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Evaluating Rust Preventive Systems for Mursix

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Background: Mursix sent eight machined parts to Cortec for evaluation. They would like their current liquid and packaging products tested and compared to similar Cortec products.

Sample Received: Eight machined steel parts
Armor VCI plastic film

Method: ASTM D-1735 Water Fog (100°F, 95% relative humidity)

Materials: Machined metal parts
Armor VCI film
VpCI-126 Blue film
BioCorr
Laboratory grade methanol

Procedure: The following procedure was used:

1) Eight machined parts were visually inspected upon receipt.
    a. Four parts were all metal (group A), four parts had poly cap on one end (group B).
2) Prior to testing, four parts were cleaned with methanol.
    a. Two parts from group A and two parts from group B.
    b. The remaining four parts were left to be tested with current rust preventive coating.
        i. Current rust preventive (Abrasive Products AL55R compound, RP082B-AllStar Chemical) was applied by Mursix, prior to shipping.
3) Cleaned parts were dipped in BioCorr and hung to air dry overnight.
4) Parts were then packaged as follows:
    a. Group A – Two parts in Armor bags, two in VpCI-126.
    b. Group B – Current treated part was placed in an Armor bag, BioCorr treated part was placed in VpCI-126, two parts were tested with no bag.
5) After packaging, all parts were placed in ASTM D-1735 water fog cabinet.
6) All parts were visually inspected periodically.
7) After 696 hours, all parts were removed from ASTM D-1735 water fog cabinet.
8) All parts were visually inspected and photographed.

Results: The following results were found:

Part ID	Time to Corrosion (Hours)
A – Armor/Current RP	600
A – Armor/BioCorr	600
A – VpCI-126/Current RP	DNF
A – VpCI-126/BioCorr	DNF
B – Current RP only	312
B – BioCorr only	504
B – Current RP/Armor	DNF
B – BioCorr/VpCI-126	DNF

DNF – Did not fail during 696 hours of humidity testing.

Photos:

Figure 1: Group A parts, after 696 hours of ASTM D-1735 testing. From L-R: Amor/Current RP, Armor/BioCorr, VpCI-126/Current RP, VpCI-126/BioCorr

Figure 2: Group B parts after 696 hours of ASTM D-1735 testing. From L-R: Current RP only, BioCorr only, Current RP/Armor, VpCI-126/BioCorr

Interpretations: After 696 hours of testing, corrosion was minimal in all packaged parts. The biggest difference in corrosion protection was between the liquid products; BioCorr provided better protection than the rust preventive currently being utilized by Mursix.

Parts will be returned to Mursix for further evaluation.