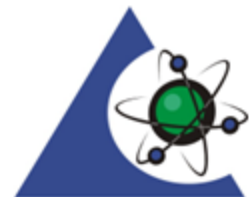




ISO/IEC 17025:2017 Accredited

- 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
- cortecvci.com • corteclaboratories.com



**PJLA
Testing**
Accreditation # 116482

Evaluation of Versa Pak Film Compared to VpCI-126 Film

To: Jessica Carpenter
Cortec Corporation

For: Joe Louisell
Metals Preservation Group

From: VIA and Razor Blade Testing performed by:
Cortec Laboratories, Inc.
4119 White Bear Parkway
St. Paul, MN 55110

cc: Boris Miksic
Cliff Cracauer
Jessi Meyer
Mike Gabor
Scott Bryan
Ivana Radic Borsic
Eric Uutala

Project #: 24-040-1125

Results reported by:

Brian Benduha
Lab Technician II

Results approved by:

Rick Shannon
Technical Services Manager



Background:

A sample of blue film manufactured by Versa Pak was submitted for testing compared to VpCI-126 film.

Sample Received:

1. Blue Versa Pak film, 2mils

Method:

- NACE Standard VIA Test, TM 0208-2018
- Razor Blade Test, CC-004*

*The test marked is not covered under Cortec Laboratories, Inc. ISO 17025 Scope of Accreditation

Materials:

1. VIA test kit (testing jars with lid apparatus, steel plugs, 400grit sandpaper)
2. Buehler Plug Grinder, Ecomet V Polisher (manual turn table plug grinder)
3. VpCI-126 film, lot: 020240
4. Steel panels, SAE 1008/1010 (Q-Panel, S-35 DG, 3"x5"x0.032")
5. Copper panels
6. Glycerin (lot: Z01I006)
7. Methanol, ACS grade (CAS #67-56-1)
8. Scale I (0.0g)
9. Lint-free cotton wipes
10. DI water
11. Plain Polyethylene film
12. Calibrated thermometer (QA-CHQ-107)

Procedure:

All testing was conducted according to standard procedure.

Results:**Razor Blade Test- Steel Panels**

Sample	Panel #1	Panel #2	Panel #3	End Result
Versa Pak Film	Fail	Fail	Pass	Fail
Cortec VpCI-126 Film	Pass	Pass	Pass	Pass
Control	Fail	-	-	Fail

Razor Blade Test- Copper Panels

Sample	Panel #1	Panel #2	Panel #3	End Result
Versa Pak Film	Fail	Fail	Fail	Fail
Cortec VpCI-126 Film	Pass	Pass	Pass	Pass
Control	Fail	-	-	Fail

Results:

NACE VIA Test

Sample	Plug #1	Plug #2	Plug #3	End Result
Versa Pak Film	Grade 1	Grade 0	Grade 0	Slight corrosion protective effect
Cortec VpCI-126 Film	Grade 3	Grade 3	Grade 2	Good corrosion protective effect
Control	Grade 0	-	-	No corrosion protective effect

Photo of VIA plugs after testing:

Versa Pak Film



Control

Plug#1

Plug #2

Plug #3

Cortec VpCI-126 Film



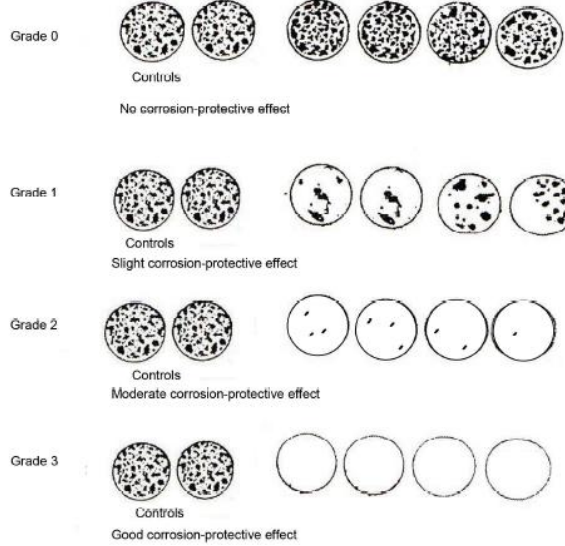
Control

Plug#1

Plug #2

Plug #3

VIA Test Grades



Interpretations:

The Versa Pak Film does not provide sufficient contact corrosion protection to pass the razor blade test for steel or copper and only provides slight corrosion protection in the vapor phase. In comparison, VpCI-126 film provides excellent contact and vapor phase corrosion protection.