



## ANODIZED INVARIMATTE® OFFERS A NON-DIRECTIONAL LOOK FOR BOTH INTERIOR AND EXTERIOR USE.

Anodized InvariMatte® finish meets the American Architectural Manufacturers Association (AAMA) standard for commercial anodic coatings used in interior applications or exterior applications receiving regularly scheduled cleaning and maintenance for Architectural Class I & II.

### INDUSTRY DESIGNATIONS

**Aluminum Association**  
AA-M12-C22-A31  
**Mil A-8625F Classification**  
Type II Sulfuric Anodize

### INDUSTRY STANDARDS

**AAMA 611-12**  
Voluntary specification for anodized architectural aluminum  
**Mil A-8625F Anodizing Standard**  
Anodic coatings for aluminum and aluminum alloys

### ALUMINUM PROPERTIES

Alloy ..... 5005  
Temper ..... Half Hard  
Finish ..... Non-Directional

### MECHANICAL PROPERTIES

UTS ..... 20-26 ksi [138-179 MPa]  
YTS ..... 15 min [103 MPa]  
Elongation ..... 4% - 5% min

### CHEMICAL PROPERTIES

Si ..... 0.30 %  
Fe ..... 0.7 %  
Cu ..... 0.20 %  
Mn ..... 0.20 %  
Mg ..... 0.50 - 1.1 %  
Cr ..... 0.10 %  
Zn ..... 0.25 %  
Other ..... 0.15 %  
Al ..... Remainder

### ANODIZE FILM THICKNESS

Architectural Class I  
Architectural Class II

### ANODIZE FINISH PROPERTIES

Optical ..... Not Applicable  
Gloss ..... Coarse Matte 60<20  
Color ..... Medium Bronze  
Color Target ..... Not Applicable  
UV Stable ..... Yes  
Environment ..... Exterior  
Quality Grade ..... 2  
Other ..... None

*Panel-to-Panel match quality can be custom ordered.*

### WIDTH AVAILABILITY

48.0" (1219 mm)

*Other widths can be custom ordered.*

### GAUGE AVAILABILITY

0.012" (0.3 mm)  
0.020" (0.5 mm)  
0.024" (0.6 mm)  
0.025" (0.63 mm)  
0.027" (0.68 mm)  
0.029" (0.73 mm)  
0.030" (0.76 mm)  
0.038" (0.96 mm)  
0.040" (1.0 mm)  
0.047" (1.1 mm)  
0.050" (1.2 mm)  
0.051" (1.29 mm)  
0.060" (1.5 mm)  
0.061" (1.54 mm)  
0.063" (1.6 mm)  
0.080" (2.0 mm)

## ANODIZED FINISH TEST DATA

CHARACTERISTIC	TEST METHOD	STANDARD	TEST RESULTS
Oxide Layer, Weight	ASTM B137 - Coating Dissolution	AAMA 611-12, 2.4mg/cm <sup>2</sup> (15.5mg/in <sup>2</sup> )	> 2.4mg/cm <sup>2</sup> (15.5mg/in <sup>2</sup> )
Gloss Uniformity	ASTM D523 - 60o Gloss Reflectance	AAMA 611-12, must meet agreed upon specification	Lorin Gloss E7D, Nominal Target 30
Abrasion Resistance	ASTM D4060 - Taber abrasive wheel	Based on a anodic film thickness, 11 µm (0.400 mils)	5,000 cycles; 8.2 mg / wgt loss; 1.6 wear index
Film Hardness	ASTM D3363 - Pencil Hardness	Based on a anodic film thickness, 11 µm (0.400 mils)	9H Hardness
Corrosion Resistance	ASTM B117 - Neutral Salt Spray	AAMA 611-12, 1,000 hours ≤ 15 pits less than 1mm, 381 cm <sup>2</sup> (150in <sup>2</sup> )	Pass, No visible pits
Weathering	SAE J1960 - ATLAS Accelerated testing using an Xenon Arc light source	AAMA 611-12, 10 year Florida Exposure with max Δ Delta E of 5.0	Delta E 0.1; 3,929 hours equivalent to 2.00 years South Florida Sun (20140602)
Craze Resistance	AAMA 611-12 - Thermal Crazing of the oxide layer	AAMA 611-12, oxide layer shall not craze less than 82oC (120oF)	No visible evidence of Thermal Crazing
Chemical Resistance	ASTM D1308 - Effect of Household Chemicals	10% Reagent grade Muriatic Acid, 15 minute exposure at ambient temp	No blisters, No peeling. Subtle stain
Seal Quality	ASTM B680 - Acid Dissolution shall be 40mg/dm <sup>2</sup> (2.6mg/in <sup>2</sup> )	AAMA 611-12, max weight loss	< 20mg/dm <sup>2</sup> (1.3mg/in <sup>2</sup> )

### SECONDARY SERVICES

- Shearing, Width Capabilities**  
7" (178mm) - 62" (1575 mm)
- Shearing, Length Capabilities**  
Up to 192" (4876 mm)
- Shearing, Loading Gauge**  
Up to 0.080" (2.0 mm)
- Slitting, Width Capabilities**  
0.75" (19 mm) min
- Slitting, Loading Gauge**  
Up to 0.100" (2.5 mm)
- Other Secondary Services**  
Protective peel-able films  
International packaging  
Perforating and embossing

### MAINTENANCE AND CLEANING

The anodized aluminum finish can be washed with mild soap and water followed by a clean water rinse. For more information on cleaning anodized aluminum, please refer to the Aluminum Association Publication 92, Care of Aluminum or AAMA 609 & 610-09, Cleaning and maintenance guide for architecturally finished aluminum.

### SUSTAINABILITY AND LEED

- Recycled Content, 5005 alloy**  
100% recyclable  
6.6% recycled Content  
93.4% reclaimed-virgin material
- Volatile Organic Compounds**  
The aluminum oxide layer does not contain any VOC's

### AVAILABILITY

The standard lead time for stocked gauges and widths is two weeks for anodizing and one week for any secondary services such as slitting, shearing and applying transparent protective films or paper.

Please check availability of Non-Stocked materials by contacting our sales staff using our toll free number 800.654.1159 or email your request to [info@lorin.com](mailto:info@lorin.com). Some raw materials may have extended lead times.

### TECHNICAL SUPPORT

A staff of factory trained personnel are available to offer technical assistance. Please call our toll free number 800.654.1159 or email your question to [info@lorin.com](mailto:info@lorin.com).

### PRODUCT SUPPORT PARTNERS

Lorin Industries works very closely with many manufacturers' in multiple markets who specialize in anodized aluminum fabrication. Our support staff can assist you if you are looking for finished components. Please call our toll free number 800.654.1159 or email your request for product and application support to [info@lorin.com](mailto:info@lorin.com).

### WARRANTY

A limited 20 year warranty is available upon request. The warranty is issued on a per project basis and can be applied for on line by completing an application for warranty at [Lorin.com](http://Lorin.com).