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Comparing Corrosion Protection of VpCI-377 and Richclean 10-65A Used by Systrand Manufacturing

Background: Systrand Manufacturing specializes in a variety of metal manufacturing processes, including cast iron, steel forging, and die cast aluminum. Systrand currently uses Richclean 10-65A as a cleaner/rust preventative for their parts, and they have been having corrosion issues. The corrosion protection of the Richclean product will be compared to VpCI-377.

Purpose: Compare, in the humidity cabinet, the corrosion protection of VpCI-377 to Richclean 10-65A, which is currently used by Systrand Manufacturing.

Method: ASTM D-1748 humidity cabinet

Materials: Two differential cases, provided by Systrand Manufacturing
Richclean 10-65A (concentrate)
VpCI-377
VpCI-126 Blue film

Procedure: The following procedure was used:

1) The differential cases arrived and were visually inspected.
2) One case was dipped in a 10% solution of Richclean 10-65A.
3) The second case was dipped in a 5% solution of VpCI-377
4) Both cases were allowed to dry overnight.
5) The cases were then placed in VpCI-126 Blue film bags, which were then heat sealed.
6) Both cases were then placed in ASTM D-1748 humidity cabinet.
7) The cases were visually inspected periodically.
8) After 336 hours, both cases were removed from ASTM D-1748 humidity cabinet.
9) Both cases were removed from VpCI-126 bags, visually inspected, and photographed.

Results: The following results were found:

1) The case treated with Richclean 10-65A began to corrode after 72 hours. After 336 hours, corrosion was present on greater than 75% of the surface area.
2) The case treated with VpCI-377 showed a small amount of corrosion after 336 hours. The corrosion present totaled less than 1% of the surface area of the piece, and was located on the underside of the part.

Conclusion: VpCI-377 provided superior corrosion protection on differential cases in humidity testing, when compared to Richclean 10-65A. Furthermore, VpCI-377 was used at half the concentration of the Richclean product.

Part dipped in 10% Richclean 10-65A, after 336 hours in ASTM D-1748 humidity cabinet.

Part dipped in 5% VpCI-377, after 336 hours in ASTM D-1748 humidity cabinet.