



# **AAMA 2604 Finishes Comparison**

**50% PVDF (Polyvinylidene Fluoride) Liquid Coating**

**vs.**

**Powder Coating (Super-Durable Polyester)**

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The tables below show the performance characteristics of both 50% PVDF (Kynar® resin) and powder coatings based upon super-durable polyesters. The main difference of these two coatings, besides their state of phase, is that the liquid coating is a thermoplastic and the powder coating is a thermoset. Thermoplastics do not undergo a permanent, one-way, infusible reaction as do thermosets. By virtue of this, thermosets are typically much harder and more scratch resistant, resulting in a tougher film versus their thermoplastic counterparts. Both varieties display excellent weathering and corrosion resistance. PVDF (50% Kynar® resin) liquid coatings are more recognized by their commercial names such as Acrodize HardCoat™, AcroFlur™, etc. Gordon Inc.'s AAMA 2604 powder coatings are based on Super-Polyester technology.

Physical Properties of Coatings			
Property	Test Method	50% PVDF Liquid Coating	Super-Durable Polyester Powder Coating
Textures	N/A	No	Yes
Gloss Range (at 60°)	ASTM D523	5-25	5-90
Color Range <sup>1</sup>	N/A	Wide range of solids & metallics	Wide range of solids & metallics
Smoothness (PCI Scale) <sup>2</sup>	PCI Tech Brief #20	5-8	5-8
Pretreatment, typ. <sup>3</sup>	N/A	Tri/Hex Valent Chrome	Chrome-free dry-in-place
Impact Resistance (deformation)	ASTM D2794	2.5 mm	3.0 mm
Pencil Hardness <sup>4</sup>	ASTM D3363	H	3H
Taber Abrasion (Wear Index) <sup>5</sup>	ASTM D4060	140	100
Adhesion	ASTM D3359	5B	5B
100 Double Rubs MEK	PCI Method #8	PASS	PASS
Mandrel Bend	ASTM D522	¼"	¼"
Film Thickness	ASTM D7091	1.2 min	2.0 min
South Florida UV Resistance	Per AAMA 2604-17a	Up to 10 years, Gloss retention: 30%+, Color Retention: ΔE <5.0	Up to 10 years, Gloss retention: 30%+, Color Retention: ΔE <5.0
Salt Spray Resistance (ASTM B117)	ASTM B117	3000 hrs.	3000 hrs.
Humidity Resistance	ASTM D2247	4000 hrs.	4000 hrs.

Chemical Resistance Properties of Coatings		
Chemical Reagent <sup>6</sup>	50 % PVDF Liquid Coating	Super-Durable Polyester Powder Coating
Sulfuric Acid 40%	1	5
Nitric Acid 20%	1	5
Phosphoric Acid 85%	1	5
Hydrochloric Acid 37%	1	5
Acetic Acid 40%	1	5
Sodium Hydroxide 40%	5	5
Ammonia Sol. 29%	5	5
Ethanol 95%	5	5
Methanol	5	5
Diesel	5	5
Formaldehyde	5	5
Vegetable Oil	5	5
Rating: 5=Unaffected 4=Color/Gloss change 3=Softens; recovers 2=Softens; no recovery 1=Blistered		

**Footnote:**

<sup>1</sup> Color ranges can be limited by high chromaticity which could facilitate the need for a clear top-coat.

<sup>2</sup> PCI smoothness is directed by a set of 10 standard panels that vary in smoothness; 1 being the least smooth and 10 which represents nearly perfect smoothness.

<sup>3</sup> Pretreatment chemicals for PVDF coatings typically contains either trivalent or hexavalent chrome. Chrome is a heavy metal and extremely hazardous. Gordon powder coatings are applied over chrome-free pretreated substrates and exhibit excellent performance.

<sup>4</sup> Pencil Hardness Scale



<sup>5</sup> Taber Wear Index - Indicates rate of wear, and is calculated by measuring the loss in weight (in milligrams) per thousand cycles of abrasion. The lower the wear index, the better the abrasion resistance.

<sup>6</sup> Chemical Resistance Testing was carried out by an independent laboratory. Coating was exposed to 5 drops of each reagent applied to a cotton ball and placed under a watch glass for 150 hours. At the end of the test the coating was rinsed with water and evaluated. Acrodize Hardcoat was found to be inherently weak against acids.

*Kynar® is registered product of Arkema High Performance Polymers, Acrodize Hardcoat™ is a trademark of The Valspar Corporation, and AcroFlur™ is a trademark of The Sherwin Williams Company.*

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