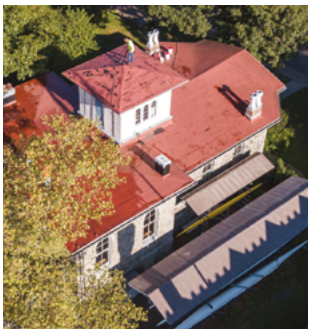
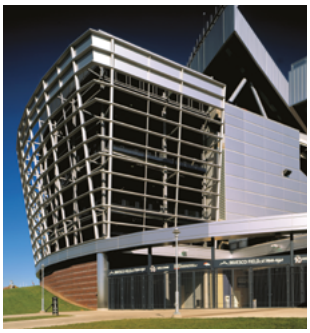
ARKEMA

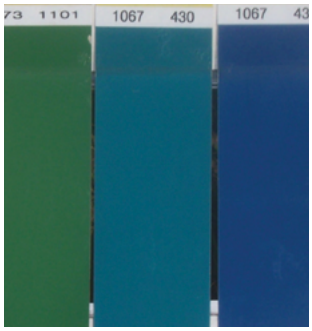
KYNAR 500®FSF®
KYNAR AQUATEC®

PVDF RESIN-BASED ARCHITECTURAL COATINGS


MANDALAY BAY



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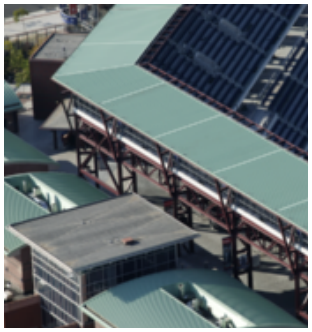


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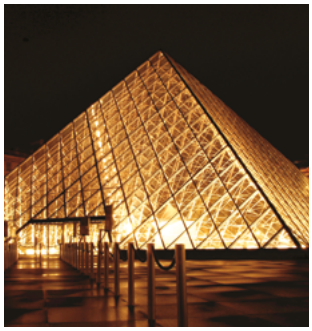
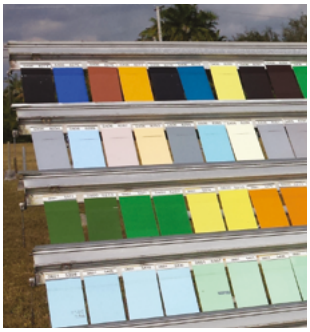





2100

THE ARCHITECT'S FIRST CHOICE.

KYNAR 500®

→ WHY SPECIFY KYNAR® RESIN-BASED COATINGS

Today, Kynar 500® PVDF resin-based metal coatings provide billions of square feet of protection against weathering, aging and pollution on commercial, industrial, institutional and residential buildings around the globe. According to a recent survey, Kynar 500® finishes remain the architect's first choice. The capability of Kynar 500® resins to deliver long-term durability is unparalleled in the industry.

→ SUSTAINABILITY MESSAGE

Kynar 500® PVDF resin is the original, key component of sustainable design. Now, Kynar Aquatec® PVDF resin sets the standard for water-based, field-applied, sustainable green building applications. Both resins are made without the use of fluorinated surfactants.

→ VERSATILITY — FIELD APPLIED

Now, the extreme weatherability of a Kynar 500® based coating is available in a VOC compliant, field applied, ambient air-dry system, Kynar Aquatec® resin-based coatings. From cool roofing to facade restoration, our licensees have a field-applied coating to meet your needs.

→ SUBSTRATES

Kynar 500® resin-based coatings are the standard for factory-coated metal building products and must be baked at over 375°F / 190°C. Since Kynar Aquatec® resin-based coatings do not have to be oven cured, they can be applied to almost any building material: steel, aluminum, PVC, SBS, asphaltic emulsion, TPO, EPDM, plastics, wood, concrete, and textiles.

→ KYNAR® PVDF vs. THE COMPETITION

In all critical measures of performance, Kynar® PVDF resin-based finishes deliver dramatically higher performance than other coating products.

→ SPECIFICATION GUIDE

Kynar 500® resin-based coatings meet the stringent requirements of AAMA 2605. Whereas, Kynar Aquatec® resin-based coatings can meet AAMA 2605, 615, 625 and SSPC Paint 47 requirements.

WHY SPECIFY KYNAR 500®?
QUALITY, DURABILITY AND HIGH PERFORMANCE

Metal has rapidly become the material of choice for exterior use due to its rugged durability, design versatility and aesthetic possibilities. However, for all its bravado and beauty, uncoated metal doesn't necessarily have a tough skin and is only available in a single color. To be both functional and decorative, metal must be coated with a finish that beautifies with color and doesn't chalk, won't lose its color and sheen, and won't pit, chip, or age before its time.

Architects around the world specify Kynar 500® PVDF resin-based coatings to protect aluminum, galvanized steel and aluminized steel. Other coating systems cannot withstand the rigors of nature and time like those based on Kynar 500® resins. This high-performance fluoropolymer resin, with its extraordinary capability to retain color and gloss, keeps painted metal looking vibrant and appealing.

Kynar 500® resin-based finishes are available worldwide through a strict licensing program. This licensed distribution ensures the quality, consistency and high performance of Kynar 500® resin-based coatings.


MANDALAY BAY
MANDALAY BAY
MANDALAY BAY

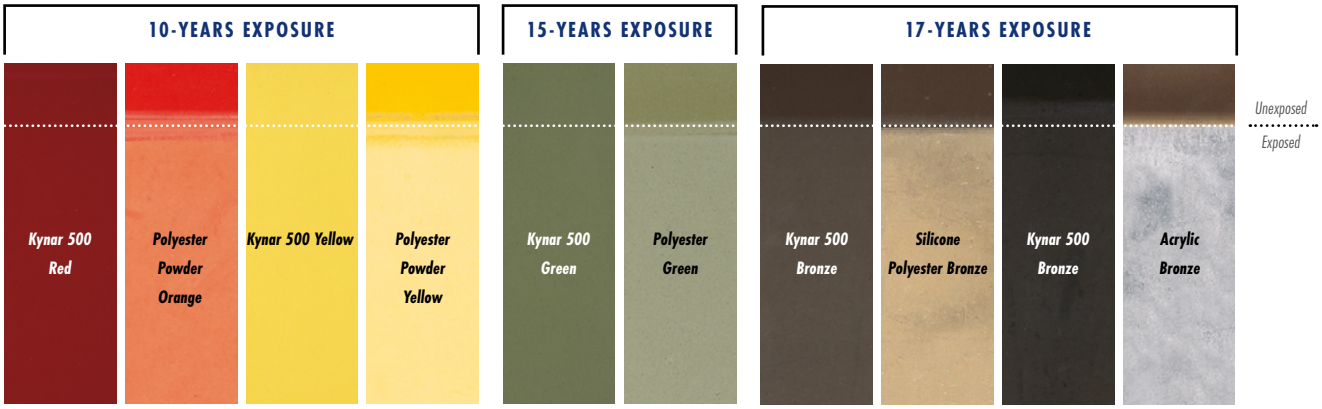
Metal
UNBOUNDED

Architects are using metal in all kinds of new and bold ways. Why? One reason is the high-performance chemistry behind Kynar 500® PVDF resin-based finishes. This performance can be used in many diverse applications, allowing architects to design in colorful palettes without losing color and gloss. Components, extrusions and preformed shapes can be bent, crimped and twisted to maximize form and function in defiance of blistering sun, humidity, urban grime, acid rain, corrosive salt and abrasion.


GRAMMY
MUSEUM
MISSISSIPPI

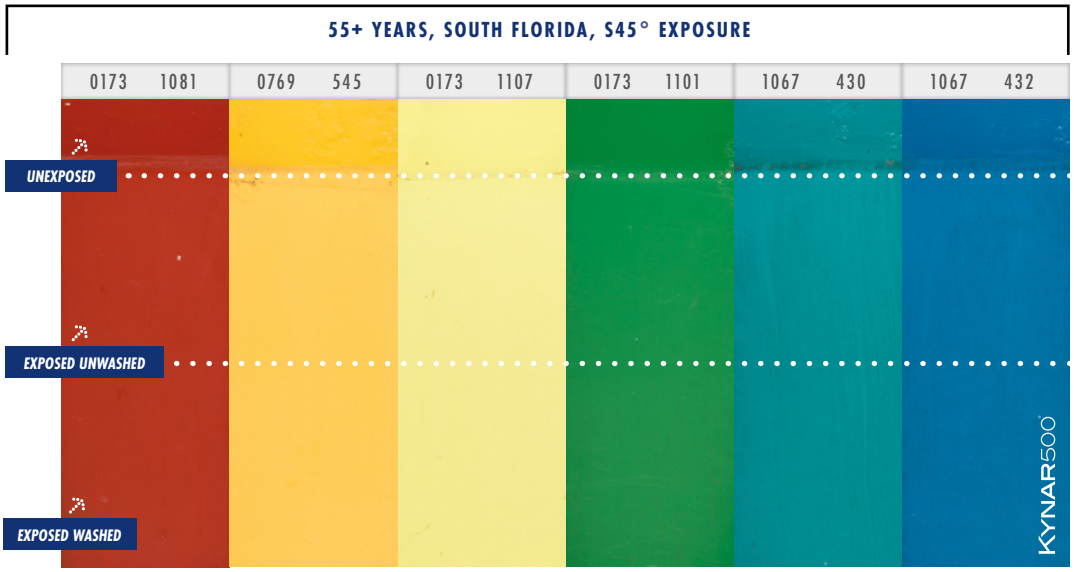
OUTLASTS
The competition

These panels, exposed at an independent test-fence facility in Southern Florida, clearly demonstrate the outstanding weatherability of Kynar 500®PVDF resin-based coatings over other finishes. Note the lack of fading with the panels coated with Kynar 500® resin-based finishes.



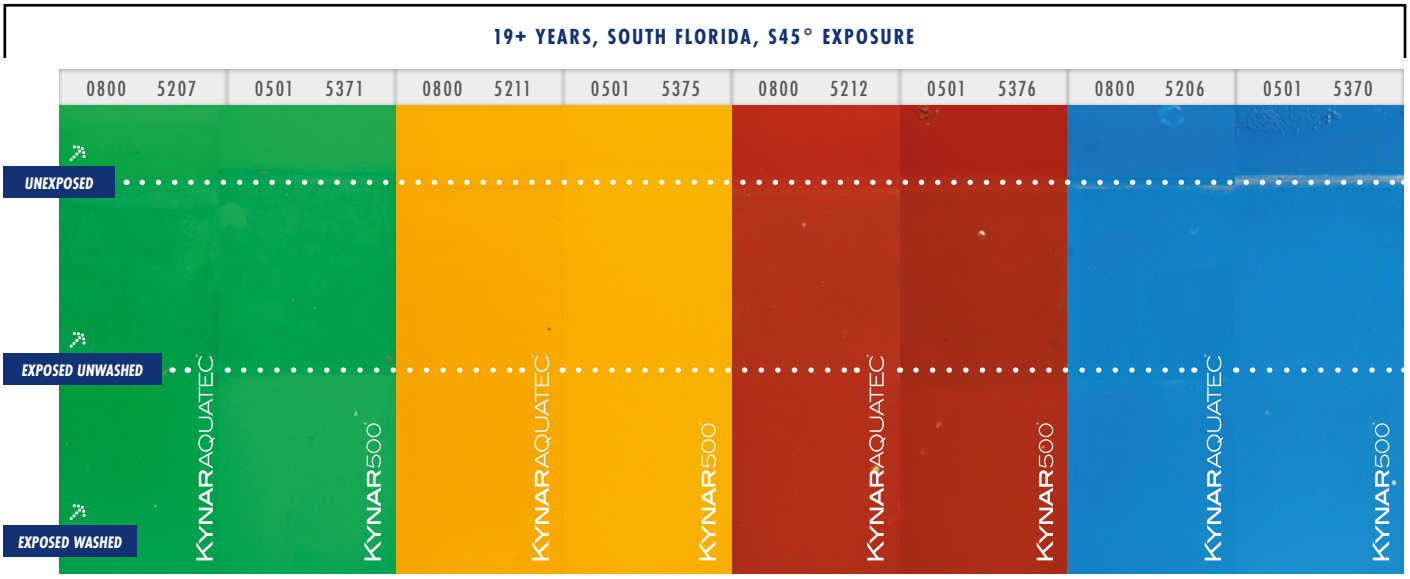
KYNAR 500® PROOF OF PERFORMANCE

These panels, exposed at an independent test-fence facility in Southern Florida, clearly demonstrate the outstanding weatherability of Kynar 500® PVDF res-in-based coatings over other finishes. Note the lack of fading with the panels coated with the Kynar 500® resin-based finish.



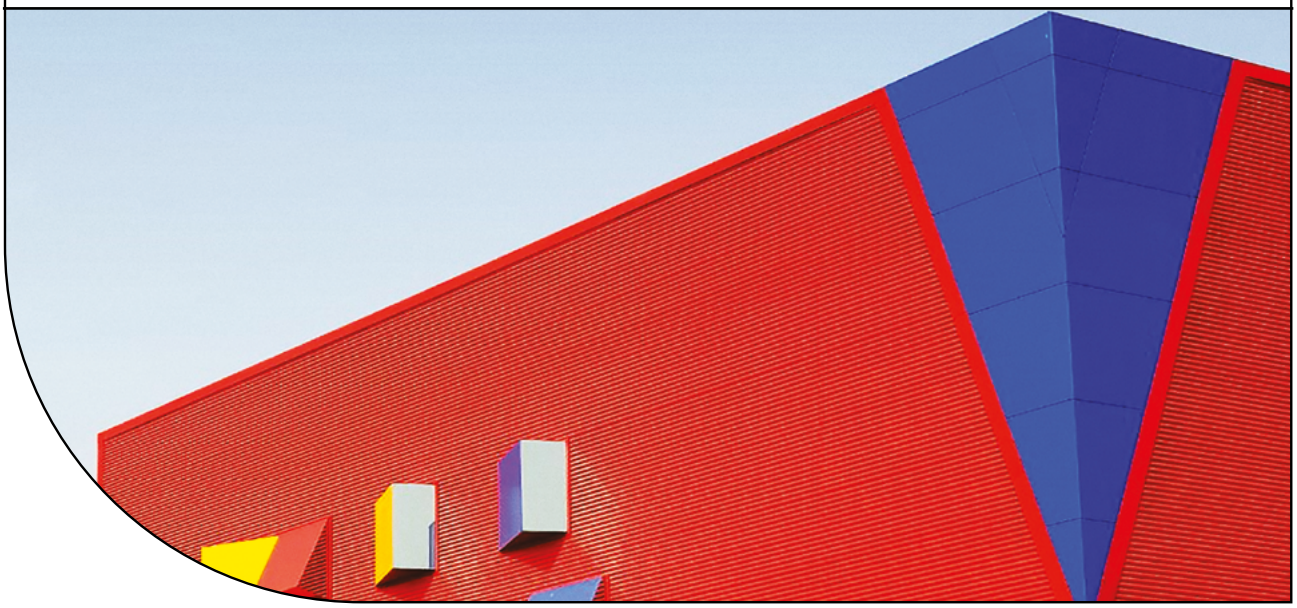
KYNAR AQUATEC® SIMILAR PERFORMANCE AS KYNAR 500®

Kynar Aquatec® PVDF resin-based coatings have been on exposure in the demanding South Florida sun for over 19 years. These coatings are perfoming similarly to traditional Kynar 500® resin-based coatings.



What color do you want
TO PAINT THE WORLD TODAY?

Color issues a statement, creates a mood and makes that desired first impression quickly and more effectively than almost any other architectural component. But color's beauty can be fleeting.
Sunlight, with harsh ultraviolet rays, can quickly turn brown to tan, red to pink, or a deep blue to sky blue. Kynar 500® PVDF resin is transparent to ultraviolet rays, and when combined with durable pigments, creates a coating system that resists color fade. Kynar 500® resin-based coatings are available in a rainbow of textures, sheens and colors, including metallics and pearlescents.




Students
Admi

SUSTAINABLE
BUILDING DESIGN

TAKING INTO ACCOUNT THE WHOLE BUILDING'S IMPACT ON THE ENVIRONMENT, ON THE OCCUPANTS, AND ON THE ECONOMIC ASPECT NOW AND IN THE FUTURE – IS AT THE CORNERSTONE OF THE BUILDING CONSTRUCTION INDUSTRY. MORE THAN HALF OF ALL ARCHITECTS AND DESIGNERS ARE CONSIDERING SUSTAINABILITY IN SOME ASPECT OF NEW BUILDING PROJECTS. THE USE OF A COOL KYNAR 500® RESIN-BASED PREPAINTED METAL ROOF CAN LOWER THE CARBON FOOTPRINT OF A BUILDING BY SIGNIFICANTLY REDUCING THE SOLAR HEAT GAIN INTO THE ATTIC OR LIVING SPACE BELOW THE ROOF. THE COOL KYNAR 500® RESIN-BASED PAINT SYSTEMS MAINTAIN THEIR COOL PROPERTIES FOR DECADES BY RETAINING THE INITIAL SOLAR REFLECTANCE.

– **SCOTT KRINER, NOTED COOL ROOFING INDUSTRY EXPERT**

COOL ROOFS
SMART CHOICES

As energy codes become more rigorous, smart builders are choosing cool Kynar 500® based prepainted metal roofs to increase energy efficiency and sustainability in their green designs. Cool metal roofs can reduce cost for the building owner and decrease green house gas emission at the power plant. Kynar 500® PVDF's advanced resistance to UV degradation and well over 70% solar reflectance, reduces the heat is transferred into the building, lowering ambient air temperatures to improve air quality and limit the urban heat island effect.

Unlike conventional products, which are regularly damaged by UV energy, heat and moisture, Kynar 500® PVDF resin-based coatings offer superior long-term color retention, maintaining rich, vibrant hues over the lifetime of a building. In addition, the architectural appeal, variety of profiles, texture and color, flexibility and long-term durability make Kynar 500® resin-based painted metal roofs well suited for residential projects. The decrease in required restoration, reconstruction, or recoating lower amounts of VOCs that are emitted into the atmosphere further lessening the overall environmental impact.

ENHANCE. SUSTAIN. **PRESERVE.**

Kynar 500® PVDF technology now delivers Kynar Aquatec®, a new long-lasting fluoropolymer emulsion resin that sets the standard for field-applied sustainable green building applications. This innovative resin allows paint formulators to manufacture premium weatherable water-based coatings with long-term color retention, high initial and long-term TSR (Total Solar Reflectance), and high emissivity. These coatings can be applied to a wide variety of substrates — including steel, aluminum, PVC, SBS, asphaltic emulsion, TPO, EPDM, plastics, wood, concrete and textiles — to enhance performance and extend useful life.

With the longest TSR retention of all paint systems tested, Kynar Aquatec® based paints enhance the sustainable design of a building via reduced heat absorption and subsequent energy load. Even dark roofs with low reflectance can be converted in the field, achieving high reflectance and substantial energy savings. In addition, Kynar Aquatec® based paints contain low VOC levels compared to solvent-borne systems and reduce the need for recoating, further minimizing VOC emissions over the life of the substrate.

SUSTAINABILITY
NEVER LOOKED SO GOOD

There has been much publicity and heightened scrutiny in the news, in online media, and in regulatory discussions about Per and Polyfluoroalkyl substances, commonly referred to as PFAS. PFAS Surfactants include compounds such as PFOA and PFOS.

Through innovative thinking and determined effort, Arkema's scientists succeeded in developing a patented technology to manufacture the Kynar 500® FSF® and Kynar Aquatec® family of PVDF resins for coating applications without the use of Fluorinated Surfactants — a PFAS surfactant-free manufacturing process.

CONSISTENCY IS YOUR **KEY TO SUCCESS** FOR MORE THAN 57 YEARS

Kynar 500® PVDF and Kynar Aquatec® PVDF resins are marketed through a strict licensing program that ensures consistency, quality and availability on a worldwide basis. To become an authorized licensee, paint companies participate in a rigorous development program, where Kynar®-based coatings must pass stringent physical and weathering standards. This ensures that Kynar® licensed coatings give the outstanding performance that the construction industry has trusted for more than 57 years.

THE VERSATILITY **TO DO MORE**

→ POWDER COATING

Kynar 500® PVDF architectual powder coatings provide superior physical properties and long term weathering performance. The coating film hardness yields better mar resistance, as well as long-term corrosion resistance and color and gloss retention. The Kynar 500® powder coatings meet or exceed the performance criteria established by the AAMA 2605 ten-year specification guidelines.

→ SIDING

Kynar 500® PVDF resin technology is used to produce coatings that can be directly applied to siding materials both in the factory and in the field as a weather resistant durable topcoat. Kynar® PVDF resin can also be made into thin film layers that can be extrusion laminated to siding substrates in the factory. Kynar® PVDF coatings and films provide extreme resistance to UV degradation, resist atmospheric chemical attack, will not erode and are inherently resistant to algae and fungal attack and provide good resistance to staining. Both technologies protect the underlying substrate from weathering and will maintain the “as new” appearance for many years to come.

→ AUTOMOTIVE

Kynar 500® PVDF resin-based films exhibit high chemical and chip resistance, excellent thermal stability, are impervious to UV radiation, and are resistant to creep under mechanical stress and load. The films can be found on molded automotive parts such as bumpers, mirror housings and rocker panels.

→ FLEXIBLE FABRIC

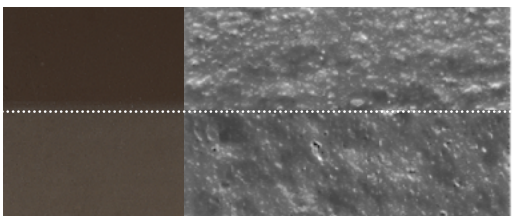
Kynar® PVDF resin technology is used as a topcoat for architectural textiles. Kynar® PVDF resin-based topcoat coatings offers extreme resistance to UV degradation and atmospheric chemical attack. Due to the strong UV resistance of these coatings the coating film layer will not erode over time and protects the underlying substrate from weathering Kynar® PVDF resin-based topcoats also offer resistance to algae and fungal attack.

THE TEST OF A COATING IS ITS ABILITY TO **RESIST WEATHERING**

Weather destroys things. Over time, sunlight, air and water will break down any and all construction material. In the case of polymeric coatings for metals, the deterioration is evident in the loss of color, gloss, adhesion and the appearance of chalking.

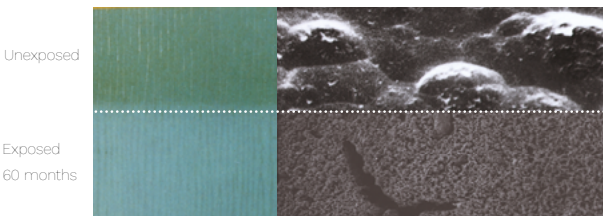
The following photomicrographs (1,000 x magnification) of test panels dramatically depict how Kynar 500® PVDF resin-based coatings resist degradation caused by photoinitiated oxidation and hydrolysis when exposed to a subtropical environment from 60 to 160 months.

KYNAR 500® BRONZE



Unmagnified *1,000 x Magnification*

VINYL PLASTISOL BLUE



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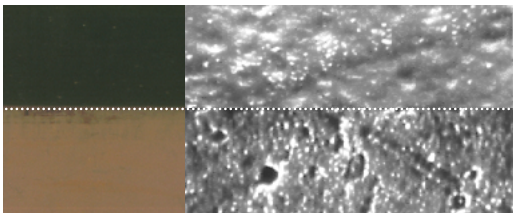
SILICON POLYESTER BRONZE



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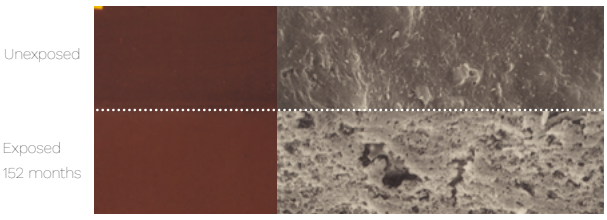
PVF



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HIGHER PERFORMANCE OF KYNAR 500® PVDF RESIN-BASED COATINGS

In all critical measures of performance, Kynar 500® resin-based finishes deliver dramatically higher performance than other coating products. The charts below show relative performance based on published evaluations of generic coatings and the opinions of leading coating formulators.

WEATHERING PROPERTIES	KYNAR 500®	ACRYLIC	SILICONE POLYESTER	POLYESTER	VINYL PLASTISOL	URETHANE	ANODIZED
Color Retention	5	3	4	2	2	3	3
Gloss Retention	5	3	4	2	2	3	3
Chalk Resistance	5	3	4	2	2	3	3
Humidity Resistance	4	4	4	4	4	4	2

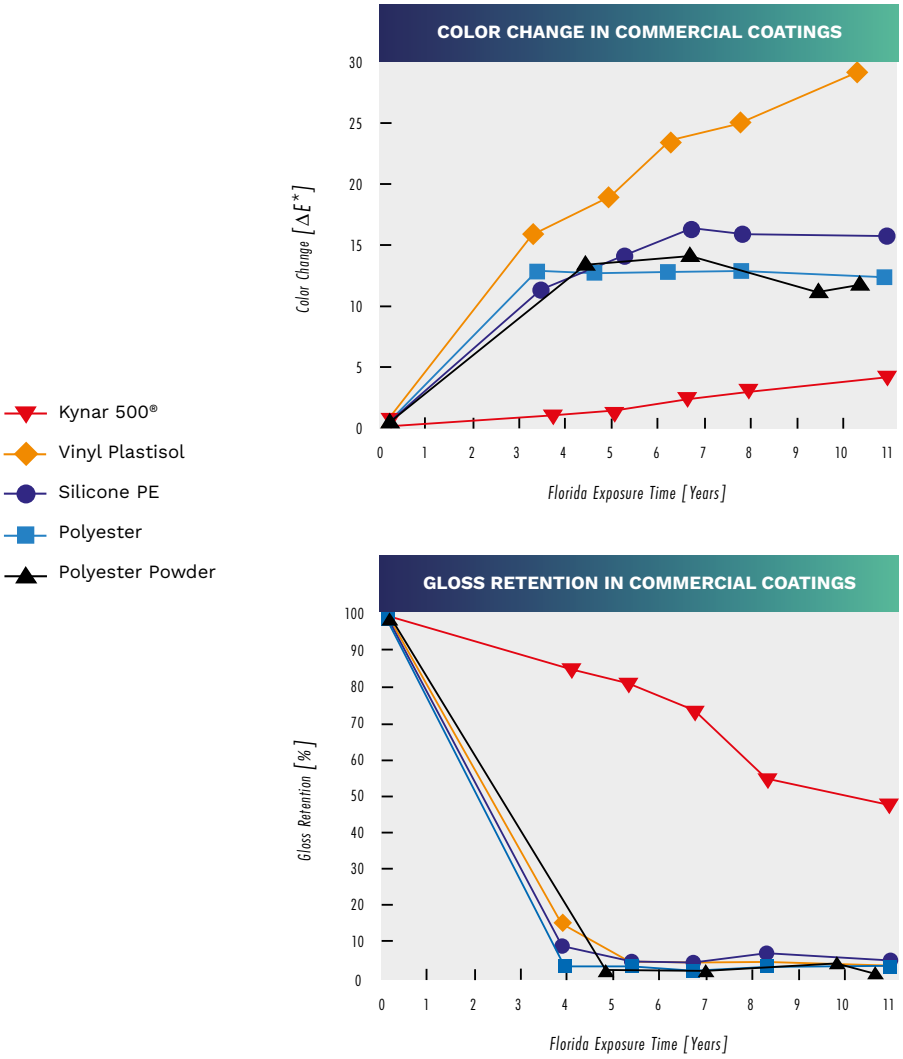
PHYSICAL PROPERTIES	KYNAR 500®	ACRYLIC	SILICONE POLYESTER	POLYESTER	VINYL PLASTISOL	URETHANE	ANODIZED
Abrasion Resistance	5	3	3	2	3	4	3
Impact Resistance	5	3	3	3	5	3	3
Film Flexibility	5	2	2	3	5	4	2
Hardness	3	5	4	5	3	4	4
Mar	3	4	4	4	3	3	4

CHEMICAL RESISTANCE	KYNAR 500®	ACRYLIC	SILICONE POLYESTER	POLYESTER	VINYL PLASTISOL	URETHANE	ANODIZED
Acids & Alkalies	5	3	3	3	5	3	2
Oil Stain	4	3	4	4	4	3	3
Water Immersion	5	3	3	3	4	3	4

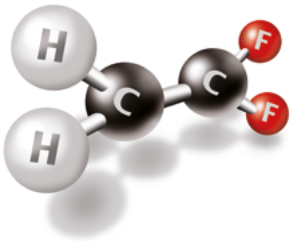
5 = Highest Performance 1 = Lowest Performance

NOTHING WORKS
BETTER LONGER

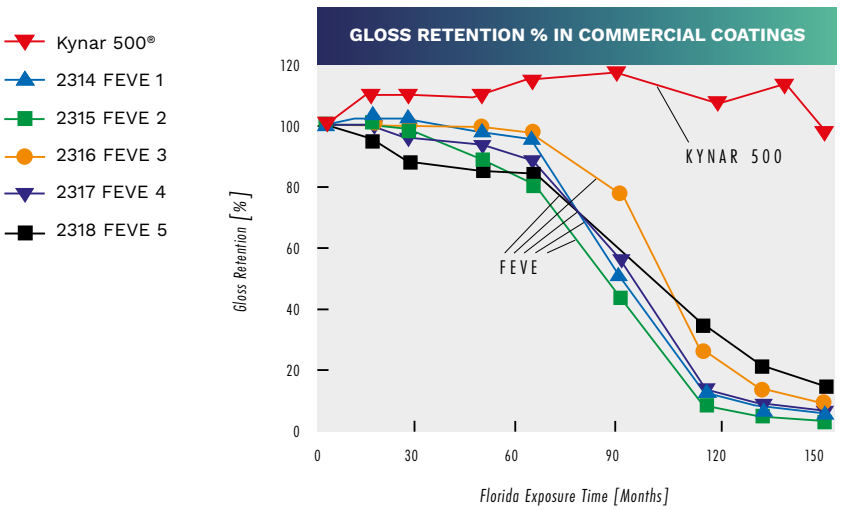
In applications worldwide, Kynar 500® PVDF resin-based metal coatings have demonstrated superior performance and outstanding resistance to film degradation. These coatings will withstand extended exterior exposure to water, humidity, temperature, ultraviolet rays, oxygen and atmospheric pollutants. The performance comparisons to the right were compiled by an independent, accredited testing laboratory and are based on actual exposure time in Southern Florida as required by high performance organic coating specifications AAMA 2605.



KYNAR 500® PVDF RESINS-BASED COATINGS **OUTPERFORM FEVE**



Tests show that Kynar 500® resin-based finishes outperform coatings based on the fluoropolymer resin commonly known as fluorinated ethylene vinyl ether (FEVE). The reason: coatings formulated with FEVE claim to be 100% fluoropolymer resin, but actually contain far less fluorine than Kynar 500® resin-based coating formulations. Because the C-F bond is one of the strongest bonds known, the higher percentages of fluorine content in a coating results in superior, long-term protection. The charts on this page show the fluorine content and the Florida weathering performance of the two technologies.



In typical formulations (see shaded areas), Kynar 500® resin-based coatings contain higher fluorine levels than FEVE-based coatings, resulting in greater resiliency, color and gloss retention.

FLUORINE CONTENT OF FORMULATED COATINGS

FLUOROPOLYMER/ CORESIN RATIO	WEIGHT % FLUORINE	
	KYNAR 500®	FEVE (TYPICAL)
100/0	59	26
90/10	53	24
80/20	48	21
70/30	42	18

KYNAR 500® PVDF, KYNAR AQUATEC® AND RESIN-BASED COATING **SPECIFICATION GUIDES**

The final coating for aluminum, galvanized steel or aluminized steel shall be a factory-applied, oven-baked finish based on Kynar 500® FSF® polyvinylidene fluoride resin. This finish shall be a dispersion coating based on Kynar 500® FSF® resin as formulated by an Arkema Kynar 500® FSF® licensee. This finish shall be in strict accordance with the formulator's specification and applied by an applicator approved by the formulator. This finish, based on Kynar 500® FSF® resin, shall meet the performance criteria of AAMA 2605 specification and be certified by the formulator as containing Kynar 500® FSF® resin manufactured by Arkema.

SPECIFICATION PERFORMANCE DATA FOR VARIOUS BUILDING COMPONENTS

COMPONENTS TO BE FINISHED	PERFORMANCE REQUIREMENTS	SPECIFICATION
Spandrel Panels, Wall Panels, Curtain Walls, Roofing Systems, Store Fronts, Column Covers, Entranceways, Louvers, Mullions, Fascia, Highway Signs	Best Durability, Longest Color Life, Best Corrosion Resistance, Flexibility, Sand Abrasion, Chemical Resistance	AAMA 2605
Replacement Windows for Retrofit Projects, High-Rise Apartments, Condominiums, Office Buildings	Better Chalk and Fade Resistance, Longer Life, Low Maintenance	AAMA 2605
Primary Windows, Doors and Handrails for Institutions, Condominiums, Commercial Buildings, other High-Exposure Areas	Corrosion Resistance, Better Chalk and Fade Resistance	AAMA 2605
Van, Bus and Truck Windows, Tubular Furniture, Post-Formed Extruded Parts	Color Retention and Chalk Resistance, Excellent Flexibility	AAMA 2605

OVERVIEW OF AAMA

	KYNAR 500® FSF® KYNAR AQUATEC® CRX	KYNAR AQUATEC® CRX	KYNAR AQUATEC® CRX
PERFORMANCE TEST	**AAMA 2605**	**AAMA 615**	**AAMA 625**
Substrate	Metal	Plastic Profiles (PVC, ABS, etc.)	Fiber Reinforced Thermoset Profiles
Minimum Film Thickness	1.2 mils (spray); 0.9 mils (coil)	Meet Manufacturer Specification	1.2 mils
Crosshatch Adhesion	Dry, wet and boiling: 100%	Dry, wet, and boiling: 100%	Dry, wet, and boiling: 100%
Direct Impact Resistance	No removal of film, Minor crack/No pick-off	0.1 in deformation, No removal of film, Slight perimeter cracking ok	9 N-m, No removal of film, Slight perimeter cracking ok
HCl Resistance (10%)	15-minute spot No blister or color change	15-minute spot No blister or color change	15-minute spot No blister or color change
Mortar Resistance	24-hour surface contact No adhesion or residue	24-hour surface contact No adhesion or residue	24-hour surface contact No adhesion or residue
Detergent Resistance	72-hour immersion No change or loss of adhesion	72-hour immersion No change or loss of adhesion	72-hour immersion No change or loss of adhesion
Humidity Resistance	4,000 hours 100% humidity #8 blister size maximum	4,000 hours 100% humidity #8 blister size maximum	4,000 hours 100% humidity #8 blister size maximum
Salt Spray Resistance Scribed	2,000 hours cyclic corrosion Minimum 7 on scribe and cut edge, 8 on field	N/A	N/A
Pencil Hardness	F (minimum)	F (minimum)	F (minimum)
Abrasion Resistance (1/mil)	40 (minimum)	40 (minimum)	40 (minimum)
Nitric Acid Resistance	30-minute exposure <5 ΔE color change	30-minute exposure <5 ΔE color change; 90% gloss retention	30-minute exposure <5 ΔE color change; 90% gloss retention
Window Cleaner Resistance	24-hour spot test No visual change; no loss of adhesion	24-hour spot test No visual change; no loss of adhesion	24-hour spot test No visual change; no loss of adhesion
Weathering	10 years Florida: 5 ΔE maximum color change 50% gloss retention minimum 8 chalk minimum (6 on whites) 10% film erosion maximum	10 years Florida: 5 ΔE maximum color change 50% gloss retention minimum 8 chalk minimum (6 on whites) 10% film erosion maximum	10 years Florida: 5 ΔE maximum color change 50% gloss retention minimum 8 chalk minimum (6 on whites) 10% film erosion maximum

SUBSTRATES
SPECIFICATION GUIDES

OVERVIEW OF THE KYNAR AQUATEC® LATEX PRODUCT LINE

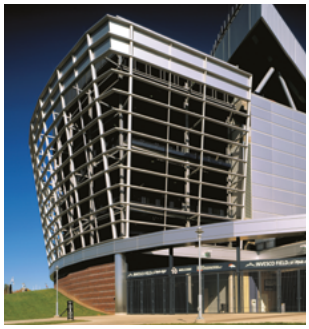
PRODUCT	KYNAR AQUATEC® ARC	KYNAR AQUATEC® FMA-12	KYNAR AQUATEC® CRX
DESCRIPTION	**HIGHEST PVDF LEVEL, THERMOPLASTIC**	**HIGHEST PVDF LEVEL, THERMOPLASTIC**	**HIGHEST PVDF LEVEL, TWO COMPONENT CROSSLINKABLE**
PVDF: Acrylic Weight Ratio	70:30	50:50	70:30
Functional Group Level	Thermoplastic	Thermoplastic	%OH = 0.53 (OH# = 18 or OH eq wt 3178) on total solids
MFFT, Approximate	26–28°C	12–14°C	15°C
Target Applications	Highest weatherability, low bake, OEM applications	High weatherability, low bake, OEM and field applications.(e.g., reflective roof coatings)	Highest weatherability, low bake, OEM and field applications, with enhanced hardness, solvent and abrasion resistance
Years of Florida Exposure	>21	>15	>11

SUBSTRATES FOR KYNAR AQUATEC® BASED PAINTS

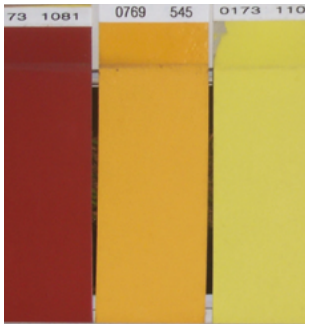
SUBSTRATE	ARC	FMA-12	CRX
Primed or Pre-Painted Metal (factory application)	H	R	H
Primed or Pre-Painted Metal (field application)	R	H	H
Rigid PVC*	H	R	H
Flexible PVC*	R	R	R
Fiber-Reinforced Thermoset* (e.g. polyurethane pultrusions)	R	R	H
Other Plastics*	R	R	R
Sealed or Pre-Painted Cementitious (factory-applied; e.g., fiber cement/concrete roof tile)	H	R	R
Sealed or Pre-Painted Cementitious (field-applied; e.g., EIFS, stucco)	R	H	R
Primed or Pre-Painted Wood	N	R	R
Elastomeric Acrylic Basecoat (e.g., white roof coating)	R	H	R

*Depending on the substrate and the film formation, a suitable primer and/or surface treatment may be required for optimum adhesion.

N = Not Recommended R = Recommended H = Highly Recommended



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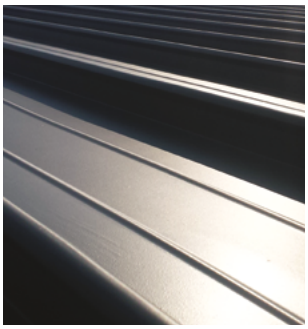
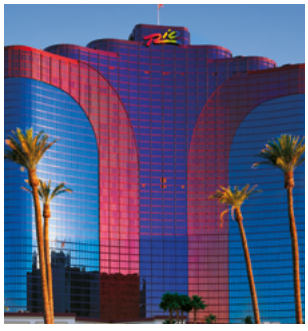





WESTIN

Solano Comm
Vallejo Center
BILL THURSTO
BUILDING



GTON MIDDLE SCHOOL


Arkema Inc.
900 1st Ave,
King of Prussia, PA
19406, USA
+1 610-205-7000

Headquarters: Arkema France
420 rue d'Estienne d'Orves
92705 Colombes Cedex
France
T +33 (0)1 49 00 80 80

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