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Evaluating Packaging Systems for Parts from Customer

Background: For more than 100 years, customer has been creating solutions for their customer's toughest tooling and metal stamping problems. They pride themselves on being able to solve all metal stamping problems, whether they already have a solution or they need to develop a new one. Customer currently coats their parts, and then bulk packages them. This packaging system, along with alternate systems, will be analyzed.

Purpose: Evaluate the current RP fluid used by customer, and test the compatibility of the fluid with various Cortec products.

Method: Modified ASTM D 1748 Humidity Cabinet

Materials: 5 metal parts, provided by customer
Circle Prosco A-310 3:1 liquid
VpCI-422
VpCI-416
VpCI-126 Blue Film
VpCI-146 Paper
VpCI-130 Foam

Procedure: The following procedure was used:

1) Parts were removed from box and inspected.
    a. Light corrosion was visible on the parts, as was an oily film.
2) All parts were dipped in VpCI-422 and allowed to sit for approximately 15 minutes.
    a. Parts were then removed from VpCI-422 and rinsed with water.
3) After water rinse, parts were neutralized with VpCI-416.
    a. After neutralizing, parts were rinsed with water and allowed to dry.
4) After drying, the parts received the following treatment:

	Circle Prosco A-310	VpCI-126 Film	VpCI-146 Paper	VpCI-130 Foam
A1	**X**			
B1		**X**		
C1	**X**	**X**		
D1	**X**	**X**	**X**	
E1	**X**	**X**		**X**

5) After packaging, all parts were allowed to condition.
6) After conditioning, all parts were placed in the ASTM D 1748 Humidity Cabinet.
7) Parts were visually inspected periodically.
8) After 486 hours, parts were removed from ASTM D 1748 Humidity Cabinet.
9) Parts were visually inspected and photographed.

Results: The following results were found:

Part	Time to Failure (Hours)	% Corrosion
A1	<24	>90%
B1	288	<5%
C1	DNF	<1%
D1	DNF	<1%
E1	DNF	<1%

DNF – Did Not Fail during 486 hours of testing.

Conclusion: The Circle Prosco A310 liquid provided very little protection in humidity testing. VpCI-126 blue film performed well as a stand alone product, with corrosion on less than 5% of the wrapped part. When used in combination, VpCI-126 and Circle Prosco liquid provided excellent protection. The packages that included VpCI-130 foam and VpCI-146 paper provided excellent protection as well.

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