CORTEC Laboratories,Inc.

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

Bushing Rings Tested for 72 Hours in ASTM D-1735 Conditions

To: Steve Pearl
Cortec Corporation

For: Chris Miller, Vassili Gotsko
Saint Gobain
150 Dey Rd.
Wayne, NJ 07470

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

cc: Boris Miksic
Cliff Cracauer
Robert Kean

Project #: 15-220-1825

Results reported by:

John Wulterkens
Technical Service Engineer

Approved by:

Eric Uutala
Technical Service Manager

Background:

Saint Gobain is experiencing rust issues on bushing rings and other parts after they emerge from a new 2-stage spray washer. The customer would like testing done on various sets of parts sent in from their facility. Four different sets of treatments were applied to the parts, before being packaged into different VCI bags and shipped to Cortec for testing. A 72 hour accelerated corrosion test will be run, per request, and parts will be inspected for corrosion after that time.

Sample Received:

Four bags of parts were received, each labeled with the treatment they received. The bushing rings inside each bag were in good condition with no visible signs of oxidation. The VpCI-126 bags were outdated and in poor condition, so parts were placed in fresh Cortec VpCI-126 Ziploc bags for testing. Bags were labeled as follows.

- #1: "BioCorr RP, ~5% VpCI-408 cleaner, ~5% M-370 NS RP", packaged in VpCI-126 bag
- #2: "Saint Gobain, 3%", packaged in VpCI-126 bag
- #3: "Saint Gobain, ~5%", Packaged in VpCI-126 bag
- #4: "3%, U-Line Bag"

Method: ASTM D-1735 Water Fog

Materials:

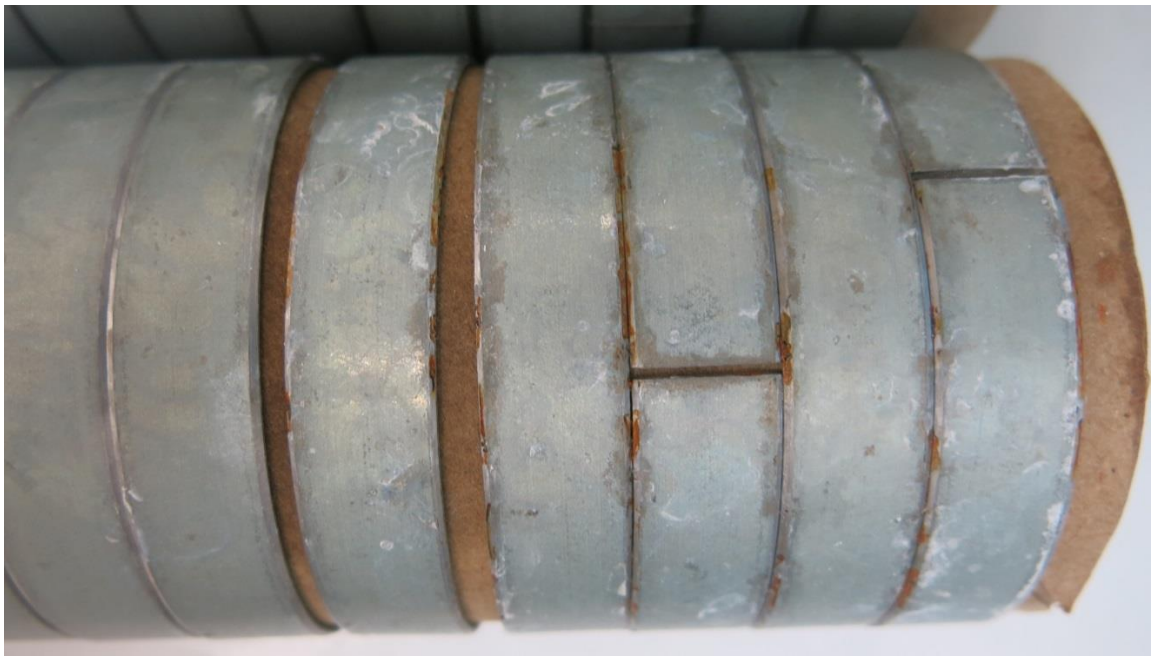
1. VpCI-126 Ziploc Bags (Batch # 410220)
2. CCX Chamber (Cortec # 153002)

Procedure:

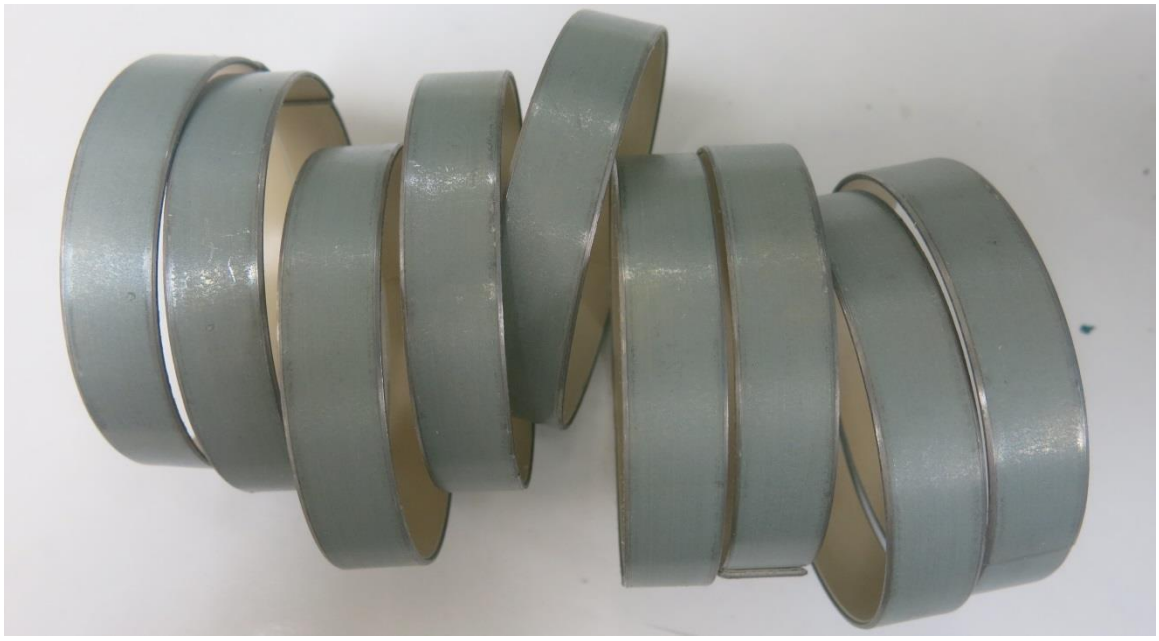
Parts were received from Saint Gobain, and parts packaged in VpCI-126 were placed into new VpCI-126 Ziploc bags. Excess air was removed from the bags before the VpCI-126 bags were sealed. The blue U-Line VCI bag was not sealed, but rather folded over, prior to testing. All bags were placed in the CCX Chamber (running ASTM D-1735 conditions) and tested for 72 hours. After 72 hours parts were removed from the test chamber and inspected for corrosion.

Photos:

Picture 1: Parts packaged in "3%, U-Line Bag" labeled bag. Light corrosion and oxidation can be seen on the pieces.



Picture 2: Close-up of the rust and oxidation on parts in the bag labeled "3%, U-Line Bag".



Picture 3: Parts packaged and labeled as "BioCorr RP, ~5% VpCI-408 Cleaner, ~5% M-370 NS RP", packaged in a VpCI-126 bag.

Picture 4: Parts labeled as "Saint Gobain, 3%", packaged in a VpCI-126 bag.

Picture 5: Parts labeled as "Saint Gobain, ~5%", packaged in a VpCI-126 Bag.

Interpretations:

All parts packaged in Cortec VpCI-126 Ziploc bags showed no signs of rust or oxidation after 72 hours of testing. Conversely, parts protected with the U-Line bag showed light rust and oxidation at the end of testing. Due to the U-Line bag's lack of seal, it is likely that moisture intruded into the packaging causing the corrosion.

The Cortec system of BioCorr, VpCI-408, and VpCI-126 allows for complete corrosion protection, as well as synergy of the VCI chemistry throughout the manufacturing and packaging process.