



**Digger
Specialties
Inc.**

POWDER COATING TECHNICAL DATA

Verified AAMA Compliance

Digger Specialties coating processes are verified
AAMA 2604-05 compliant.
*Regis, CourtYard®, Westbury, ScreenRail,
Designer Fencing and Aluminum CHR*

Verified **AAMA 2605-05** compliant coatings are
offered as an option for
*Regis, CourtYard®, Westbury, ScreenRail,
Designer Fencing and Aluminum CHR*



American Architectural Manufacturers Association (AAMA) Performance Requirements For Pigmented Organic Coatings Defined.

AAMA Tests	TYPICAL Polyester TGIC	AAMA 2603	AAMA 2604-05	AAMA 2605-05
• Dry Film Hardness	No test	No coating rupture	No coating rupture	No coating rupture
• Dry Adhesion	No test	10% coating removal	No coating removal	No coating removal
• Wet Adhesion	No test	10% coating removal	No coating removal	No coating removal
• Boiling Water Adhesion	No test	No test	No coating removal	No coating removal
• Impact Resistance	No test	No coating removal	No coating removal	No coating removal
• Abrasion Resistance	No test	No test	ACV 20 minimum *	ACV 40 minimum *
• Muriatic Acid Resistance	No test	No visual change	No visual change	No visual change
• Mortar Resistance	No test	No visual change	No visual change	No visual change
• Nitric Acid	No test	No test	5ΔE max. change	5ΔE max. change
• Detergent Resistance	No test	No visual change	No visual change	No visual change
• Window Cleaner Resistance	No test	No test	No visual change	No visual change
• Humidity Resistance	No test	1500 hours	3000 hours	4000 hours
• Salt Spray Resistance	No test	1500 hours **	3000 hours **	4000 hours **
• Color Retention (S. FL)	No test	1 year minimum fade	5 years max. 5ΔE change	10 years max. 5ΔE change
• Gloss Retention	No test	No test	5 year 30% retention	10 year 50% retention

* Abrasion Coefficient Value

** 0" to 1/16" creepage from scribe is passing

**Typical Polyester
TGIC Powder
(COMPETITORS)**



Starting L:	3.46	Ending L:	32.85
a:	.26	a:	.48
b:	-1.6	b:	2.25
Gloss:	57	Gloss:	85
Comp. #:	9.5	Comp. #:	33.00

Gloss Ret.:	Δ E Change:
1 year: 48% P	1 year: 16.9 F
2 years: 9% F	2 years: 28.0 F
3 years: 4% F	3 years: 29.0 F
4 years: 2% F	4 years: 26.6 F
5 years: 1% F	5 years: 23.5 F

F = Failing AAMA 2603-02.

**AAMA 2603
Powder**



Starting L:	7.88	Ending L:	21.63
a:	-.91	a:	-.20
b:	.58	b:	-1.52
Gloss:	29.8	Gloss:	7.4
Comp. #:	7.8	Comp. #:	21.6

Gloss Ret.:	Δ E Change:
1 year: 78% P/F	1 year: 5.2 P/F
2 years: 61% P/F	2 years: 7.7 P/F
3 years: 57% P/F	3 years: 8.3 P/F
4 years: 40% P/F	4 years: 12.4 P/F
5 years: 25% P/F	5 years: 13.8 P/F

P = Passing AAMA 2603-02 • F = Failing AAMA 2604-05.

**DSI Satin Black
AAMA 2604-05 Powder**



Starting L:	11.85	Ending L:	16.85
a:	-.05	a:	-.95
b:	-1.18	b:	-1.75
Gloss:	22.7	Gloss:	16.3
Comp. #:	11.8	Comp. #:	16.7

Gloss Ret.:	Δ E Change:
1 year: 96% P	1 year: .5 P
2 years: 88% P	2 years: 3.3 P
3 years: 79% P	3 years: 3.5 P
4 years: 77% P	4 years: 4.5 P
5 years: 72% P	5 years: 4.9 P

P = Passing AAMA 2604-05.

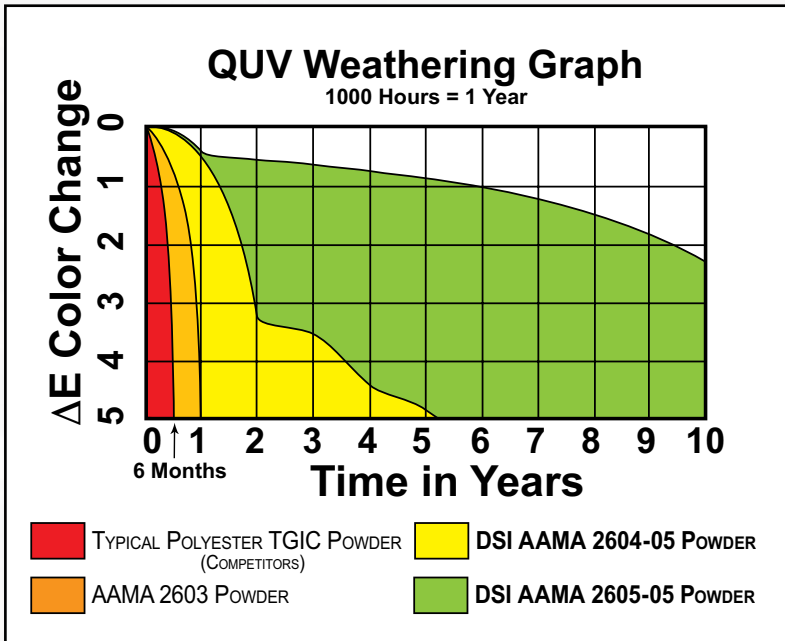
**DSI Satin Black
AAMA 2605-05 Powder**



Starting L:	12.66	Ending L:	11.65
a:	-.73	a:	-.15
b:	-.67	b:	-.25
Gloss:	17.0	Gloss:	16.5
Comp. #:	10.6	Comp. #:	11.6

Gloss Ret.:	Δ E Change:
1 year: 100% P	1 year: .5 P
2 years: 99% P	2 years: .9 P
3 years: 98% P	3 years: .7 P
4 years: 98% P	4 years: .9 P
5 years: 97% P	5 years: 1.0 P

P = Passing AAMA 2604-05 and AAMA 2605-05.



QUV Accelerated Weathering Tester

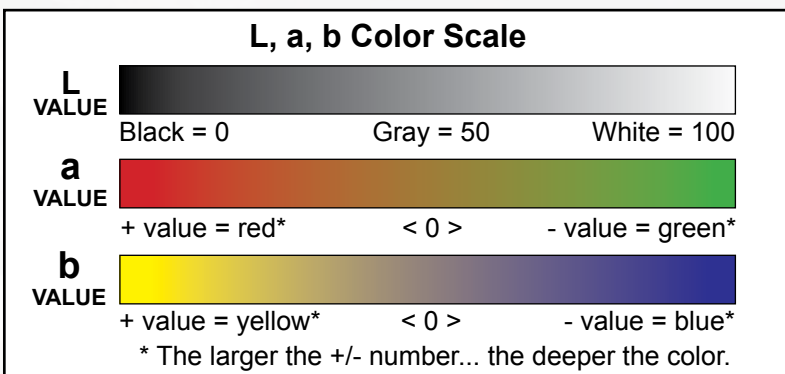
Fluorescent lamps, moisture, and heat provide weathering simulation at an estimated rate of **1000 hours = 1 year** per QUV documentation.



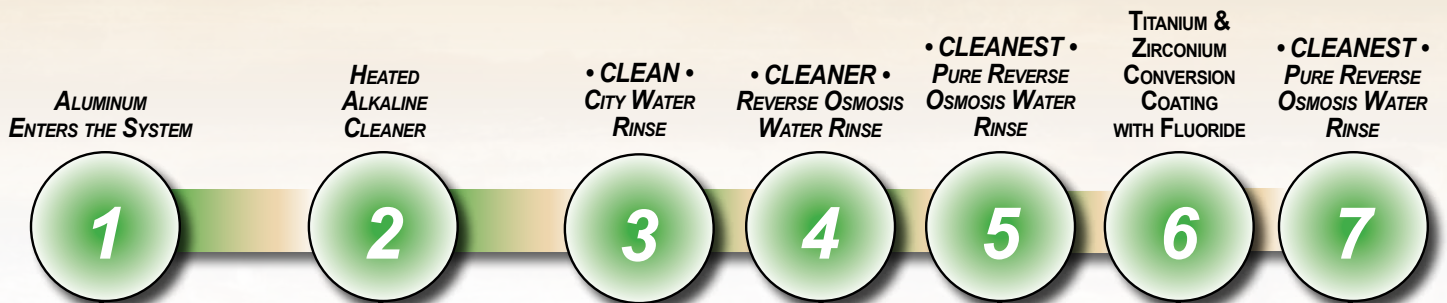
Gloss Tester
Measures the gloss level of coating.



Color Spectrometer
Measures color value per L.a.b. scale shown.



11-STEP POWDER COATING PROCESS



STEP #1: Our raw premium grade aluminum is inspected to be free of blemishes and is not exposed to the outdoor elements.



STEP #2: Product enters heated alkaline cleaner stage to remove extrusion and fabrication oils.



The next four stages consist of a:
STEP #3: (CLEAN) City water rinse,
STEP #4: (CLEANER) Recycling reverse osmosis water rinse,
STEP #5: (CLEANEST) Pure reverse osmosis water rinse,
STEP #6: Titanium and zirconium conversion coating with fluoride.
STEP #7: (CLEANEST) Pure reverse osmosis water rinse.

AIR KNIFE REMOVES WATER DROPS



STEP #8: A 200 MPH air blast removes water drops from the pre-treated product.

DRY-OFF OVEN



STEP #9: A convection oven completes the dry-off process.

POWDER COATING APPLICATION



STEP #10: Powder application is automated. Compressed process air is dried to -35°F Dew Point for superior adhesion and aesthetics. The powder booth contains powder coating overspray with no emissions to the surrounding environment.

INFRARED AND CONVECTION OVEN CURE STAGE



STEP #11: The final step of the powder coating process is the cure oven where the powder coating gels and bonds to the aluminum.

Ten pre-treat system titration checks twice per shift maintain system parameters and ten QC checks are completed every hour on product coming off the production line.

Parts are not touched by human hands during the pre-treat, dry-off, application, and cure process to maintain ultimate cleanliness of parts to be coated.



Automated Chemical Test
 Pretreatment chemicals are monitored and added automatically but titration is checked manually twice per shift.



System Titration Test
 Ph levels are checked twice per shift as part of the pretreatment titration check.



Cure Oven Temperature Test
 Cure oven air temperatures and part temperatures, during the cure process, are monitored frequently to ensure proper curing of powder coating.



Coating Thickness Test
 Coating thickness is measured and plotted every hour.



ASTM D3359 Crosshatch Test
 Hourly crosshatch testing is completed per ASTM D3359 to test coating adhesion.




PCI#8 Solvent Cure Test
 Solvent testing per PCI#8 is completed hourly to test for complete cure.



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D I S T R I B U T E D B Y :

Note: Data from year 1 through 4 is based on testing from DSI QUV weathering machine. Year 5 is estimated based on data from years 1-4. Photos taken at 4000 hours/4 year time frame.