



PRODUCT TESTED: SINGLE STAGE FACTORY PACKS 3.5 VOC POLYURETHANE

OBJECTIVE

To provide a paint finish capable of performing Direct-To-Metal to meet exceptional performance specifications. The product must respond to present application equipment allowing for an increase in production. The product must comply with Federal, State and local VOC requirements. The product must meet all of these requirements and still provide for a cost reduction of a minimum 15% over the existing paint products now being used.

TYPICAL USES

For Commercial, Industrial, Marine and Transportation applications. To be used for Vehicles, Vessels, Industrial Plants, Storage Tanks, Buildings and Marine Structures, Equipment, Off Shore Structures and any surfaces exposed to humidity, chemicals or corrosive environments.

PAINT TESTS CONDUCTED

- A) Salt Fog ASTM - B117
- B) QUV - Accelerated Weathering ASTM - G53
- C) Pencil Hardness ASTM - D3363
- D) Impact ASTM - D2794
- E) Reverse Impact ASTM - D2794
- F) Humidity ASTM - D4585

SALT FOG ASTM - B117

Panel Size: 4"x10"x 1/8" Panel Type: Cold Rolled

Preparation: SSPC-SP5 Quantity: (4)

Primer: Panel # 1, Panel # 2 None Panel # 3, Panel # 4 Epoxy

Exposed: 8-19-04 Dry Film Thickness: #1 - 3.0, #2 - 4.0 #3 - 2.5, #4 - 3.0

EXPOSURE RESULT PANEL #1

264 Hours No Effect
451 Hours No Effect
550 Hours F4 @ Scribe
720 Hours F2 @ Scribe
1000 Hours F2 > 50% @ Scribe
At 1000 Hours Creepage <1/64"

EXPOSURE RESULT PANEL #2

264 Hours No Effect
451 Hours No Effect
550 Hours F8 @ Scribe
720 Hours F4 @ Scribe
1000 Hours F2 > 50% @ Scribe
At 1000 Hours Creepage < 1/64"

EXPOSURE RESULT PANEL #3

264 Hours No Affect
451 Hours No Affect
550 Hours No Affect
720 Hours No Affect
1000 Hours VVF8 @ Scribe
1000 Hours Creepage None

EXPOSURE RESULT PANEL #4

264 Hours No Affect
451 Hours No Affect
550 Hours No Affect
720 Hours No Affect
1000 Hours VVF8 @ Scribe
1000 Hours Creepage None

SUMMARY: Direct to metal panels began to show very small blisters at the scribe at 500 hours and very slight rust creepage at 1000 hours. Primed panels had very little effect at 1000 hours.

QUV - ACCELERATED WEATHERING ASTM - G53

Panel Size: 3"x 6" Panel Type: Bonderite 1000 Preparation: Solvent Wipe
Quantity: (2) Primer: None Exposed: 8-19-04 Dry Film Thickness: Both 1.8

EXPOSURE RESULT PANEL #1

Initial Gloss 91.80%
261 Hours 85.70%
451 Hours 80.10%
718 Hours 78.60%
998 Hours 67.10%
Gloss Retention % 73.09%
Yellowing -0.01%
Darkening -0.01%
Color Change Delta E 0.02ΔE

EXPOSURE RESULT PANEL #2

Initial Gloss 91.80%
261 Hours 83.50%
451 Hours 79.00%
718 Hours 73.60%
998 Hours 63.80%
Gloss Retention % 69.49%
Yellowing -0.01%
Darkening 0.00%
Color Change Delta E 0.02ΔE

SUMMARY: Testing was performed using the stronger B313 Bulbs and exposed the panels continuously instead of alternating on/off simulating day and night. Panels consistently demonstrate average 70% gloss retention over 1000 hours.

PENCIL HARDNESS ASTM - D3363

Panel Size: 6"x 12" Panel Type: CRS Polished Preparation: Solvent Wipe Quantity: (1)
Primer: None Exposed: 8-19-04 Dry Film Thickness: 3.50

RESULT: HB-H

IMPACT DIRECT / REVERSE IMPACT ASTM - D2794

Panel Size: 6"x 12" Panel Type: CRS Polished Preparation: Solvent Wipe Quantity: (1)
Primer: None Exposed: 8-19-04 Dry Film Thickness: 3.25 - 3.50

RESULTS:

Direct: 60 in/lb no effect 100 in/lb Spiral Cracking No Adhesion Loss
Reverse: 40 in/lb no effect 60 in/lb Spiral Cracking No Adhesion Loss6)

HUMIDITY ASTM - D4585

Panel Size: 6"x 12" Panel Type: CRS Polished Preparation: Solvent Wipe
Quantity: (2) Primer: None Exposed: 8-19-04
Dry Film Thickness: Panel #1 2.75 Panel #2 3.50

EXPOSURE RESULT PANEL #1

100 Hours MD8
200 Hours D8
24 Hour Recovery MD8
Color Change Delta E 0.03ΔE
Adhesion Loss None
100 Hours MD8
200 Hours D8
24 Hour Recovery MD8
Color Change Delta E 0.03ΔE
Adhesion Loss None

EXPOSURE RESULT PANEL #2

SUMMARY: Medium Dense micro blisters were observed when exposed to severe humidity. There were negligible color changes and no adhesion loss.