



• 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

Comparing VCI Blue Film to VpCI-126

To: Anton Shemyakin
Cortec Rus

For: Beloretskiy Metallurgical Plant
Beloretsk, Russia

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

cc: Boris Miksic
Cliff Cracauer
Andrew Wroblewski

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Results reported by:

Liz Austin
Senior Lab Technician

Approved by:

Eric Uutala
Technical Service Manager

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Background: Received sample of VCI blue film, manufacturer unknown from Cortec Rus. It was requested that it be compared to VpCI-126 of the same thickness.

Sample Received:

- 1) VCI Film, no manufacturer label, blue 5 mil, good condition, received 01-27-14

Method:

- 1) VIA Test Method, CC-027
 - 2) Razor Blade Test Method, CC-004*
 - 3) Paragon 1000 FTIR, Method CC-006
- *Cortec Laboratory is not accredited for the test marked

Materials:

- 1) VIA Test Kit
- 2) Razor Blade test kit
- 3) Methanol, lab grade
- 4) Deionized Water
- 5) Paragon 1000 FTIR
- 6) Plain polyethylene, control film
- 7) VpCI-126, Lot 34402, 5 mil

Procedure:

- 1) The tests were performed according to standard procedures for co-extruded film.
- 2) The VIA test was graded according to the following system:

| VIA Test Plug Grading Scheme | |
|--|---|
| <p>Picture A.2</p> <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>Grade 0</p> <p>Grade 1</p> <p>Grade 2</p> <p>Grade 3</p> |

Results:

Razor Blade Test – Carbon Steel

| Sample | Panel 1 | Panel 2 | Panel 3 |
|---------------|---------|---------|---------|
| VCI Blue film | Fail | Fail | Fail |
| VpCI-126 | Pass | Pass | Pass |
| Control | Fail | - | - |

Razor Blade Test – Copper

| Sample | Panel 1 | Panel 2 | Panel 3 |
|---------------|---------|---------|---------|
| VCI Blue film | Fail | Fail | Fail |
| VpCI-126 | Pass | Pass | Pass |
| Control | Fail | - | - |

VIA Test

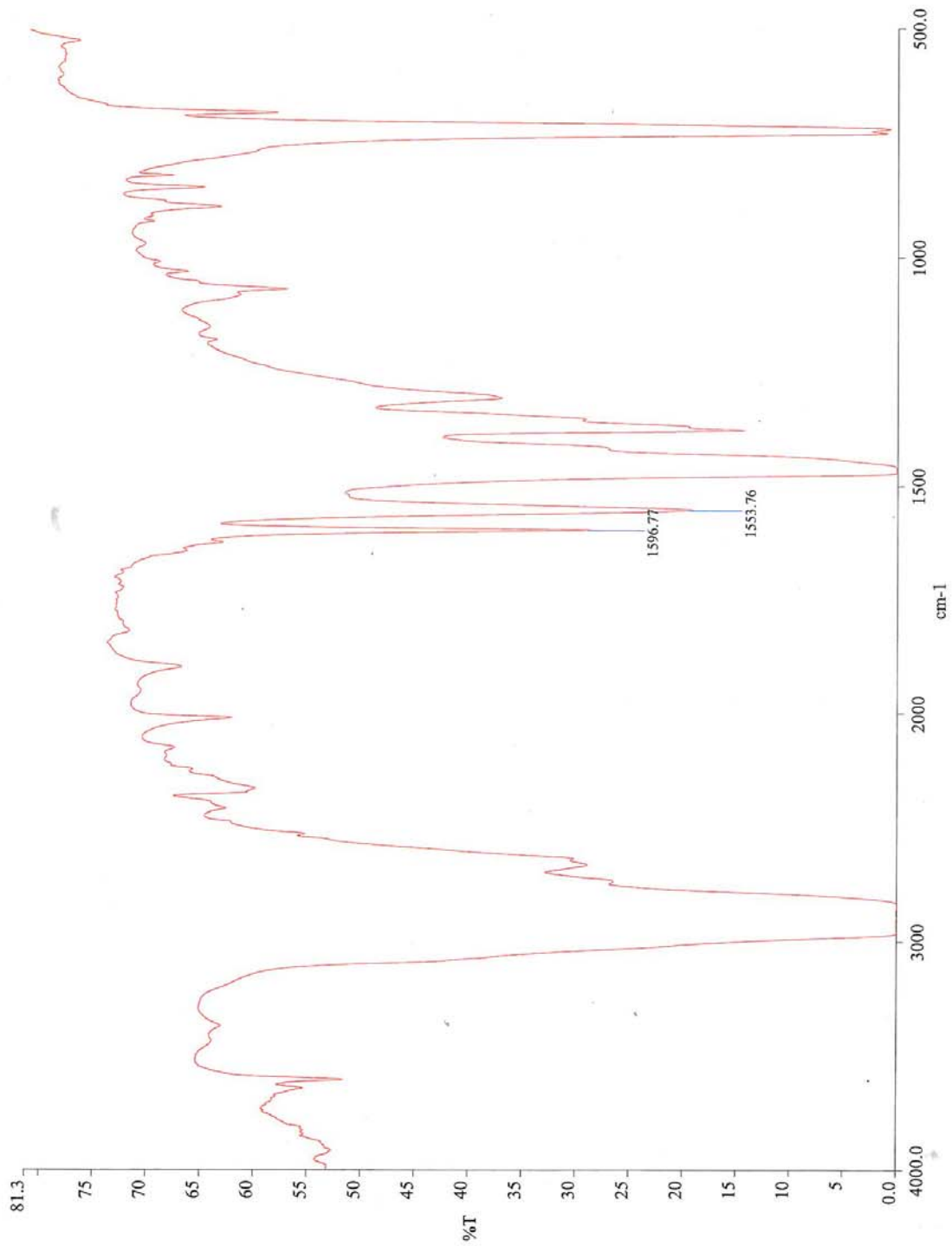
| Sample | Plug # 1 | Plug # 2 | Plug # 3 | Pass / Fail |
|---------------|----------|----------|----------|-------------|
| VCI Blue film | Grade 0 | Grade 0 | Grade 0 | Fail |
| VpCI-126 | Grade 3 | Grade 2 | Grade 2 | Pass |
| Control | Grade 0 | Grade 0 | N/A | N/A |

Note: Grades 0 and 1 are considered failing. See below for grading scale example.

Results relate only to the items tested

Interpretations:

1. Based on the test results, the VpCI-126 5mil provided sufficient vapor-phase and contact phase corrosion inhibition.
2. The submitted VCI blue film did not provide sufficient contact or vapor phase corrosion inhibition. It failed the VIA and the razor blade tests.
3. FTIR analysis determined that the VCI blue film contains sodium salt of carboxylic acid. The VCI blue film was also found to contain nitrite.



F:\apps\lab\pel_data\spectra\14-022-1125.sp - vcl light blue