



**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 <sup>Polyester</sup> 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
• <b>Mortar Resistance</b>	No test	No visual change	<b>No visual change</b>	<b>No visual change</b>
• 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
• <b>Humidity Resistance</b>	No test	1500 hours	<b>3000 hours</b>	<b>4000 hours</b>
• <b>Salt Spray Resistance</b>	No test	1500 hours **	<b>3000 hours **</b>	<b>4000 hours **</b>
• <b>Color Retention (S. FL)</b>	No test	1 year minimum fade	<b>5 years max. 5ΔE change</b>	<b>10 years max. 5ΔE change</b>
• <b>Gloss Retention</b>	No test	No test	<b>5 year 30% retention</b>	<b>10 year 50% retention</b>

\* 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.

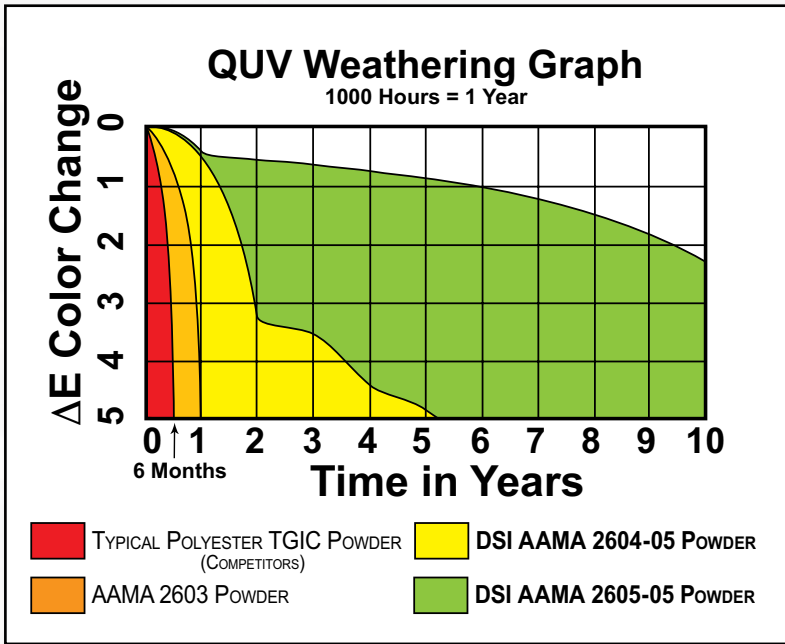
**DSI Satin Black  
AAMA 2605-05 Powder**



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**

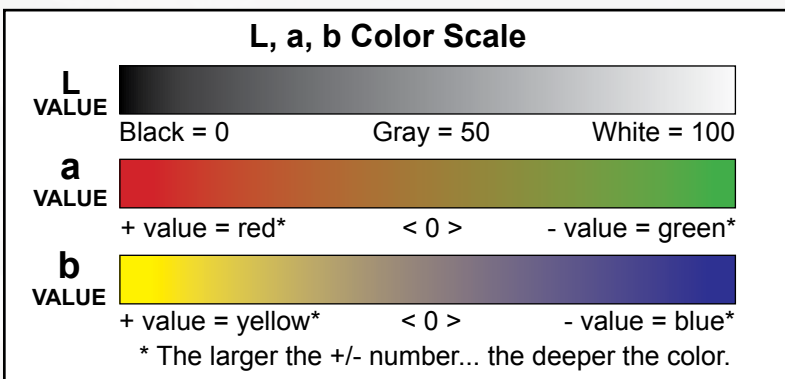
Fluorescent lamps, moisture, and heat provide weathering simulation at an estimated rate of **1000 hours = 1 year** per QUV documentation.



**Gloss Tester**  
Measures the gloss level of coating.

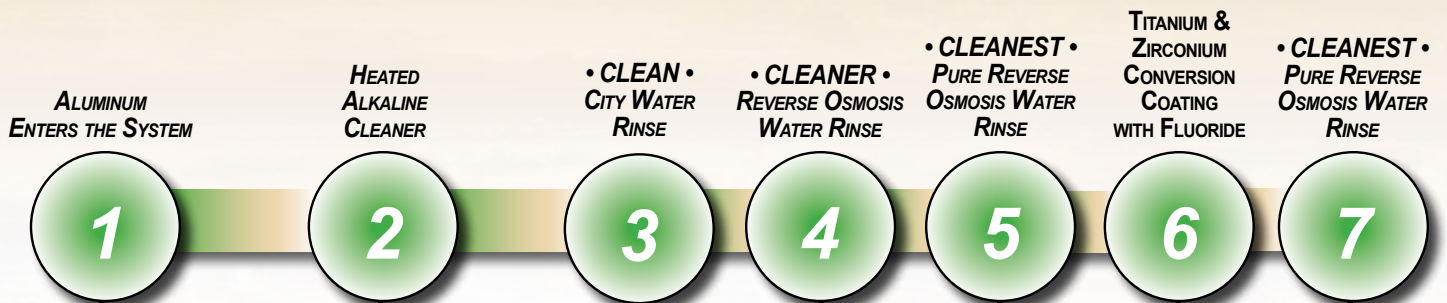


**Color Spectrometer**  
Measures color value per L.a.b. scale shown.





# 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.



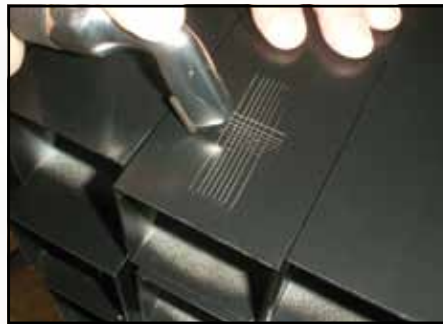
**Cure Oven Temperature Test**  
 Cure oven air temperatures and part temperatures, during the cure process, are monitored frequently to ensure proper curing of powder coating.



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



**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.



**Circle of Commitment**  
 Dynamic • Solutions • Innovation

**Manufacturing & Distribution Plants:**  
 • Bremen, IN • Randleman, NC • Sarcoxie, MO • Valdosta, GA



Manufacturer of  
 Verified Components



Quality Products By:



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.