



**Salt Spray Test Report For
Rollac Shutter of Texas**

TS-4075-119 09/10/01

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OBJECTIVES/BACKGROUND: We were to perform salt spray testing on six 4 x 12" ACT aluminum panels and six 7 x 7" aluminum die cast parts received from Rollac Shutter of Texas. The panels and parts were pretreated with a multi-metal cleaner/coater process with final rinse by either Custom Chemicals of Texas (panels 01 through 06 and parts CCT02, CCT03, and CCT04a) or Fremont Industries (parts 9, D, and X). All panels and parts were coated in the DuPont customer technical support service lab with Whitestone PFW-603-S9. The customer needs to choose a pretreatment supplier for future production. This test was performed to assist in the facilitation of this need.

The salt spray test on the panels was to run for 2,000 hours or until failure, whichever occurred first. The salt spray test on the parts was to run until failure. The panels and parts were to be tested unscribed and the panels masked. Checks for deterioration were to be made at 96 hour intervals. Failure was defined as greater than 10% of blisters or rust on the surface or edges.

TEST RESULTS SUMMARY:

Salt Spray Table

I.D.	Mils Avg.	First Occurrence			Last Occurrence			Average	
		Hours	Surface Blisters	Edge Blisters	Hours	Surface Blisters	Edge Blisters	Surface Blisters	Edge Blisters
01	2.4	90.5	0, 0	N/A	2008.0	2%, 0.75 mm	N/A	6.5%, 0.75 mm	N/A
02	2.4	90.5	0, 0	N/A	2008.0	7%, 0.75 mm	N/A		
03	2.8	90.5	0, 0	N/A	2008.0	9%, 0.75 mm	N/A		
04	2.5	90.5	0, 0	N/A	2008.0	6%, 0.75 mm	N/A		
05	1.7	90.5	0, 0	N/A	2008.0	9%, 0.75 mm	N/A		
06	3.1	90.5	0, 0	N/A	2008.0	6%, 0.75 mm	N/A		
CCT02	3.2	90.5	0, 0	0, 0	1077.5	14%	24%	19.3%	28%
CCT03	3.0	90.5	0, 0	0, 0	1077.5	21%	31%		
CCT04a	2.0	90.5	0, 0	0, 0	1077.5	23%	29%		
9	2.8	90.5	0, 0	0, 0	1077.5	13%	24%	13.3%	21.3%
D	3.1	90.5	0, 0	0, 0	1077.5	16%	25%		
X	2.7	90.5	0, 0	0, 0	1077.5	11%	15%		

CONCLUSIONS AND RECOMMENDATIONS: Based on the customers definition of failure, the panels performed well achieving over 2,000 hours of salt spray testing with less than 10% surface blisters. It would appear the pretreatment process utilized was correct for the soils encountered on the panels. There was no evidence of surface rust on any of the panels.

Although parts 9, D, and X performed slightly better on the average than parts CCT02, CCT03, and CCT04a, all of the parts failed between 936.5 and 1077.5 hours of salt spray testing. There was no evidence of surface or edge rust on any of the parts.

END OF REPORT

cc: Steve Houston
Scott Jones
Mike Wittenhagen

TSV, 10.301-2, 05/96

Evaluation Test Methods

Evaluation of test specimens is done in conformance with ASTM D-1654-92 except for the deviations noted.

Rating of Failure at Scribe

Scribe creepage is defined as "one sided", that is, from the line of scribe to the creepage front. Measurements on both sides of the line will be used to determine the average, maximum, and minimum failure. Failure at the scribe line will be reported in millimeters, unless otherwise requested by the customer.

Rating of Failure at Edges

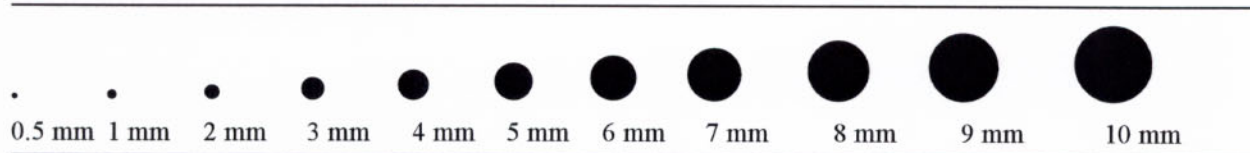
Corrosion or blisters within 1/8" of any edge will be reported as an edge failure. **Table 1** below is used to describe the size of blisters and rust areas. This rating is suffixed to the "% area failed" rating. (Example: a rating of **21% / 5mm** for edge blisters means that 21% of the edge area contained blisters which averaged 5mm diameter in size.)

Note: (1) ASTM D-1654-92 considers areas within 1/2" of an edge for reporting of edge failure.
 (2) ASTM D-1654-92 uses ASTM D-714-87 and D-610-89 to report frequency and distribution for rusting and blisters. This report uses Table 1 shown below.

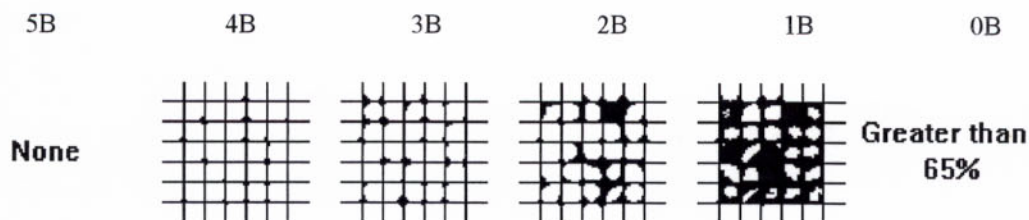
Rating of Unscribed Areas (excluding edges)

Corrosion or blisters within 1/4" of any edge are discounted. **Table 1** below is used to describe the size of blisters and rust areas. This rating is suffixed to the "% area failed" rating. (Example: a rating of **21% / 5mm** for surface blisters means that 21% of the surface area contained blisters which averaged 5mm diameter in size.)

Table 1 - Blister and rust size rating



Adhesion Test Results Chart



SALT SPRAY TEST REPORT

Test Requirements and Parts Data

Lab No./Part No. : 4075-11 "9"	Gauge/Metal : Aluminum Die Cast, 3/16"
Test Hours : Until failure	Pretreatment : See Notes
Intervals : 96 hrs.	Description : 7" x 7" Part
Wax/Tape Edges : None	Coating : Whitestone
Failure : See Notes	Scribe Type : None
Color L a b : N/A	Post Cleaning : Cool water rinse
Gloss 20/60/85 : N/A	Film Thickness : 2.8 mils avg.

Notes: *Failure is defined as no surface blisters/rust or edge blisters/rust >10%. Pretreatment process is Tri-Metal cleaner/coater with final rinse.*

Parts Test Angle : 15 Degrees From Vertical 0 Degrees From Vertical
Stop Test At : Required Hours Failure
Test Procedures : Scraping; ASTM D-1654, Procedure A, par. 7.2, 7.3
 Air Blow-Off; ASTM D-1654, Procedure A, par. 7.1, 7.3
 Evaluate Unscribed Area; ASTM D-1654, Procedure B (modified)

Test Results

Start Date : 5/01/01	Fog MI/Hr : 1.0 - 2.0 ml./hr.	Fog pH : 6.5 - 7.2
Start Time : 3:00PM	Sp. Gravity : 1.0255 - 1.0400	Temp. : 93 - 98 F.

Lab No./Part No. 4075-119"9"	Check #01	Check #02	Check #03	Check #04
Date Checked	5/05/01	5/09/01	5/14/01	5/18/01
Time Checked	1:30PM	1:00PM	1:00PM	1:00PM
Total Hours	94.50	190.00	310.00	406.00
Test Downtime	4.00	7.50	11.00	15.00
Test Hours	90.50	182.50	299.00	391.00
Min. Creep	N/A	N/A	N/A	N/A
Max. Creep	N/A	N/A	N/A	N/A
Average Creep	N/A	N/A	N/A	N/A
Surface Rust	0, 0	0, 0	0, 0	0, 0
Edge Rust	0, 0	0, 0	0, 0	0, 0
Surface Blisters	0, 0	0, 0	0, 0	0, 0
Edge Blisters	0, 0	0, 0	0, 0	0, 0
Gloss 20/60/85				
Color L a b				

Comments:

Lab No./Part No.
4075-119 "9"

	Check #05	Check #06	Check #07	Check #08
Date Checked	5/22/01	5/29/01	6/04/01	6/08/01
Time Checked	1:00PM	1:00PM	1:00PM	1:00PM
Total Hours	502.00	670.00	814.00	910.00
Test Downtime	17.00	58.50	63.50	67.50
Test Hours	485.00	611.50	750.50	842.50
Min. Creep	N/A	N/A	N/A	N/A
Max. Creep	N/A	N/A	N/A	N/A
Average Creep	N/A	N/A	N/A	N/A
Surface Rust	0, 0	0, 0	0, 0	0, 0
Edge Rust	0, 0	0, 0	0, 0	0, 0
Surface Blisters	0, 0	0, 0	0, 0	0, 0
Edge Blisters	0, 0	0, 0	0, 0	0, 0
Gloss 20/60/85				
Color L a b				

Comments:

*) System power down 5/26/01 through 5/27/01 due to inclement weather.

Lab No./Part No.
4075-119 "9"

	Check #09	Check #10		
Date Checked	6/12/01	6/18/01	a	
Time Checked	1:00PM	1:00PM		
Total Hours	1,006.00	1,150.00		
Test Downtime	69.50	72.50		
Test Hours	936.50	1,077.50		
Min. Creep	N/A	N/A		
Max. Creep	N/A	N/A		
Average Creep	N/A	N/A		
Surface Rust	0, 0	0, 0		
Edge Rust	0, 0	0, 0		
Surface Blisters	5%	13%		
Edge Blisters	8%	24%		
Gloss 20/60/85				
Color L a b				

Comments:

a) Test terminated.

SALT SPRAY TEST REPORT

Test Requirements and Parts Data

Lab No./Part No. : 4075-11 "D"	Gauge/Metal : Aluminum Die Cast, 3/16"
Test Hours : Until failure	Pretreatment : See Notes
Intervals : 96 hrs.	Description : 7" x 7" Part
Wax/Tape Edges : None	Coating : Whitestone
Failure : See Notes	Scribe Type : None
Color L a b : N/A	Post Cleaning : Cool water rinse
Gloss 20/60/85 : N/A	Film Thickness : 3.1 mils avg.

Notes: *Failure is defined as no surface blisters/rust or edge blisters/rust >10%. Pretreatment process is Tri-Metal cleaner/coater with final rinse.*

Parts Test Angle : 15 Degrees From Vertical 0 Degrees From Vertical
Stop Test At : Required Hours Failure
Test Procedures : Scraping; ASTM D-1654, Procedure A, par. 7.2, 7.3
 Air Blow-Off; ASTM D-1654, Procedure A, par. 7.1, 7.3
 Evaluate Unscribed Area; ASTM D-1654, Procedure B (modified)

Test Results

Start Date : 5/01/01	Fog MI/Hr : 1.0 - 2.0 ml./hr.	Fog pH : 6.5 - 7.2
Start Time : 3:00PM	Sp. Gravity : 1.0255 - 1.0400	Temp. : 93 - 98 F.

Lab No./Part No. 4075-119 "D"	Check #01	Check #02	Check #03	Check #04
Date Checked	5/05/01	5/09/01	5/14/01	5/18/01
Time Checked	1:30PM	1:00PM	1:00PM	1:00PM
Total Hours	94.50	190.00	310.00	406.00
Test Downtime	4.00	7.50	11.00	15.00
Test Hours	90.50	182.50	299.00	391.00
Min. Creep	N/A	N/A	N/A	N/A
Max. Creep	N/A	N/A	N/A	N/A
Average Creep	N/A	N/A	N/A	N/A
Surface Rust	0, 0	0, 0	0, 0	0, 0
Edge Rust	0, 0	0, 0	0, 0	0, 0
Surface Blisters	0, 0	0, 0	0, 0	0, 0
Edge Blisters	0, 0	0, 0	0, 0	0, 0
Gloss 20/60/85				
Color L a b				

Comments:

Lab No./Part No.
4075-119 "D"

	Check #05	Check #06	Check #07	Check #08
Date Checked	5/22/01	5/29/01	6/04/01	6/08/01
Time Checked	1:00PM	1:00PM	1:00PM	1:00PM
Total Hours	502.00	670.00	814.00	910.00
Test Downtime	17.00	58.50	63.50	67.50
Test Hours	485.00	611.50	750.50	842.50
Min. Creep	N/A	N/A	N/A	N/A
Max. Creep	N/A	N/A	N/A	N/A
Average Creep	N/A	N/A	N/A	N/A
Surface Rust	0, 0	0, 0	0, 0	0, 0
Edge Rust	0, 0	0, 0	0, 0	0, 0
Surface Blisters	0, 0	0, 0	0, 0	0, 0
Edge Blisters	0, 0	0, 0	0, 0	0, 0
Gloss 20/60/85				
Color L a b				

Comments:

*) System power down 5/26/01 through 5/27/01 due to inclement weather.

Lab No./Part No.
4075-119 "D"

	Check #09	Check #10		
Date Checked	6/12/01	6/18/01	a	
Time Checked	1:00PM	1:00PM		
Total Hours	1,006.00	1,150.00		
Test Downtime	69.50	72.50		
Test Hours	936.50	1,077.50		
Min. Creep	N/A	N/A		
Max. Creep	N/A	N/A		
Average Creep	N/A	N/A		
Surface Rust	0, 0	0, 0		
Edge Rust	0, 0	0, 0		
Surface Blisters	9%	16%		
Edge Blisters	10%	25%		
Gloss 20/60/85				
Color L a b				

Comments:

a) Test terminated.

SALT SPRAY TEST REPORT

Test Requirements and Parts Data

Lab No./Part No. : 4075-11 "X"	Gauge/Metal : Aluminum Die Cast, 3/16"
Test Hours : Until failure	Pretreatment : See Notes
Intervals : 96 hrs.	Description : 7" x 7" Part
Wax/Tape Edges : None	Coating : Whitestone
Failure : See Notes	Scribe Type : None
Color L a b : N/A	Post Cleaning : Cool water rinse
Gloss 20/60/85 : N/A	Film Thickness : 2.7 mils avg.

Notes: *Failure is defined as no surface blisters/rust or edge blisters/rust >10%. Pretreatment process is Tri-Metal cleaner/coater with final rinse.*

Parts Test Angle : 15 Degrees From Vertical 0 Degrees From Vertical
Stop Test At : Required Hours Failure
Test Procedures : Scraping; ASTM D-1654, Procedure A, par. 7.2, 7.3
 Air Blow-Off; ASTM D-1654, Procedure A, par. 7.1, 7.3
 Evaluate Unscribed Area; ASTM D-1654, Procedure B (modified)

Test Results

Start Date : 5/01/01	Fog MI/Hr : 1.0 - 2.0 ml./hr.	Fog pH : 6.5 - 7.2
Start Time : 3:00PM	Sp. Gravity : 1.0255 - 1.0400	Temp. : 93 - 98 F.

Lab No./Part No. 4075-119 "X"	Check #01	Check #02	Check #03	Check #04
Date Checked	5/05/01	5/09/01	5/14/01	5/18/01
Time Checked	1:30PM	1:00PM	1:00PM	1:00PM
Total Hours	94.50	190.00	310.00	406.00
Test Downtime	4.00	7.50	11.00	15.00
Test Hours	90.50	182.50	299.00	391.00
Min. Creep	N/A	N/A	N/A	N/A
Max. Creep	N/A	N/A	N/A	N/A
Average Creep	N/A	N/A	N/A	N/A
Surface Rust	0, 0	0, 0	0, 0	0, 0
Edge Rust	0, 0	0, 0	0, 0	0, 0
Surface Blisters	0, 0	0, 0	0, 0	0, 0
Edge Blisters	0, 0	0, 0	0, 0	0, 0
Gloss 20/60/85				
Color L a b				

Comments:

Lab No./Part No.
4075-119 "X"

	Check #05	Check #06	Check #07	Check #08
Date Checked	5/22/01	5/29/01	6/04/01	6/08/01
Time Checked	1:00PM	1:00PM	1:00PM	1:00PM
Total Hours	502.00	670.00	814.00	910.00
Test Downtime	17.00	58.50	63.50	67.50
Test Hours	485.00	611.50	750.50	842.50
Min. Creep	N/A	N/A	N/A	N/A
Max. Creep	N/A	N/A	N/A	N/A
Average Creep	N/A	N/A	N/A	N/A
Surface Rust	0, 0	0, 0	0, 0	0, 0
Edge Rust	0, 0	0, 0	0, 0	0, 0
Surface Blisters	0, 0	0, 0	0, 0	0, 0
Edge Blisters	0, 0	0, 0	0, 0	0, 0
Gloss 20/60/85				
Color L a b				

Comments:

*) System power down 5/26/01 through 5/27/01 due to inclement weather.

Lab No./Part No.
4075-119 "X"

	Check #09	Check #10		
Date Checked	6/12/01	6/18/01	a	
Time Checked	1:00PM	1:00PM		
Total Hours	1,006.00	1,150.00		
Test Downtime	69.50	72.50		
Test Hours	936.50	1,077.50		
Min. Creep	N/A	N/A		
Max. Creep	N/A	N/A		
Average Creep	N/A	N/A		
Surface Rust	0, 0	0, 0		
Edge Rust	0, 0	0, 0		
Surface Blisters	3%	11%		
Edge Blisters	6%	15%		
Gloss 20/60/85				
Color L a b				

Comments:

a) Test terminated.

SALT SPRAY TEST REPORT

Test Requirements and Parts Data

Lab No./Part No. : 4075-11 01	Gauge/Metal : ACT ALM50 52H32 Panel
Test Hours : 2000 or failure	Pretreatment : See Notes
Intervals : 96 hrs.	Description : 4" x 12" Panel
Wax/Tape Edges : Tape edges	Coating : Whitestone
Failure : See Notes	Scribe Type : None
Color L a b : N/A	Post Cleaning : Cool water rinse
Gloss 20/60/85 : N/A	Film Thickness : 2.4 mils avg.

Notes: *Failure is defined as no surface blisters/rust or edge blisters/rust >10%. Pretreatment process is Tri-Metal cleaner/coater with final rinse.*

Parts Test Angle : 15 Degrees From Vertical 0 Degrees From Vertical
Stop Test At : Required Hours Failure
Test Procedures : Scraping; ASTM D-1654, Procedure A, par. 7.2, 7.3
 Air Blow-Off; ASTM D-1654, Procedure A, par. 7.1, 7.3
 Evaluate Unscribed Area; ASTM D-1654, Procedure B (modified)

Test Results

Start Date : 5/01/01	Fog MI/Hr : 1.0 - 2.0 ml./hr.	Fog pH : 6.5 - 7.2
Start Time : 3:00PM	Sp. Gravity : 1.0255 - 1.0400	Temp. : 93 - 98 F.

Lab No./Part No. 4075-11901	Check #01	Check #02	Check #03	Check #04
Date Checked	5/05/01	5/09/01	5/14/01	5/18/01
Time Checked	1:30PM	1:00PM	1:00PM	1:00PM
Total Hours	94.50	190.00	310.00	406.00
Test Downtime	4.00	7.50	11.00	15.00
Test Hours	90.50	182.50	299.00	391.00
Min. Creep	N/A	N/A	N/A	N/A
Max. Creep	N/A	N/A	N/A	N/A
Average Creep	N/A	N/A	N/A	N/A
Surface Rust	0, 0	0, 0	0, 0	0, 0
Edge Rust	N/A	N/A	N/A	N/A
Surface Blisters	0, 0	0, 0	0, 0	0, 0
Edge Blisters	N/A	N/A	N/A	N/A
Gloss 20/60/85				
Color L a b				

Comments:

Lab No./Part No.
4075-11901

	Check #05	Check #06	Check #07	Check #08
Date Checked	5/22/01	5/29/01	6/04/01	6/08/01
Time Checked	1:00PM	1:00PM	1:00PM	1:00PM
Total Hours	502.00	670.00	814.00	910.00
Test Downtime	17.00	58.50	63.50	67.50
Test Hours	485.00	611.50	750.50	842.50
Min. Creep	N/A	N/A	N/A	N/A
Max. Creep	N/A	N/A	N/A	N/A
Average Creep	N/A	N/A	N/A	N/A
Surface Rust	0, 0	0, 0	0, 0	0, 0
Edge Rust	N/A	N/A	N/A	N/A
Surface Blisters	0, 0	0, 0	0, 0	0, 0
Edge Blisters	N/A	N/A	N/A	N/A
Gloss 20/60/85				
Color L a b				

Comments:

*) System power down 5/26/01 through 5/27/01 due to inclement weather.

Lab No./Part No.
4075-11901

	Check #09	Check #10	Check #11	Check #12
Date Checked	6/12/01	6/18/01	6/22/01	6/26/01
Time Checked	1:00PM	1:00PM	1:00PM	1:00PM
Total Hours	1,006.00	1,150.00	1,246.00	1,342.00
Test Downtime	69.50	72.50	76.50	77.50
Test Hours	936.50	1,077.50	1,169.50	1,264.50
Min. Creep	N/A	N/A	N/A	N/A
Max. Creep	N/A	N/A	N/A	N/A
Average Creep	N/A	N/A	N/A	N/A
Surface Rust	0, 0	0, 0	0, 0	0, 0
Edge Rust	N/A	N/A	N/A	N/A
Surface Blisters	0, 0	0, 0	0, 0	0, 0
Edge Blisters	N/A	N/A	N/A	N/A
Gloss 20/60/85				
Color L a b				

Comments:

Lab No./Part No.
4075-11901

	Check #13	Check #14	Check #15	Check #16
Date Checked	7/02/01	7/06/01	7/10/01	7/16/01
Time Checked	1:00PM	1:00PM	1:00PM	1:00PM
Total Hours	1,486.00	1,582.00	1,678.00	1,822.00
Test Downtime	80.50	83.50	86.50	92.50
Test Hours	1,405.50	1,498.50	1,591.50	1,729.50
Min. Creep	N/A	N/A	N/A	N/A
Max. Creep	N/A	N/A	N/A	N/A
Average Creep	N/A	N/A	N/A	N/A
Surface Rust	0, 0	0, 0	0, 0	0, 0
Edge Rust	N/A	N/A	N/A	N/A
Surface Blisters	1%, 0.5 mm	1%, 0.5 mm	1%, 0.5 mm	1%, 0.5 mm
Edge Blisters	N/A	N/A	N/A	N/A
Gloss 20/60/85				
Color L a b				

Comments:

Lab No./Part No.
4075-11901

	Check #17	Check #18	Check #19
Date Checked	7/20/01	7/24/01	7/28/01
Time Checked	1:00PM	1:00PM	1:00PM
Total Hours	1,918.00	2,014.00	2,110.00
Test Downtime	96.00	97.50	102.00
Test Hours	1,822.00	1,916.50	2,008.00
Min. Creep	N/A	N/A	N/A
Max. Creep	N/A	N/A	N/A
Average Creep	N/A	N/A	N/A
Surface Rust	0, 0	0, 0	0, 0
Edge Rust	N/A	N/A	N/A
Surface Blisters	1%, 0.5 mm	1%, 0.75 mm	2%, 0.75 mm
Edge Blisters	N/A	N/A	N/A
Gloss 20/60/85			
Color L a b			

Comments:

a) Test completed.

SALT SPRAY TEST REPORT

Test Requirements and Parts Data

Lab No./Part No. : 4075-11 02	Gauge/Metal : ACT ALM50 52H32 Panel
Test Hours : 2000 or failure	Pretreatment : See Notes
Intervals : 96 hrs.	Description : 4" x 12" Panel
Wax/Tape Edges : Tape edges	Coating : Whitestone
Failure : See Notes	Scribe Type : None
Color L a b : N/A	Post Cleaning : Cool water rinse
Gloss 20/60/85 : N/A	Film Thickness : 2.4 mils avg.

Notes: *Failure is defined as no surface blisters/rust or edge blisters/rust >10%. Pretreatment process is Tri-Metal cleaner/coater with final rinse.*

Parts Test Angle : <input checked="" type="checkbox"/> 15 Degrees From Vertical	<input type="checkbox"/> 0 Degrees From Vertical
Stop Test At : <input checked="" type="checkbox"/> Required Hours	<input checked="" type="checkbox"/> Failure
Test Procedures : <input type="checkbox"/> Scraping; ASTM D-1654, Procedure A, par. 7.2, 7.3	
<input type="checkbox"/> Air Blow-Off; ASTM D-1654, Procedure A, par. 7.1, 7.3	
<input checked="" type="checkbox"/> Evaluate Unscribed Area; ASTM D-1654, Procedure B (modified)	

Test Results

Start Date : 5/01/01	Fog MI/Hr : 1.0 - 2.0 ml./hr.	Fog pH : 6.5 - 7.2
Start Time : 3:00PM	Sp. Gravity : 1.0255 - 1.0400	Temp. : 93 - 98 F.

Lab No./Part No. 4075-11902	Check #01	Check #02	Check #03	Check #04
Date Checked	5/05/01	5/09/01	5/14/01	5/18/01
Time Checked	1:30PM	1:00PM	1:00PM	1:00PM
Total Hours	94.50	190.00	310.00	406.00
Test Downtime	4.00	7.50	11.00	15.00
Test Hours	90.50	182.50	299.00	391.00
Min. Creep	N/A	N/A	N/A	N/A
Max. Creep	N/A	N/A	N/A	N/A
Average Creep	N/A	N/A	N/A	N/A
Surface Rust	0, 0	0, 0	0, 0	0, 0
Edge Rust	N/A	N/A	N/A	N/A
Surface Blisters	0, 0	0, 0	0, 0	0, 0
Edge Blisters	N/A	N/A	N/A	N/A
Gloss 20/60/85				
Color L a b				

Comments:

Lab No./Part No.
4075-119 02

	Check #05	Check #06	Check #07	Check #08
Date Checked	5/22/01	5/29/01	6/04/01	6/08/01
Time Checked	1:00PM	1:00PM	1:00PM	1:00PM
Total Hours	502.00	670.00	814.00	910.00
Test Downtime	17.00	58.50	63.50	67.50
Test Hours	485.00	611.50	750.50	842.50
Min. Creep	N/A	N/A	N/A	N/A
Max. Creep	N/A	N/A	N/A	N/A
Average Creep	N/A	N/A	N/A	N/A
Surface Rust	0, 0	0, 0	0, 0	0, 0
Edge Rust	N/A	N/A	N/A	N/A
Surface Blisters	0, 0	0, 0	0, 0	0, 0
Edge Blisters	N/A	N/A	N/A	N/A
Gloss 20/60/85				
Color L a b				

Comments:

*) System power down 5/26/01 through 5/27/01 due to inclement weather.

Lab No./Part No.
4075-119 02

	Check #09	Check #10	Check #11	Check #12
Date Checked	6/12/01	6/18/01	6/22/01	6/26/01
Time Checked	1:00PM	1:00PM	1:00PM	1:00PM
Total Hours	1,006.00	1,150.00	1,246.00	1,342.00
Test Downtime	69.50	72.50	76.50	77.50
Test Hours	936.50	1,077.50	1,169.50	1,264.50
Min. Creep	N/A	N/A	N/A	N/A
Max. Creep	N/A	N/A	N/A	N/A
Average Creep	N/A	N/A	N/A	N/A
Surface Rust	0, 0	0, 0	0, 0	0, 0
Edge Rust	N/A	N/A	N/A	N/A
Surface Blisters	0, 0	0, 0	1%, 0.5 mm	1%, 0.5 mm
Edge Blisters	N/A	N/A	N/A	N/A
Gloss 20/60/85				
Color L a b				

Comments:

Lab No./Part No.
4075-119 02

	Check #13	Check #14	Check #15	Check #16
Date Checked	7/02/01	7/06/01	7/10/01	7/16/01
Time Checked	1:00PM	1:00PM	1:00PM	1:00PM
Total Hours	1,486.00	1,582.00	1,678.00	1,822.00
Test Downtime	80.50	83.50	86.50	92.50
Test Hours	1,405.50	1,498.50	1,591.50	1,729.50
Min. Creep	N/A	N/A	N/A	N/A
Max. Creep	N/A	N/A	N/A	N/A
Average Creep	N/A	N/A	N/A	N/A
Surface Rust	0, 0	0, 0	0, 0	0, 0
Edge Rust	N/A	N/A	N/A	N/A
Surface Blisters	2%, 0.75 mm	2%, 0.75 mm	2%, 0.75 mm	5%, 0.75 mm
Edge Blisters	N/A	N/A	N/A	N/A
Gloss 20/60/85				
Color L a b				

Comments:

Lab No./Part No.
4075-119 02

	Check #17	Check #18	Check #19
Date Checked	7/20/01	7/24/01	7/28/01
Time Checked	1:00PM	1:00PM	1:00PM
Total Hours	1,918.00	2,014.00	2,110.00
Test Downtime	96.00	97.50	102.00
Test Hours	1,822.00	1,916.50	2,008.00
Min. Creep	N/A	N/A	N/A
Max. Creep	N/A	N/A	N/A
Average Creep	N/A	N/A	N/A
Surface Rust	0, 0	0, 0	0, 0
Edge Rust	N/A	N/A	N/A
Surface Blisters	5%, 0.75 mm	6%, 0.75 mm	7%, 0.75 mm
Edge Blisters	N/A	N/A	N/A
Gloss 20/60/85			
Color L a b			

Comments:

a) Test completed.

SALT SPRAY TEST REPORT

Test Requirements and Parts Data

Lab No./Part No. : 4075-11 03	Gauge/Metal : ACT ALM50 52H32 Panel
Test Hours : 2000 or failure	Pretreatment : See Notes
Intervals : 96 hrs.	Description : 4" x 12" Panel
Wax/Tape Edges : Tape edges	Coating : Whitestone
Failure : See Notes	Scribe Type : None
Color L a b : N/A	Post Cleaning : Cool water rinse
Gloss 20/60/85 : N/A	Film Thickness : 2.8 mils avg.

Notes: *Failure is defined as no surface blisters/rust or edge blisters/rust >10%. Pretreatment process is Tri-Metal cleaner/coater with final rinse.*

Parts Test Angle : <input checked="" type="checkbox"/> 15 Degrees From Vertical	<input type="checkbox"/> 0 Degrees From Vertical
Stop Test At : <input checked="" type="checkbox"/> Required Hours	<input checked="" type="checkbox"/> Failure
Test Procedures : <input type="checkbox"/> Scraping; ASTM D-1654, Procedure A, par. 7.2, 7.3	
<input type="checkbox"/> Air Blow-Off; ASTM D-1654, Procedure A, par. 7.1, 7.3	
<input checked="" type="checkbox"/> Evaluate Unscribed Area; ASTM D-1654, Procedure B (modified)	

Test Results

Start Date : 5/01/01	Fog MI/Hr : 1.0 - 2.0 ml./hr.	Fog pH : 6.5 - 7.2
Start Time : 3:00PM	Sp. Gravity : 1.0255 - 1.0400	Temp. : 93 - 98 F.

Lab No./Part No. 4075-11903	Check #01	Check #02	Check #03	Check #04
Date Checked	5/05/01	5/09/01	5/14/01	5/18/01
Time Checked	1:30PM	1:00PM	1:00PM	1:00PM
Total Hours	94.50	190.00	310.00	406.00
Test Downtime	4.00	7.50	11.00	15.00
Test Hours	90.50	182.50	299.00	391.00
Min. Creep	N/A	N/A	N/A	N/A
Max. Creep	N/A	N/A	N/A	N/A
Average Creep	N/A	N/A	N/A	N/A
Surface Rust	0, 0	0, 0	0, 0	0, 0
Edge Rust	N/A	N/A	N/A	N/A
Surface Blisters	0, 0	0, 0	0, 0	0, 0
Edge Blisters	N/A	N/A	N/A	N/A
Gloss 20/60/85				
Color L a b				

Comments:

Lab No./Part No.
4075-11903

	Check #05	Check #06	Check #07	Check #08
Date Checked	5/22/01	5/29/01	6/04/01	6/08/01
Time Checked	1:00PM	1:00PM	1:00PM	1:00PM
Total Hours	502.00	670.00	814.00	910.00
Test Downtime	17.00	58.50	63.50	67.50
Test Hours	485.00	611.50	750.50	842.50
Min. Creep	N/A	N/A	N/A	N/A
Max. Creep	N/A	N/A	N/A	N/A
Average Creep	N/A	N/A	N/A	N/A
Surface Rust	0, 0	0, 0	0, 0	0, 0
Edge Rust	N/A	N/A	N/A	N/A
Surface Blisters	0, 0	0, 0	0, 0	0, 0
Edge Blisters	N/A	N/A	N/A	N/A
Gloss 20/60/85				
Color L a b				

Comments:

*) System power down 5/26/01 through 5/27/01 due to inclement weather.

Lab No./Part No.
4075-11903

	Check #09	Check #10	Check #11	Check #12
Date Checked	6/12/01	6/18/01	6/22/01	6/26/01
Time Checked	1:00PM	1:00PM	1:00PM	1:00PM
Total Hours	1,006.00	1,150.00	1,246.00	1,342.00
Test Downtime	69.50	72.50	76.50	77.50
Test Hours	936.50	1,077.50	1,169.50	1,264.50
Min. Creep	N/A	N/A	N/A	N/A
Max. Creep	N/A	N/A	N/A	N/A
Average Creep	N/A	N/A	N/A	N/A
Surface Rust	0, 0	0, 0	0, 0	0, 0
Edge Rust	N/A	N/A	N/A	N/A
Surface Blisters	0, 0	1%, 0.5 mm	2%, 0.5 mm	2%, 0.75 mm
Edge Blisters	N/A	N/A	N/A	N/A
Gloss 20/60/85				
Color L a b				

Comments:

Lab No./Part No.
4075-11903

	Check #13	Check #14	Check #15	Check #16
Date Checked	7/02/01	7/06/01	7/10/01	7/16/01
Time Checked	1:00PM	1:00PM	1:00PM	1:00PM
Total Hours	1,486.00	1,582.00	1,678.00	1,822.00
Test Downtime	80.50	83.50	86.50	92.50
Test Hours	1,405.50	1,498.50	1,591.50	1,729.50
Min. Creep	N/A	N/A	N/A	N/A
Max. Creep	N/A	N/A	N/A	N/A
Average Creep	N/A	N/A	N/A	N/A
Surface Rust	0, 0	0, 0	0, 0	0, 0
Edge Rust	N/A	N/A	N/A	N/A
Surface Blisters	4%, 0.75 mm	4%, 0.75 mm	4%, 0.75 mm	7%, 0.75 mm
Edge Blisters	N/A	N/A	N/A	N/A
Gloss 20/60/85				
Color L a b				

Comments:

Lab No./Part No.
4075-11903

	Check #17	Check #18	Check #19
Date Checked	7/20/01	7/24/01	7/28/01
Time Checked	1:00PM	1:00PM	1:00PM
Total Hours	1,918.00	2,014.00	2,110.00
Test Downtime	96.00	97.50	102.00
Test Hours	1,822.00	1,916.50	2,008.00
Min. Creep	N/A	N/A	N/A
Max. Creep	N/A	N/A	N/A
Average Creep	N/A	N/A	N/A
Surface Rust	0, 0	0, 0	0, 0
Edge Rust	N/A	N/A	N/A
Surface Blisters	7%, 0.75 mm	7%, 0.75 mm	9%, 0.75 mm
Edge Blisters	N/A	N/A	N/A
Gloss 20/60/85			
Color L a b			

Comments:

a) Test completed.

SALT SPRAY TEST REPORT

Test Requirements and Parts Data

Lab No./Part No. : 4075-11 04	Gauge/Metal : ACT ALM50 52H32 Panel
Test Hours : 2000 or failure	Pretreatment : See Notes
Intervals : 96 hrs.	Description : 4" x 12" Panel
Wax/Tape Edges : Tape edges	Coating : Whitestone
Failure : See Notes	Scribe Type : None
Color L a b : N/A	Post Cleaning : Cool water rinse
Gloss 20/60/85 : N/A	Film Thickness : 2.5 mils avg.

Notes: *Failure is defined as no surface blisters/rust or edge blisters/rust >10%. Pretreatment process is Tri-Metal cleaner/coater with final rinse.*

Parts Test Angle : 15 Degrees From Vertical 0 Degrees From Vertical
Stop Test At : Required Hours Failure
Test Procedures : Scraping; ASTM D-1654, Procedure A, par. 7.2, 7.3
 Air Blow-Off; ASTM D-1654, Procedure A, par. 7.1, 7.3
 Evaluate Unscribed Area; ASTM D-1654, Procedure B (modified)

Test Results

Start Date : 5/01/01	Fog MI/Hr : 1.0 - 2.0 ml./hr.	Fog pH : 6.5 - 7.2
Start Time : 3:00PM	Sp. Gravity : 1.0255 - 1.0400	Temp. : 93 - 98 F.

Lab No./Part No. 4075-11904	Check #01	Check #02	Check #03	Check #04
Date Checked	5/05/01	5/09/01	5/14/01	5/18/01
Time Checked	1:30PM	1:00PM	1:00PM	1:00PM
Total Hours	94.50	190.00	310.00	406.00
Test Downtime	4.00	7.50	11.00	15.00
Test Hours	90.50	182.50	299.00	391.00
Min. Creep	N/A	N/A	N/A	N/A
Max. Creep	N/A	N/A	N/A	N/A
Average Creep	N/A	N/A	N/A	N/A
Surface Rust	0, 0	0, 0	0, 0	0, 0
Edge Rust	N/A	N/A	N/A	N/A
Surface Blisters	0, 0	0, 0	0, 0	0, 0
Edge Blisters	N/A	N/A	N/A	N/A
Gloss 20/60/85				
Color L a b				

Comments:

Lab No./Part No.
4075-11904

	Check #05	Check #06	Check #07	Check #08
Date Checked	5/22/01	5/29/01	6/04/01	6/08/01
Time Checked	1:00PM	1:00PM	1:00PM	1:00PM
Total Hours	502.00	670.00	814.00	910.00
Test Downtime	17.00	58.50	63.50	67.50
Test Hours	485.00	611.50	750.50	842.50
Min. Creep	N/A	N/A	N/A	N/A
Max. Creep	N/A	N/A	N/A	N/A
Average Creep	N/A	N/A	N/A	N/A
Surface Rust	0, 0	0, 0	0, 0	0, 0
Edge Rust	N/A	N/A	N/A	N/A
Surface Blisters	0, 0	0, 0	0, 0	0, 0
Edge Blisters	N/A	N/A	N/A	N/A
Gloss 20/60/85				
Color L a b				

Comments:

*) System power down 5/26/01 through 5/27/01 due to inclement weather.

Lab No./Part No.
4075-11904

	Check #09	Check #10	Check #11	Check #12
Date Checked	6/12/01	6/18/01	6/22/01	6/26/01
Time Checked	1:00PM	1:00PM	1:00PM	1:00PM
Total Hours	1,006.00	1,150.00	1,246.00	1,342.00
Test Downtime	69.50	72.50	76.50	77.50
Test Hours	936.50	1,077.50	1,169.50	1,264.50
Min. Creep	N/A	N/A	N/A	N/A
Max. Creep	N/A	N/A	N/A	N/A
Average Creep	N/A	N/A	N/A	N/A
Surface Rust	0, 0	0, 0	0, 0	0, 0
Edge Rust	N/A	N/A	N/A	N/A
Surface Blisters	0, 0	1%, 0.5 mm	1%, 0.5 mm	2%, 0.75 mm
Edge Blisters	N/A	N/A	N/A	N/A
Gloss 20/60/85				
Color L a b				

Comments:

Lab No./Part No.
4075-11904

	Check #13	Check #14	Check #15	Check #16
Date Checked	7/02/01	7/06/01	7/10/01	7/16/01
Time Checked	1:00PM	1:00PM	1:00PM	1:00PM
Total Hours	1,486.00	1,582.00	1,678.00	1,822.00
Test Downtime	80.50	83.50	86.50	92.50
Test Hours	1,405.50	1,498.50	1,591.50	1,729.50
Min. Creep	N/A	N/A	N/A	N/A
Max. Creep	N/A	N/A	N/A	N/A
Average Creep	N/A	N/A	N/A	N/A
Surface Rust	0, 0	0, 0	0, 0	0, 0
Edge Rust	N/A	N/A	N/A	N/A
Surface Blisters	2%, 0.75 mm	2%, 0.75 mm	4%, 0.75 mm	4%, 0.75 mm
Edge Blisters	N/A	N/A	N/A	N/A
Gloss 20/60/85				
Color L a b				

Comments:

Lab No./Part No.
4075-11904

	Check #17	Check #18	Check #19
Date Checked	7/20/01	7/24/01	7/28/01
Time Checked	1:00PM	1:00PM	1:00PM
Total Hours	1,918.00	2,014.00	2,110.00
Test Downtime	96.00	97.50	102.00
Test Hours	1,822.00	1,916.50	2,008.00
Min. Creep	N/A	N/A	N/A
Max. Creep	N/A	N/A	N/A
Average Creep	N/A	N/A	N/A
Surface Rust	0, 0	0, 0	0, 0
Edge Rust	N/A	N/A	N/A
Surface Blisters	4%, 0.75 mm	6%, 0.75 mm	6%, 0.75 mm
Edge Blisters	N/A	N/A	N/A
Gloss 20/60/85			
Color L a b			

Comments:

a) Test completed.

SALT SPRAY TEST REPORT

Test Requirements and Parts Data

Lab No./Part No. : 4075-11 05	Gauge/Metal : ACT ALM50 52H32 Panel
Test Hours : 2000 or failure	Pretreatment : See Notes
Intervals : 96 hrs.	Description : 4" x 12" Panel
Wax/Tape Edges : Tape edges	Coating : Whitestone
Failure : See Notes	Scribe Type : None
Color L a b : N/A	Post Cleaning : Cool water rinse
Gloss 20/60/85 : N/A	Film Thickness : 1.7 mils avg.

Notes: *Failure is defined as no surface blisters/rust or edge blisters/rust >10%. Pretreatment process is Tri-Metal cleaner/coater with final rinse.*

Parts Test Angle : 15 Degrees From Vertical 0 Degrees From Vertical
Stop Test At : Required Hours Failure
Test Procedures : Scraping; ASTM D-1654, Procedure A, par. 7.2, 7.3
 Air Blow-Off; ASTM D-1654, Procedure A, par. 7.1, 7.3
 Evaluate Unscribed Area; ASTM D-1654, Procedure B (modified)

Test Results

Start Date : 5/01/01	Fog MI/Hr : 1.0 - 2.0 ml./hr.	Fog pH : 6.5 - 7.2
Start Time : 3:00PM	Sp. Gravity : 1.0255 - 1.0400	Temp. : 93 - 98 F.

Lab No./Part No. 4075-11905	Check #01	Check #02	Check #03	Check #04
Date Checked	5/05/01	5/09/01	5/14/01	5/18/01
Time Checked	1:30PM	1:00PM	1:00PM	1:00PM
Total Hours	94.50	190.00	310.00	406.00
Test Downtime	4.00	7.50	11.00	15.00
Test Hours	90.50	182.50	299.00	391.00
Min. Creep	N/A	N/A	N/A	N/A
Max. Creep	N/A	N/A	N/A	N/A
Average Creep	N/A	N/A	N/A	N/A
Surface Rust	0, 0	0, 0	0, 0	0, 0
Edge Rust	N/A	N/A	N/A	N/A
Surface Blisters	0, 0	0, 0	0, 0	0, 0
Edge Blisters	N/A	N/A	N/A	N/A
Gloss 20/60/85				
Color L a b				

Comments:

Lab No./Part No.
4075-11905

	Check #05	Check #06	Check #07	Check #08
Date Checked	5/22/01	5/29/01	6/04/01	6/08/01
Time Checked	1:00PM	1:00PM	1:00PM	1:00PM
Total Hours	502.00	670.00	814.00	910.00
Test Downtime	17.00	58.50	63.50	67.50
Test Hours	485.00	611.50	750.50	842.50
Min. Creep	N/A	N/A	N/A	N/A
Max. Creep	N/A	N/A	N/A	N/A
Average Creep	N/A	N/A	N/A	N/A
Surface Rust	0, 0	0, 0	0, 0	0, 0
Edge Rust	N/A	N/A	N/A	N/A
Surface Blisters	0, 0	0, 0	0, 0	0, 0
Edge Blisters	N/A	N/A	N/A	N/A
Gloss 20/60/85				
Color L a b				

Comments:

*) System power down 5/26/01 through 5/27/01 due to inclement weather.

Lab No./Part No.
4075-11905

	Check #09	Check #10	Check #11	Check #12
Date Checked	6/12/01	6/18/01	6/22/01	6/26/01
Time Checked	1:00PM	1:00PM	1:00PM	1:00PM
Total Hours	1,006.00	1,150.00	1,246.00	1,342.00
Test Downtime	69.50	72.50	76.50	77.50
Test Hours	936.50	1,077.50	1,169.50	1,264.50
Min. Creep	N/A	N/A	N/A	N/A
Max. Creep	N/A	N/A	N/A	N/A
Average Creep	N/A	N/A	N/A	N/A
Surface Rust	0, 0	0, 0	0, 0	0, 0
Edge Rust	N/A	N/A	N/A	N/A
Surface Blisters	0, 0	4%, 0.5 mm	4%, 0.5 mm	4%, 0.75 mm
Edge Blisters	N/A	N/A	N/A	N/A
Gloss 20/60/85				
Color L a b				

Comments:

Lab No./Part No.
4075-11905

	Check #13	Check #14	Check #15	Check #16
Date Checked	7/02/01	7/06/01	7/10/01	7/16/01
Time Checked	1:00PM	1:00PM	1:00PM	1:00PM
Total Hours	1,486.00	1,582.00	1,678.00	1,822.00
Test Downtime	80.50	83.50	86.50	92.50
Test Hours	1,405.50	1,498.50	1,591.50	1,729.50
Min. Creep	N/A	N/A	N/A	N/A
Max. Creep	N/A	N/A	N/A	N/A
Average Creep	N/A	N/A	N/A	N/A
Surface Rust	0, 0	0, 0	0, 0	0, 0
Edge Rust	N/A	N/A	N/A	N/A
Surface Blisters	5%, 0.75 mm	5%, 0.75 mm	6%, 0.75 mm	7%, 0.75 mm
Edge Blisters	N/A	N/A	N/A	N/A
Gloss 20/60/85				
Color L a b				

Comments:

Lab No./Part No.
4075-11905

	Check #17	Check #18	Check #19
Date Checked	7/20/01	7/24/01	7/28/01
Time Checked	1:00PM	1:00PM	1:00PM
Total Hours	1,918.00	2,014.00	2,110.00
Test Downtime	96.00	97.50	102.00
Test Hours	1,822.00	1,916.50	2,008.00
Min. Creep	N/A	N/A	N/A
Max. Creep	N/A	N/A	N/A
Average Creep	N/A	N/A	N/A
Surface Rust	0, 0	0, 0	0, 0
Edge Rust	N/A	N/A	N/A
Surface Blisters	8%, 0.75 mm	9%, 0.75 mm	9%, 0.75 mm
Edge Blisters	N/A	N/A	N/A
Gloss 20/60/85			
Color L a b			

Comments:

a) Test completed.

SALT SPRAY TEST REPORT

Test Requirements and Parts Data

Lab No./Part No. : 4075-11 06	Gauge/Metal : ACT ALM50 52H32 Panel
Test Hours : 2000 or failure	Pretreatment : See Notes
Intervals : 96 hrs.	Description : 4" x 12" Panel
Wax/Tape Edges : Tape edges	Coating : Whitestone
Failure : See Notes	Scribe Type : None
Color L a b : N/A	Post Cleaning : Cool water rinse
Gloss 20/60/85 : N/A	Film Thickness : 3.1 mils avg.

Notes: Failure is defined as no surface blisters/rust or edge blisters/rust >10%. Pretreatment process is Tri-Metal cleaner/coater with final rinse.

Parts Test Angle : <input checked="" type="checkbox"/> 15 Degrees From Vertical	<input type="checkbox"/> 0 Degrees From Vertical
Stop Test At : <input checked="" type="checkbox"/> Required Hours	<input checked="" type="checkbox"/> Failure
Test Procedures : <input type="checkbox"/> Scraping; ASTM D-1654, Procedure A, par. 7.2, 7.3	
<input type="checkbox"/> Air Blow-Off; ASTM D-1654, Procedure A, par. 7.1, 7.3	
<input checked="" type="checkbox"/> Evaluate Unscribed Area; ASTM D-1654, Procedure B (modified)	

Test Results

Start Date : 5/01/01	Fog MI/Hr : 1.0 - 2.0 ml./hr.	Fog pH : 6.5 - 7.2
Start Time : 3:00PM	Sp. Gravity : 1.0255 - 1.0400	Temp. : 93 - 98 F.

Lab No./Part No. 4075-11906	Check #01	Check #02	Check #03	Check #04
Date Checked	5/05/01	5/09/01	5/14/01	5/18/01
Time Checked	1:30PM	1:00PM	1:00PM	1:00PM
Total Hours	94.50	190.00	310.00	406.00
Test Downtime	4.00	7.50	11.00	15.00
Test Hours	90.50	182.50	299.00	391.00
Min. Creep	N/A	N/A	N/A	N/A
Max. Creep	N/A	N/A	N/A	N/A
Average Creep	N/A	N/A	N/A	N/A
Surface Rust	0, 0	0, 0	0, 0	0, 0
Edge Rust	N/A	N/A	N/A	N/A
Surface Blisters	0, 0	0, 0	0, 0	0, 0
Edge Blisters	N/A	N/A	N/A	N/A
Gloss 20/60/85				
Color L a b				

Comments:

Lab No./Part No.
4075-11906

	Check #05	Check #06	Check #07	Check #08
Date Checked	5/22/01	5/29/01	6/04/01	6/08/01
Time Checked	1:00PM	1:00PM	1:00PM	1:00PM
Total Hours	502.00	670.00	814.00	910.00
Test Downtime	17.00	58.50	63.50	67.50
Test Hours	485.00	611.50	750.50	842.50
Min. Creep	N/A	N/A	N/A	N/A
Max. Creep	N/A	N/A	N/A	N/A
Average Creep	N/A	N/A	N/A	N/A
Surface Rust	0, 0	0, 0	0, 0	0, 0
Edge Rust	N/A	N/A	N/A	N/A
Surface Blisters	0, 0	0, 0	0, 0	0, 0
Edge Blisters	N/A	N/A	N/A	N/A
Gloss 20/60/85				
Color L a b				

Comments:

*) System power down 5/26/01 through 5/27/01 due to inclement weather.

Lab No./Part No.
4075-11906

	Check #09	Check #10	Check #11	Check #12
Date Checked	6/12/01	6/18/01	6/22/01	6/26/01
Time Checked	1:00PM	1:00PM	1:00PM	1:00PM
Total Hours	1,006.00	1,150.00	1,246.00	1,342.00
Test Downtime	69.50	72.50	76.50	77.50
Test Hours	936.50	1,077.50	1,169.50	1,264.50
Min. Creep	N/A	N/A	N/A	N/A
Max. Creep	N/A	N/A	N/A	N/A
Average Creep	N/A	N/A	N/A	N/A
Surface Rust	0, 0	0, 0	0, 0	0, 0
Edge Rust	N/A	N/A	N/A	N/A
Surface Blisters	0, 0	0, 0	0, 0	0, 0
Edge Blisters	N/A	N/A	N/A	N/A
Gloss 20/60/85				
Color L a b				

Comments:

Lab No./Part No.
4075-11906

	Check #13	Check #14	Check #15	Check #16
Date Checked	7/02/01	7/06/01	7/10/01	7/16/01
Time Checked	1:00PM	1:00PM	1:00PM	1:00PM
Total Hours	1,486.00	1,582.00	1,678.00	1,822.00
Test Downtime	80.50	83.50	86.50	92.50
Test Hours	1,405.50	1,498.50	1,591.50	1,729.50
Min. Creep	N/A	N/A	N/A	N/A
Max. Creep	N/A	N/A	N/A	N/A
Average Creep	N/A	N/A	N/A	N/A
Surface Rust	0, 0	0, 0	0, 0	0, 0
Edge Rust	N/A	N/A	N/A	N/A
Surface Blisters	1%, 0.5 mm	1%, 0.5 mm	2%, 0.75 mm	4%, 0.75 mm
Edge Blisters	N/A	N/A	N/A	N/A
Gloss 20/60/85				
Color L a b				

Comments:

Lab No./Part No.
4075-11906

	Check #17	Check #18	Check #19
Date Checked	7/20/01	7/24/01	7/28/01
Time Checked	1:00PM	1:00PM	1:00PM
Total Hours	1,918.00	2,014.00	2,110.00
Test Downtime	96.00	97.50	102.00
Test Hours	1,822.00	1,916.50	2,008.00
Min. Creep	N/A	N/A	N/A
Max. Creep	N/A	N/A	N/A
Average Creep	N/A	N/A	N/A
Surface Rust	0, 0	0, 0	0, 0
Edge Rust	N/A	N/A	N/A
Surface Blisters	4%, 0.75 mm	4%, 0.75 mm	6%, 0.75 mm
Edge Blisters	N/A	N/A	N/A
Gloss 20/60/85			
Color L a b			

Comments:

a) Test completed.

SALT SPRAY TEST REPORT

Test Requirements and Parts Data

Lab No./Part No. : 4075-11 CCT02	Gauge/Metal : Aluminum Die Cast, 3/16"
Test Hours : Until failure	Pretreatment : See Notes
Intervals : 96 hrs.	Description : 7" x 7" Part
Wax/Tape Edges : None	Coating : Whitestone
Failure : See Notes	Scribe Type : None
Color L a b : N/A	Post Cleaning : Cool water rinse
Gloss 20/60/85 : N/A	Film Thickness : 3.2 mils avg.

Notes: Failure is defined as no surface blisters/rust or edge blisters/rust >10%. Pretreatment process is Tri-Metal cleaner/coater with final rinse.

Parts Test Angle : 15 Degrees From Vertical 0 Degrees From Vertical
Stop Test At : Required Hours Failure
Test Procedures : Scraping; ASTM D-1654, Procedure A, par. 7.2, 7.3
 Air Blow-Off; ASTM D-1654, Procedure A, par. 7.1, 7.3
 Evaluate Unscribed Area; ASTM D-1654, Procedure B (modified)

Test Results

Start Date : 5/01/01	Fog MI/Hr : 1.0 - 2.0 ml./hr.	Fog pH : 6.5 - 7.2
Start Time : 3:00PM	Sp. Gravity : 1.0255 - 1.0400	Temp. : 93 - 98 F.

Lab No./Part No. 4075-119 CCT02	Check #01	Check #02	Check #03	Check #04
Date Checked	5/05/01	5/09/01	5/14/01	5/18/01
Time Checked	1:30PM	1:00PM	1:00PM	1:00PM
Total Hours	94.50	190.00	310.00	406.00
Test Downtime	4.00	7.50	11.00	15.00
Test Hours	90.50	182.50	299.00	391.00
Min. Creep	N/A	N/A	N/A	N/A
Max. Creep	N/A	N/A	N/A	N/A
Average Creep	N/A	N/A	N/A	N/A
Surface Rust	0, 0	0, 0	0, 0	0, 0
Edge Rust	0, 0	0, 0	0, 0	0, 0
Surface Blisters	0, 0	0, 0	0, 0	0, 0
Edge Blisters	0, 0	0, 0	0, 0	0, 0
Gloss 20/60/85				
Color L a b				

Comments:

Lab No./Part No.
4075-119 CCT02

	Check #05	Check #06	Check #07	Check #08
Date Checked	5/22/01	5/29/01	6/04/01	6/08/01
Time Checked	1:00PM	1:00PM	1:00PM	1:00PM
Total Hours	502.00	670.00	814.00	910.00
Test Downtime	17.00	58.50	63.50	67.50
Test Hours	485.00	611.50	750.50	842.50
Min. Creep	N/A	N/A	N/A	N/A
Max. Creep	N/A	N/A	N/A	N/A
Average Creep	N/A	N/A	N/A	N/A
Surface Rust	0, 0	0, 0	0, 0	0, 0
Edge Rust	0, 0	0, 0	0, 0	0, 0
Surface Blisters	0, 0	0, 0	0, 0	0, 0
Edge Blisters	0, 0	0, 0	0, 0	0, 0
Gloss 20/60/85				
Color L a b				

Comments:

*) System power down 5/26/01 through 5/27/01 due to inclement weather.

Lab No./Part No.
4075-119 CCT02

	Check #09	Check #10		
Date Checked	6/12/01	6/18/01	a	
Time Checked	1:00PM	1:00PM		
Total Hours	1,006.00	1,150.00		
Test Downtime	69.50	72.50		
Test Hours	936.50	1,077.50		
Min. Creep	N/A	N/A		
Max. Creep	N/A	N/A		
Average Creep	N/A	N/A		
Surface Rust	0, 0	0, 0		
Edge Rust	0, 0	0, 0		
Surface Blisters	5%	14%		
Edge Blisters	8%	24%		
Gloss 20/60/85				
Color L a b				

Comments:

a) Test terminated.

SALT SPRAY TEST REPORT

Test Requirements and Parts Data

Lab No./Part No. : 4075-11 CCT03	Gauge/Metal : Aluminum Die Cast, 3/16"
Test Hours : Until failure	Pretreatment : See Notes
Intervals : 96 hrs.	Description : 7" x 7" Part
Wax/Tape Edges : None	Coating : Whitestone
Failure : See Notes	Scribe Type : None
Color L a b : N/A	Post Cleaning : Cool water rinse
Gloss 20/60/85 : N/A	Film Thickness : 3.0 mils avg.

Notes: Failure is defined as no surface blisters/rust or edge blisters/rust >10%. Pretreatment process is Tri-Metal cleaner/coater with final rinse.

Parts Test Angle : 15 Degrees From Vertical 0 Degrees From Vertical
Stop Test At : Required Hours Failure
Test Procedures : Scraping; ASTM D-1654, Procedure A, par. 7.2, 7.3
 Air Blow-Off; ASTM D-1654, Procedure A, par. 7.1, 7.3
 Evaluate Unscribed Area; ASTM D-1654, Procedure B (modified)

Test Results

Start Date : 5/01/01	Fog MI/Hr : 1.0 - 2.0 ml./hr.	Fog pH : 6.5 - 7.2
Start Time : 3:00PM	Sp. Gravity : 1.0255 - 1.0400	Temp. : 93 - 98 F.

Lab No./Part No. 4075-119 CCT03	Check #01	Check #02	Check #03	Check #04
Date Checked	5/05/01	5/09/01	5/14/01	5/18/01
Time Checked	1:30PM	1:00PM	1:00PM	1:00PM
Total Hours	94.50	190.00	310.00	406.00
Test Downtime	4.00	7.50	11.00	15.00
Test Hours	90.50	182.50	299.00	391.00
Min. Creep	N/A	N/A	N/A	N/A
Max. Creep	N/A	N/A	N/A	N/A
Average Creep	N/A	N/A	N/A	N/A
Surface Rust	0, 0	0, 0	0, 0	0, 0
Edge Rust	0, 0	0, 0	0, 0	0, 0
Surface Blisters	0, 0	0, 0	0, 0	0, 0
Edge Blisters	0, 0	0, 0	0, 0	0, 0
Gloss 20/60/85				
Color L a b				

Comments:

Lab No./Part No.
4075-119 CCT03

	Check #05	Check #06	Check #07	Check #08
Date Checked	5/22/01	5/29/01	6/04/01	6/08/01
Time Checked	1:00PM	1:00PM	1:00PM	1:00PM
Total Hours	502.00	670.00	814.00	910.00
Test Downtime	17.00	58.50	63.50	67.50
Test Hours	485.00	611.50	750.50	842.50
Min. Creep	N/A	N/A	N/A	N/A
Max. Creep	N/A	N/A	N/A	N/A
Average Creep	N/A	N/A	N/A	N/A
Surface Rust	0, 0	0, 0	0, 0	0, 0
Edge Rust	0, 0	0, 0	0, 0	0, 0
Surface Blisters	0, 0	0, 0	0, 0	0, 0
Edge Blisters	0, 0	0, 0	0, 0	0, 0
Gloss 20/60/85				
Color L a b				

Comments:

*) System power down 5/26/01 through 5/27/01 due to inclement weather.

Lab No./Part No.
4075-119 CCT03

	Check #09	Check #10		
Date Checked	6/12/01	6/18/01	a	
Time Checked	1:00PM	1:00PM		
Total Hours	1,006.00	1,150.00		
Test Downtime	69.50	72.50		
Test Hours	936.50	1,077.50		
Min. Creep	N/A	N/A		
Max. Creep	N/A	N/A		
Average Creep	N/A	N/A		
Surface Rust	0, 0	0, 0		
Edge Rust	0, 0	0, 0		
Surface Blisters	8%	21%		
Edge Blisters	10%	31%		
Gloss 20/60/85				
Color L a b				

Comments:

a) Test terminated.

SALT SPRAY TEST REPORT

Test Requirements and Parts Data

Lab No./Part No. : 4075-11 CCT04a	Gauge/Metal : Aluminum Die Cast, 3/16"
Test Hours : Until failure	Pretreatment : See Notes
Intervals : 96 hrs.	Description : 7" x 7" Part
Wax/Tape Edges : None	Coating : Whitestone
Failure : See Notes	Scribe Type : None
Color L a b : N/A	Post Cleaning : Cool water rinse
Gloss 20/60/85 : N/A	Film Thickness : 2.0 mils avg.

Notes: Failure is defined as no surface blisters/rust or edge blisters/rust >10%. Pretreatment process is Tri-Metal cleaner/coater with final rinse.

Parts Test Angle : <input type="checkbox"/> 15 Degrees From Vertical	<input checked="" type="checkbox"/> 0 Degrees From Vertical
Stop Test At : <input type="checkbox"/> Required Hours	<input checked="" type="checkbox"/> Failure
Test Procedures :	
<input type="checkbox"/> Scraping; ASTM D-1654, Procedure A, par. 7.2, 7.3	
<input type="checkbox"/> Air Blow-Off; ASTM D-1654, Procedure A, par. 7.1, 7.3	
<input checked="" type="checkbox"/> Evaluate Unscribed Area; ASTM D-1654, Procedure B (modified)	

Test Results

Start Date : 5/01/01	Fog MI/Hr : 1.0 - 2.0 ml./hr.	Fog pH : 6.5 - 7.2
Start Time : 3:00PM	Sp. Gravity : 1.0255 - 1.0400	Temp. : 93 - 98 F.

Lab No./Part No. 4075-119 CCT04a	Check #01	Check #02	Check #03	Check #04
Date Checked	5/05/01	5/09/01	5/14/01	5/18/01
Time Checked	1:30PM	1:00PM	1:00PM	1:00PM
Total Hours	94.50	190.00	310.00	406.00
Test Downtime	4.00	7.50	11.00	15.00
Test Hours	94.50	182.50	299.00	391.00
Min. Creep	N/A	N/A	N/A	N/A
Max. Creep	N/A	N/A	N/A	N/A
Average Creep	N/A	N/A	N/A	N/A
Surface Rust	0, 0	0, 0	0, 0	0, 0
Edge Rust	0, 0	0, 0	0, 0	0, 0
Surface Blisters	0, 0	0, 0	0, 0	0, 0
Edge Blisters	0, 0	0, 0	0, 0	0, 0
Gloss 20/60/85				
Color L a b				

Comments:



DuPont Powder Coatings

DuPont Powder Coatings USA, Inc.
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Houston, Texas 77041
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TECHNICAL SERVICE DEPARTMENT

Lab No. TS-4075-119

Customer : Rollac of Texas
P.O. Box :
Address : 10800 Blackhawk Blvd.
City : Houston
State, Zip : Texas 77089
Phone : (281) 485-1911
Contact : Walter Konrad

Report Date : 9/10/01
Author : David Peppard
Salesman : Max Westerfield
Report Copies : 1 **Salesman**
1 **Customer**
Send Parts To : **Salesman**
 Customer
Ship Via : UPS Ground

Please find enclosed:

- Salt fog test report
- Humidity test report
- Physicals test report
- Test parts / panels / powder

Salt fog, humidity, and related tests were performed in accordance with the following ASTM procedures:

- Salt Spray Testing - ASTM B-117
- Humidity Testing - ASTM D-2247
- Scribing of Parts - ASTM D-1654
- Adhesion, Cross-Cut - ASTM D-3359B
- Gloss - ASTM D-523
- Evaluations - ASTM D-1654 (modified)

Specific daily test conditions, test interruptions, etc., are recorded and available on request.

Any reports for physical testing will include references to all applicable ASTM procedures.

Rust ratings, blister ratings, and cross-hatch adhesion ratings are reported according to the pictorial representations attached to this report.

NOTE: Although many companies have established that termination of salt spray test parts (failure) will occur when the creepage reaches two millimeters from the scribe, it should be noted that ASTM B-117, D-714, and D-610 do not provide guidelines for failure - only parameters for test conditions and the rating of blisters and rust. Requirements covering failure of the test specimens should be set by the specifications covering the material being tested or by agreement between the purchaser and the seller.

Due to the effects of drying, returned test samples may not exhibit all of the effects as described in the attached salt spray and humidity lab reports - the shrinkage of blisters is a notable example.

Disclaimer: Neither DuPont Powder Coatings U.S.A., Inc. nor its agents (DuPont Performance Coatings) shall be responsible for the use of this information or of any product or method discussed. Since coating performance characteristics are greatly influenced by conditions of substrate, surface preparation, application procedures, curing procedures and other local factors beyond DuPont Powder Coating's control, DuPont Powder Coatings assumes no liability for coating failure other than to supply replacement material for a coating material proved to be defective. Users must make their own determination of product suitability for a particular purpose under the user's own operating conditions prior to use of any product. Do not use any product until the current Material Safety Data Sheet has been read and is fully understood. (DUPONT POWDER COATINGS U.S.A., INC. DISCLAIMS ALL OTHER WARRANTIES RELATING TO ITS PRODUCTS, AND DISCLAIMS ALL WARRANTIES RELATING TO THEIR APPLICATION, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSES.)

A Division of DuPont Performance Coatings



Lab No./Part No.
4075-119 CCT04a

	Check #05	Check #06	Check #07	Check #08
Date Checked	5/22/01	5/29/01	6/04/01	6/08/01
Time Checked	1:00PM	1:00PM	1:00PM	1:00PM
Total Hours	502.00	670.00	814.00	910.00
Test Downtime	17.00	58.50	63.50	67.50
Test Hours	485.00	611.50	750.50	842.50
Min. Creep	N/A	N/A	N/A	N/A
Max. Creep	N/A	N/A	N/A	N/A
Average Creep	N/A	N/A	N/A	N/A
Surface Rust	0, 0	0, 0	0, 0	0, 0
Edge Rust	0, 0	0, 0	0, 0	0, 0
Surface Blisters	0, 0	0, 0	0, 0	0, 0
Edge Blisters	0, 0	0, 0	0, 0	0, 0
Gloss 20/60/85				
Color L a b				

Comments:

*) System power down 5/26/01 through 5/27/01 due to inclement weather.

Lab No./Part No.
4075-119 CCT04a

	Check #09	Check #10
Date Checked	6/12/01	6/18/01
Time Checked	1:00PM	1:00PM
Total Hours	1,006.00	1,150.00
Test Downtime	69.50	72.50
Test Hours	936.50	1,077.50
Min. Creep	N/A	N/A
Max. Creep	N/A	N/A
Average Creep	N/A	N/A
Surface Rust	0, 0	0, 0
Edge Rust	0, 0	0, 0
Surface Blisters	9%	23%
Edge Blisters	10%	29%
Gloss 20/60/85		
Color L a b		

Comments:

a) Test terminated.