



**Morgan**  
SERIES

## ALUMINUM FENCING

- Shipped in Assembled Sections
- Pre-Assembled Gates Available
- High Quality Aluminum
- All Powder Coated
- Black and Bronze
- Optional Finials Available
- Easy to Install



## ALUMINUM RAILING

- 36" High Railing in 6' and 8' Lengths
- Sold in Easily Shipped Boxed Sections
- High Quality Aluminum
- All Powder Coated
- Black, Bronze or White
- Step Railing Sections also Available
- Optional Post Caps and Trim Rings



**Arabian**  
SERIES

# POWDER COATING TECHNICAL DATA

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

| AAMA Tests   | AAMA 2603-02        | AAMA 2604-05            |
|--|---------------------|-------------------------|
| • Dry Film Hardness  | No coating rupture  | No coating rupture      |
| • Dry Adhesion   | 10% coating removal | No coating removal      |
| • Wet Adhesion   | 10% coating removal | No coating removal      |
| • Boiling Water Adhesion   | No test             | No coating removal      |
| • Impact Resistance  | No coating removal  | No coating removal      |
| • Abrasion Resistance  | No test             | ACV 20 minimum *        |
| • Muriatic Acid Resistance   | No visual change    | No visual change        |
| • Mortar Resistance  | No visual change    | No visual change        |
| • Nitric Acid  | No test             | 5ΔE max. change         |
| • Detergent Resistance   | No visual change    | No visual change        |
| • Window Cleaner Resistance  | No test             | No visual change        |
| • Humidity Resistance  | 1500 hours          | 3000 hours              |
| • Salt Spray Resistance  | 1500 hours **       | 3000 hours **           |
| • Color Retention (S. FL)  | 1 year minimum fade | 5 years max. 5ΔE change |
| • Gloss Retention  | No test             | 5 year 30% 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.

**Satin Black  
AAMA 2603-02 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.

**Satin Black  
AAMA 2604-05 Powder**



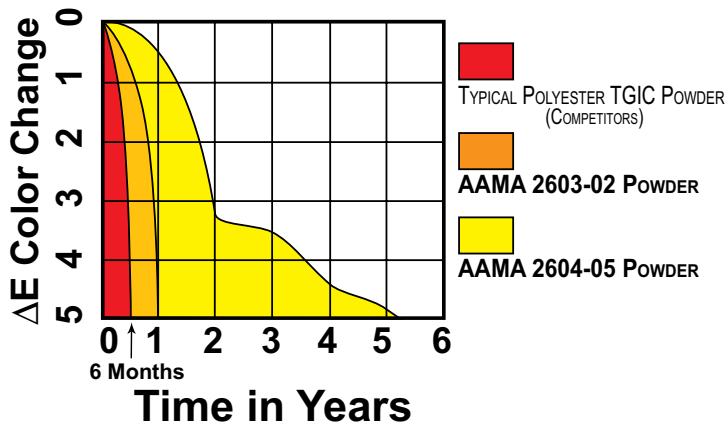
|             |       |           |       |
|-------------|-------|-----------|-------|
| Starting L: | 11.85 | Ending L: | 16.85 |
| a:          | -.05  | a:        | -.95  |
| b:          | -1.18 | b:        | -1.75 |
| Gloss:      | 22.7  | Gloss:    | 16.3  |
| Comp. #:    | 11.8  | Comp. #:  | 16.7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

|                |                |
|----------------|----------------|
| 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.

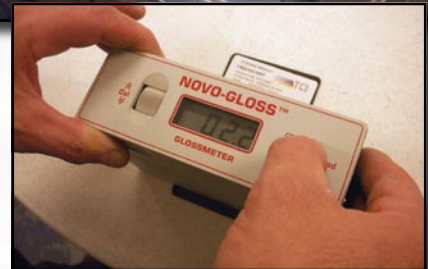
**QUV Weathering Graph**

1000 Hours = 1 Year



**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**

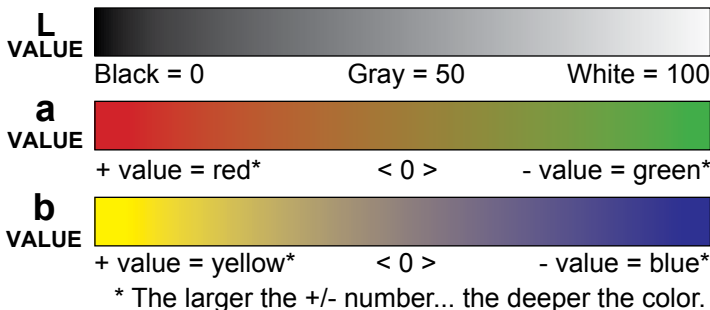
Measures the gloss level of coating.



**Color Spectrometer**

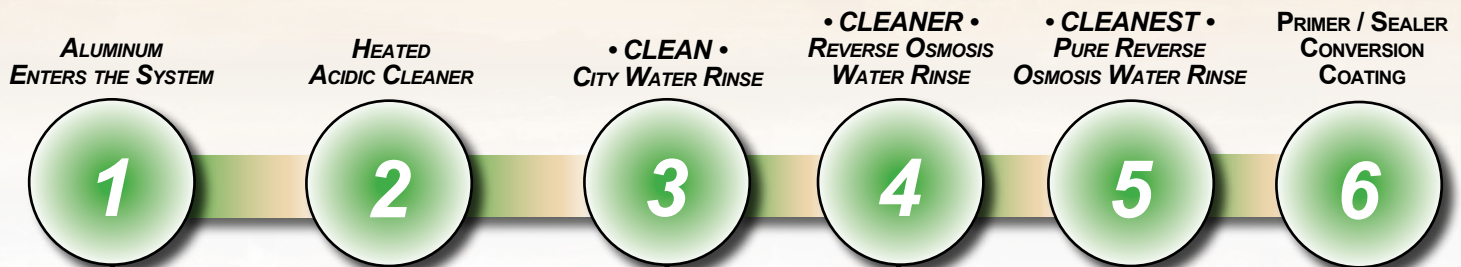
Measures color value per L.a.b. scale shown below.

**L, a, b Color Scale**





# 10 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 acidic 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, and  
**STEP #6:** Primer/sealer conversion coating.

AIR KNIFE REMOVES WATER DROPS



**STEP #7:** A 200 MPH air blast removes water drops from the pre-treated product.

DRY-OFF OVEN



**STEP #8:** A convection oven completes the dry-off process.

POWDER COATING APPLICATION



**STEP #9:** 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 #10:** 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.



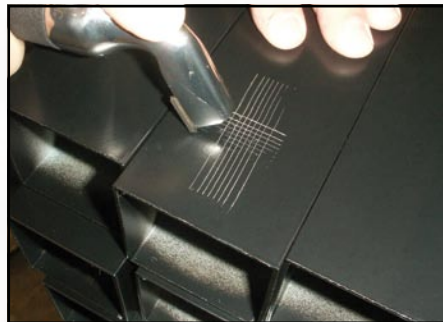
### Cure Oven Temperature Test

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.



S O L D B Y :