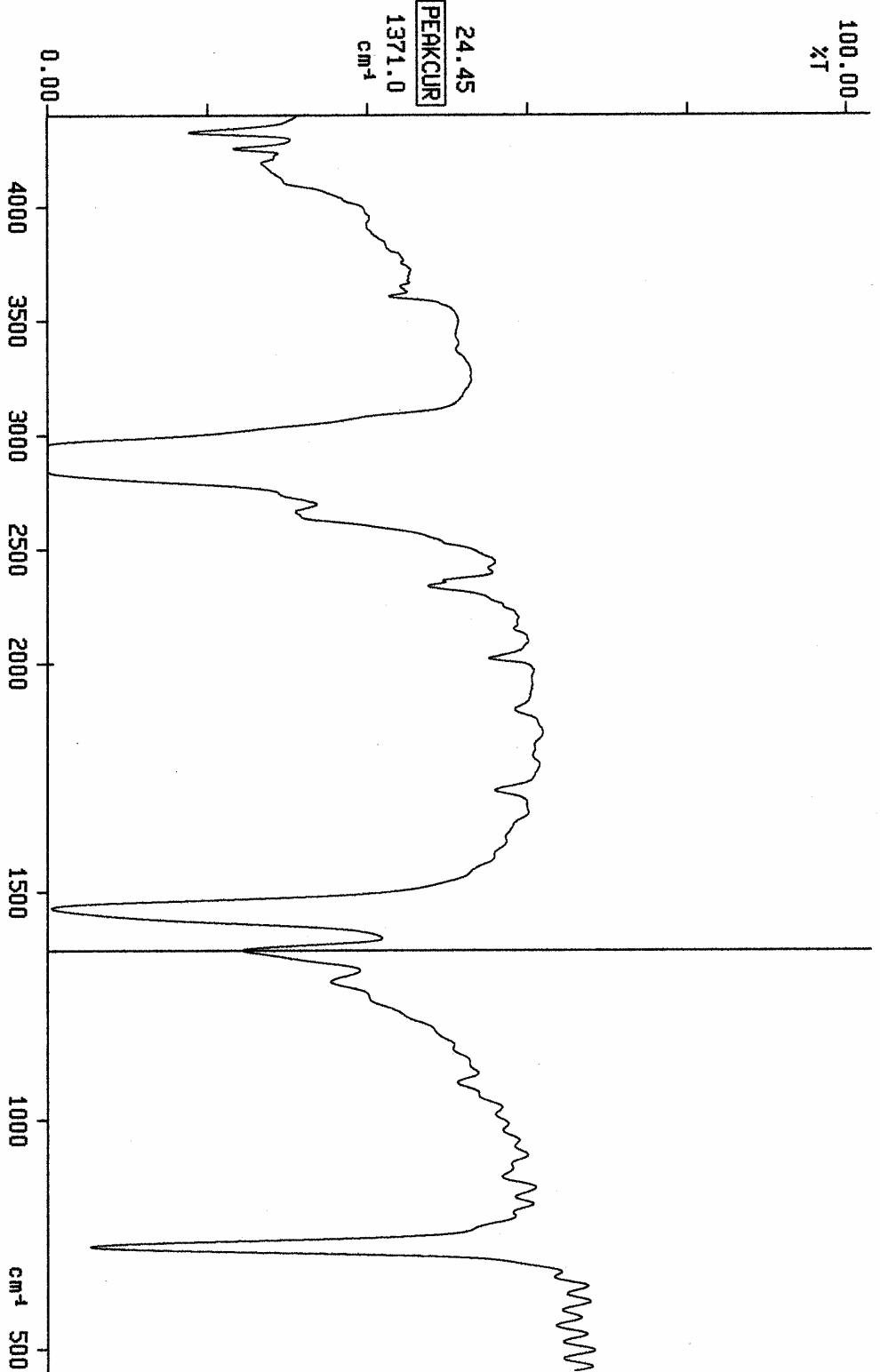


Grade 2



Grade 3

PERKIN ELMER



03/12/04 16:34 QA
X: 8 scans, 16.0cm⁻¹
03-226-1125, yellow film, 4 mil

