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LABORATORY ACCREDITATION BUREAU a division of A2LA ACCREDITED ISO/IEC 17025
Certificate # L2267 Testing

Humidity Testing for Customer

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ISO 9001 CERTIFIED QUALITY SYSTEM REGISTERED

ENVIRONMENTAL ISO 14001 CERTIFIED SYSTEM REGISTERED

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Background: A meeting took place between Cortec and the customer's team. After an in depth technical discussion about the process details of the trial and the different RP options, it was jointly decided to go forward and test the following RP options:

Samples Received: The following pre-treated parts were received on 3-26-18 in good condition:

Trial Lot #	Name	RP	Packaging Material	Packaging Method
1	Baseline	Perkleen 1250-ND	VpCI-126 bag	tucked inside stack
2	Oil-based RP	Ensis 962	VpCI-126 bag	tucked inside stack
3	Soy based RP	BioCorr ATF	VpCI-126 bag	tucked inside stack
4	Baseline + Sealed	Perkleen 1250-ND	VpCI-126 bag	Sealed
5	Soy based + Sealed	BioCorr ATF	VpCI-126 bag	Sealed
6	Baseline + DecciCorr	Perkleen 1250-ND	VpCI-126 bag +DessiCorr	tucked inside stack

Method: Humidity Testing, ASTM D1735

Materials: Q-fog Humidity Chamber

Procedure: Pre-packaged parts were placed in the humidity chamber and tested until failure. Failure was determine by the first appearance of corrosion.

Results: The following results were found:

Trial Lot #	Name	RP	Packaging Material	Packaging Method	Time to Failure
1	Baseline	Perkleen 1250-ND	VpCI-126 bag	tucked inside stack	48 hours
2	Oil-based RP	Ensis 962	VpCI-126 bag	tucked inside stack	306 hours
3	Soy based RP	BioCorr ATF	VpCI-126 bag	tucked inside stack	138 hours
4	Baseline + Sealed	Perkleen 1250-ND	VpCI-126 bag	Sealed	Did not Fail
5	Soy based + Sealed	BioCorr ATF	VpCI-126 bag	Sealed	Did not Fail
6	Baseline + DessiCorr	Perkleen 1250-ND	VpCI-126 bag +DessiCorr	tucked inside stack	48 hours

Note- Tested for a total of 336 hours (started on 4-3-18 @ 2:40pm and ended on 4-17-18 @ 2:40pm)

Interpretations: The results of the humidity testing show that sealing the bags significantly improves the corrosion protection. The parts that were not sealed in VpCI-126 bags failed while the parts that were sealed did not fail. The results also show that BioCorr ATF provides better corrosion protection than Perkleen 1250-ND, but not Ensis 962. However, unlike oil based RP's such as Ensis 962, BioCorr ATF leaves a dry film on the surface of the metal that is virtually undetectable. The formula is also VOC free, biodegradable, and more environmentally friendly than Shell's Ensis 962 oil.

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Photos:

This photo shows how the samples were placed in the Q-fog Humidity Chamber for testing

All samples that failed started to corrode at the bottom of the bag

The parts at the bottom show corrosion, but the parts at the top are corrosion-free.

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Photos after 336 hours of humidity testing:

Trial Lot #1

Trial Lot #2

Trial Lot #3

Trial Lot #4

Trial Lot #5

Trial Lot #6

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