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Testing Water Based Rust Preventatives on Machined Steel

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Background: The customer wants to compare VpCI-379 to a competitor water based rust preventative on highly polished, machined steel parts.

Samples Received:

- 3 steel parts approximately 3 inches in diameter
- ChemCheq 6021C

Method: ASTM D-1748 modified (120 ºF and ~99% relative humidity)

Materials: Metal Test Samples
ChemCheq 6021C
VpCI-379 (03303)

Procedure: The following procedure was used:

1) Laboratory grade methanol was applied to the parts and wiped off with a lint free wipe.
2) Parts were coated with the following products:
    a. VpCI-379 at 5% concentration in water
    b. ChemCheq 6021C as received
    c. Uncoated (Control)
3) All parts were left to dry for 24 hours and then placed in a non-VCI polyethylene bag.
4) Then each part was placed in the humidity chamber at 120 ºF and ~99% relative humidity.
5) Parts were monitored for visual corrosion and removed after 360 hours to be photographed.

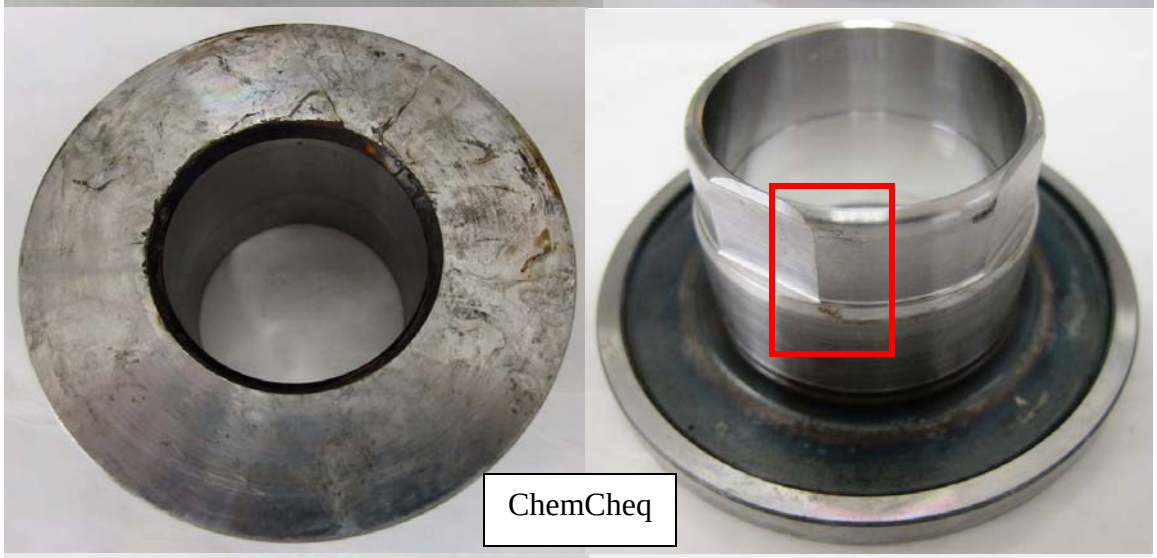
Results:

ASTM D 1748 Modified	
Treatment	Time Until Failure
None (Control)	< 24 hours
VpCI-379 (5%)	336 hours
ChemCheq	144 hours

Interpretations: VpCI-379 provided much better corrosion protection than ChemCheq 6021C. After only 144 hours there were 3 spots of corrosion on the part treated with ChemCheq 6021C, while this did not occur until 336 hours with VpCI-379. Additionally, all of the rust spots on VpCI-379 were at the location the non-VCI bag was directly in contact with the metal. This may have pulled the coating off of the part and trapped water on the metal surface.

Photos: After 360 hours in ASTM D-1748 Modified

VpCI-379



ChemCheq

Control