

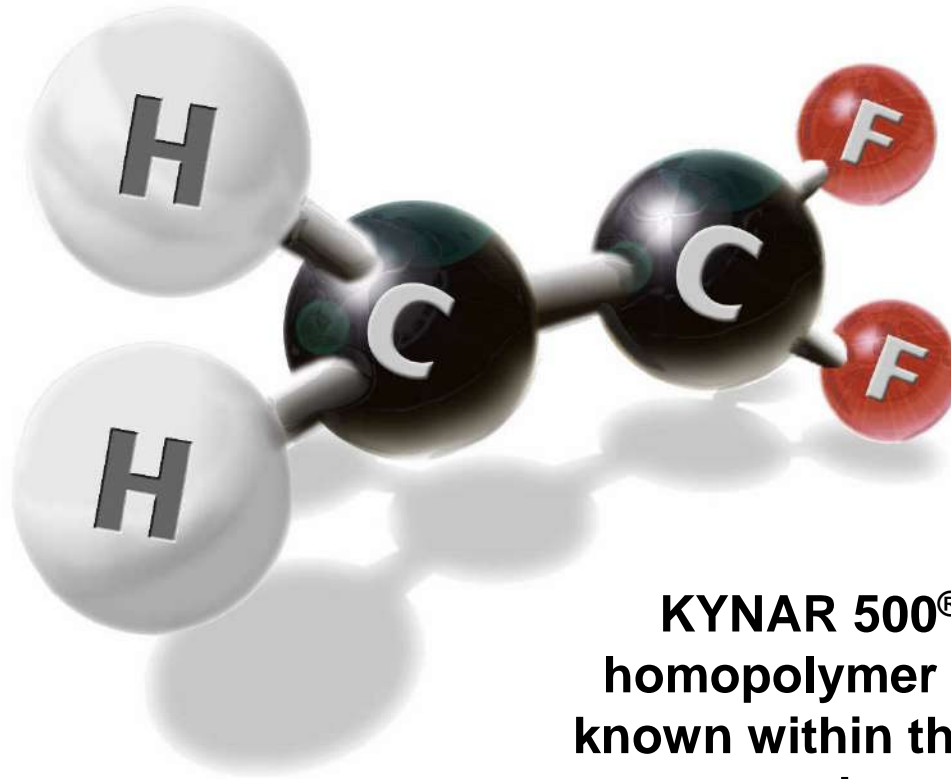


*New fluoropolymer latex technology  
for cool materials solutions  
across an expanded color space*



The C-F bond  
is one of the strongest known.

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**KYNAR 500<sup>®</sup>, the PVDF homopolymer is universally known within the architectural community as the world's most weatherable coatings resin.**

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# KYNAR 500<sup>®</sup> PVDF- based Finishes

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Commerce  
Center  
Nashville,  
TN  
Window  
Extrusions





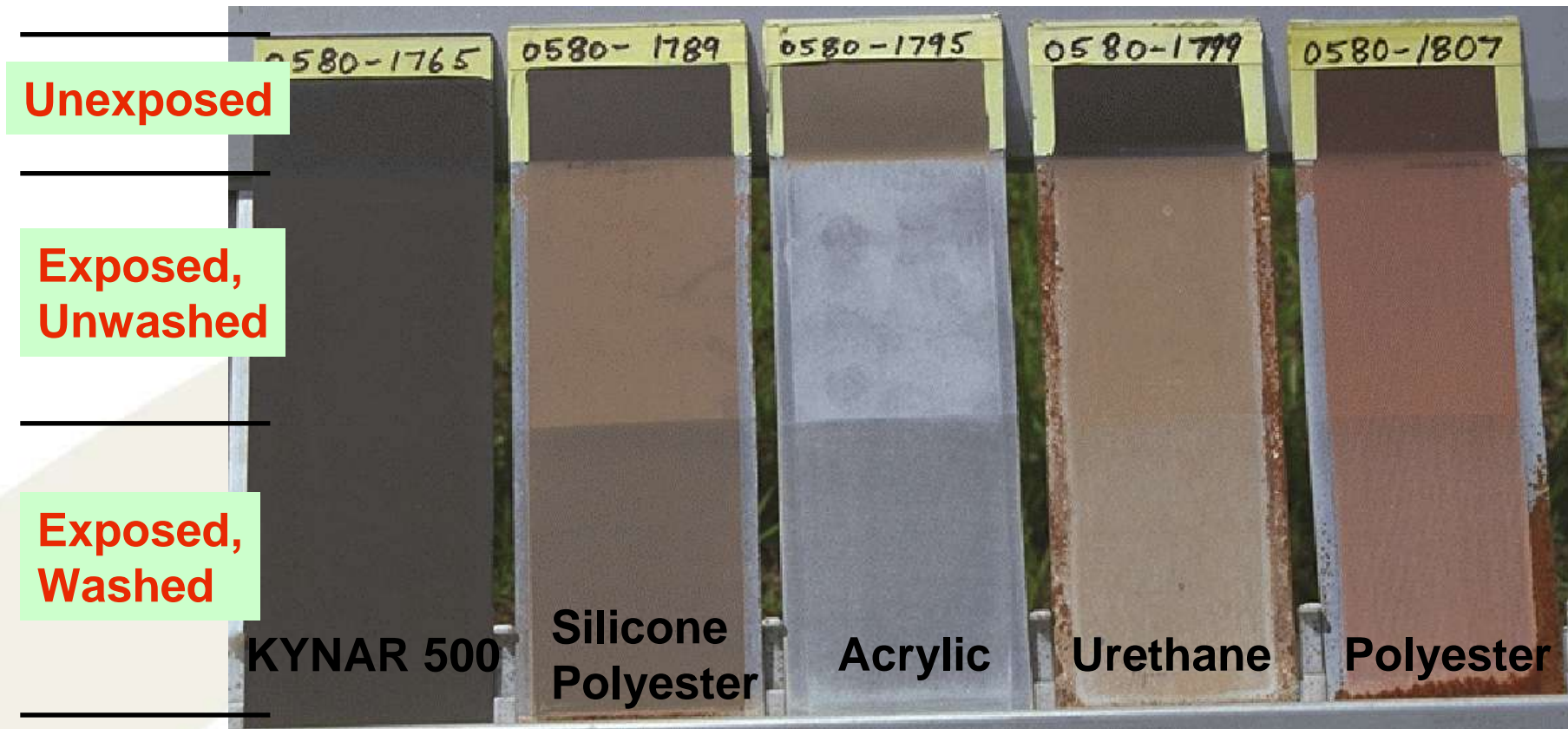
Residential Roofing  
Allentown, PA





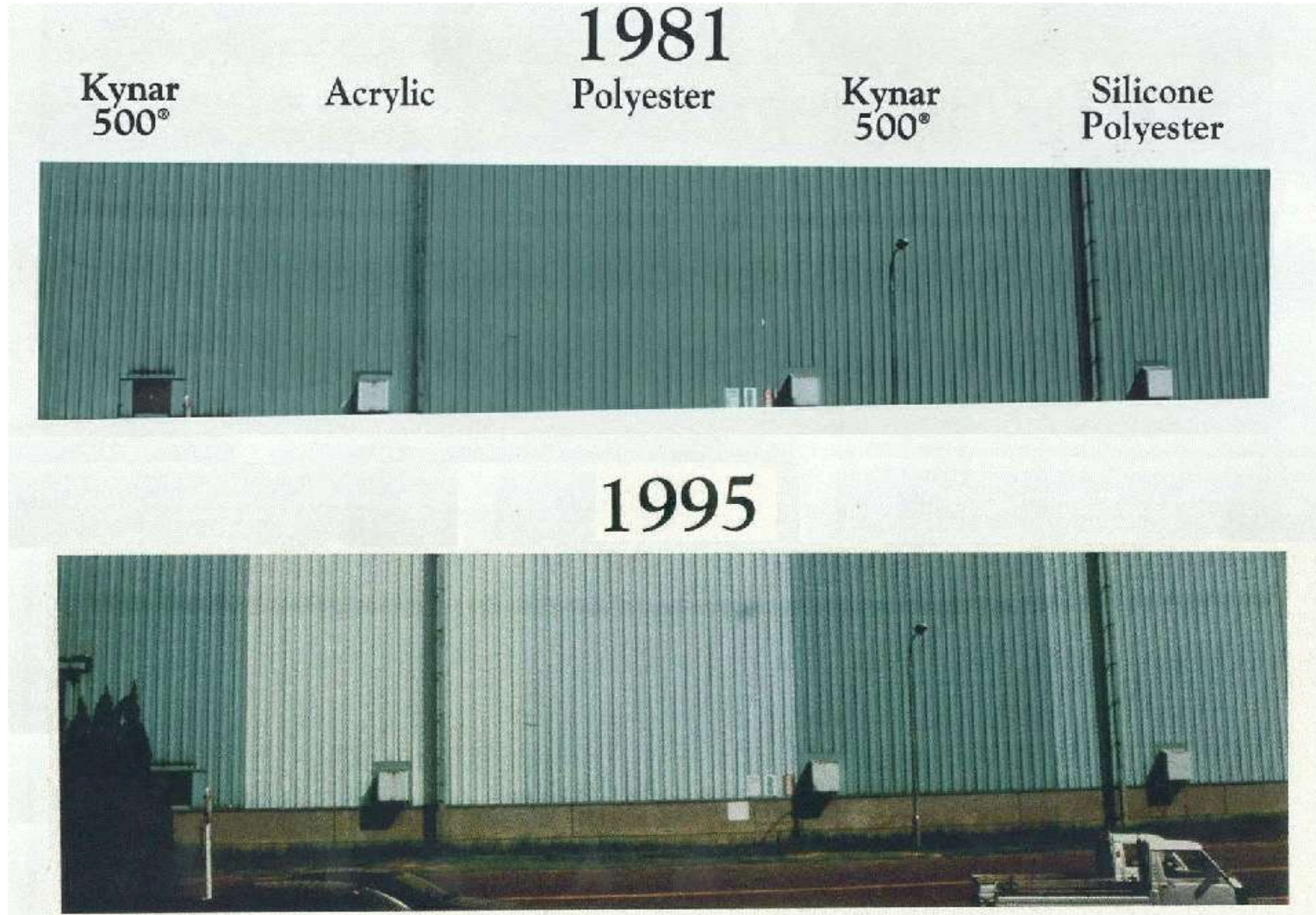
# 70% PVDF vs. Competitive Coatings

Commercially coil coated KYNAR 500 and competitive coatings after 17 years of Florida exposure.

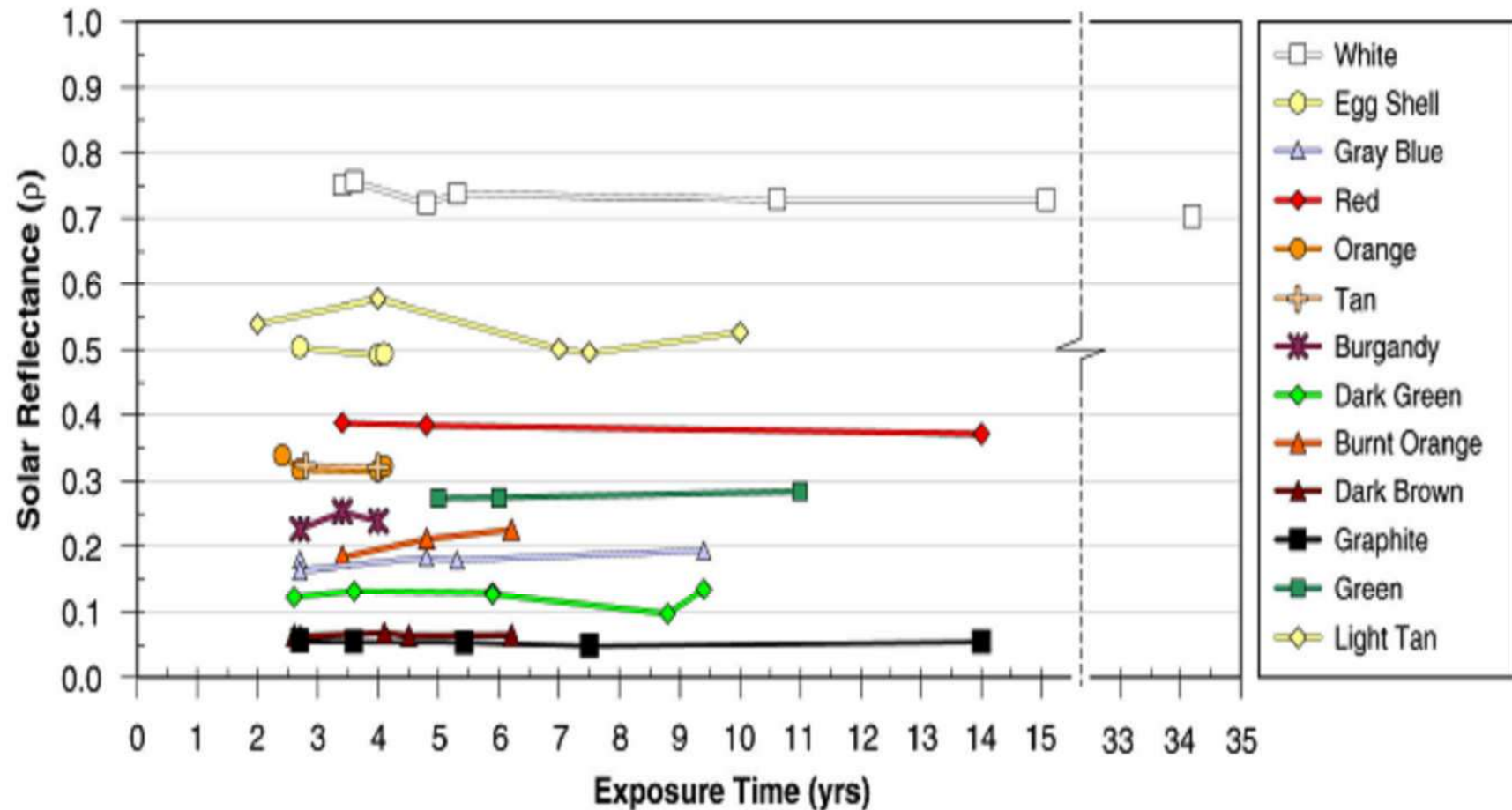


# Color stability of KYNAR 500<sup>®</sup> based paints

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# Retention of Solar Reflectance for PVDF-based paints in South Florida (south 45°)



Data from the report by Dr. William Miller of the Oak Ridge National Laboratories; [www.coolmetalroofing.org/pdf/arr.pdf](http://www.coolmetalroofing.org/pdf/arr.pdf).



# 9 Years of Florida Exposure, SR Retention

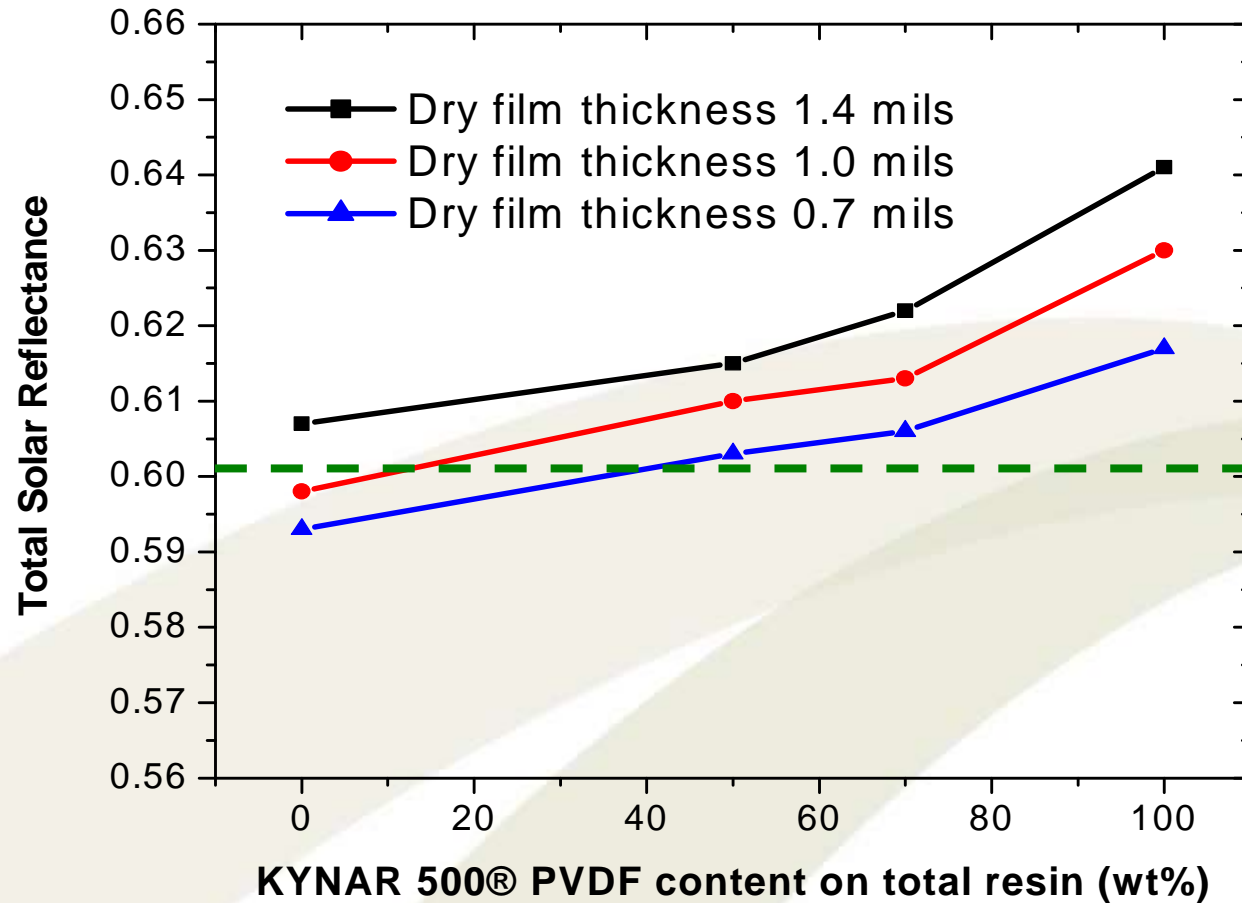
**Kynar® based coated metal roof with 0.80 Total Solar Reflectance**

**Elastomeric Acrylic over PVC with 0.55 Total Solar Reflectance**



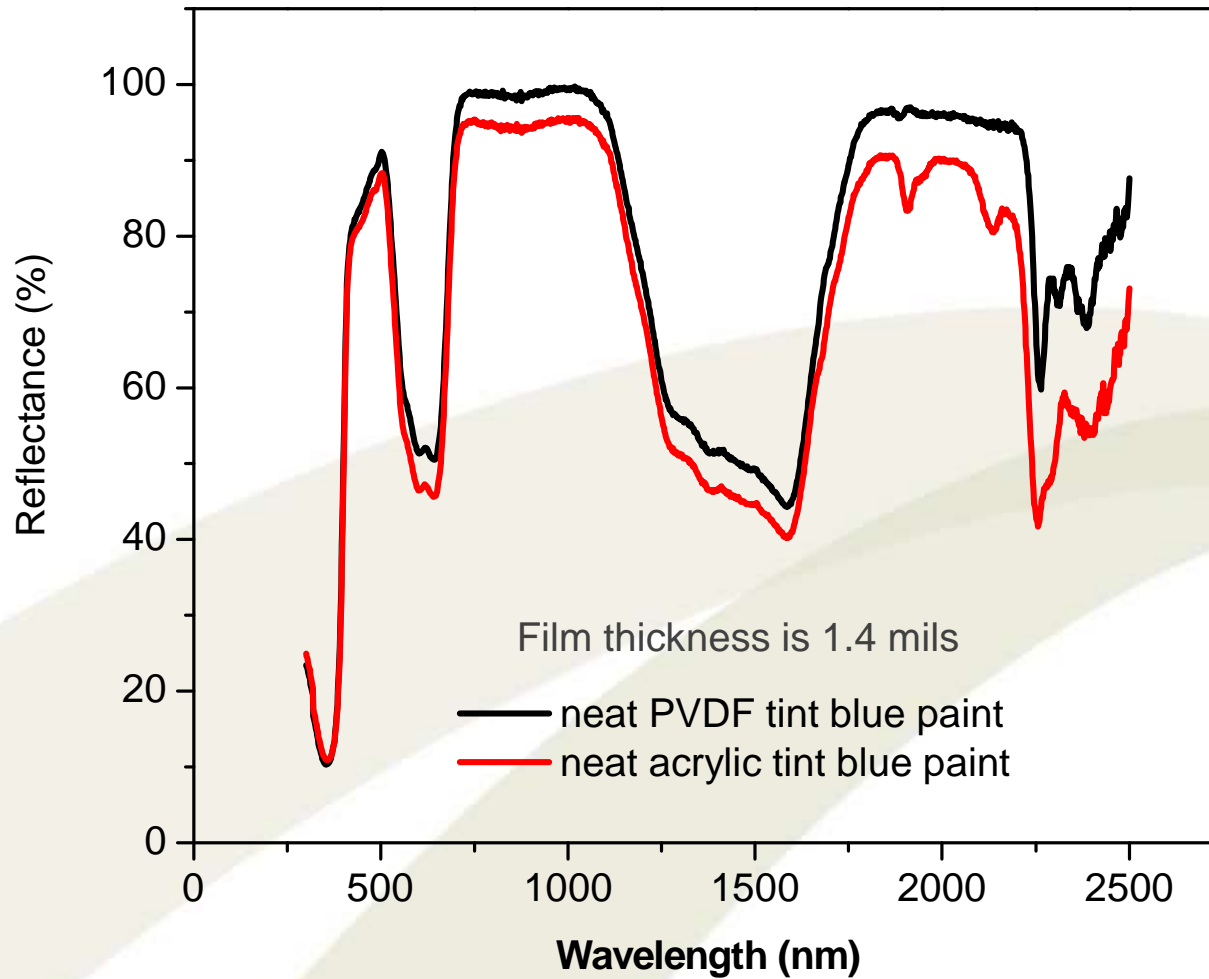


# Resin contribution to Solar Reflectance



*TSR as function of PVDF:acrylic ratio, on aluminum  
Tint blue coatings at constant pigment volume concentration*

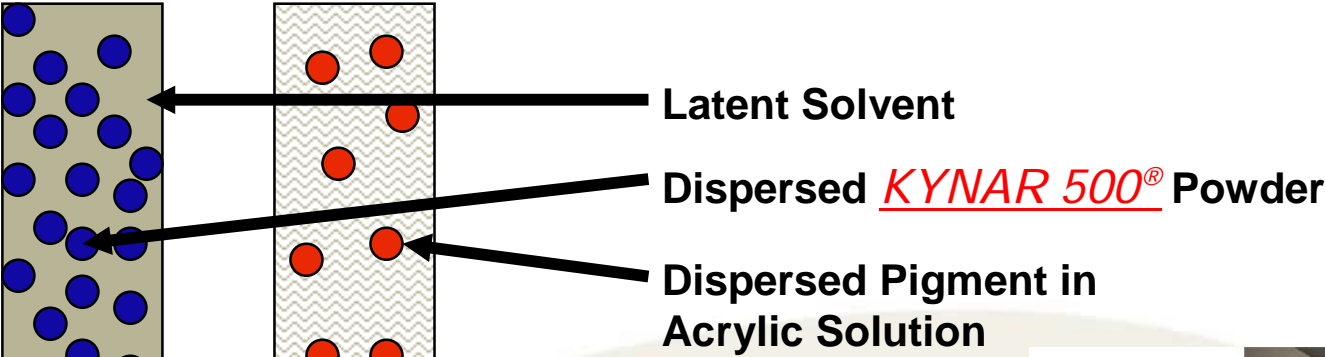
# Enhanced Reflectance of PVDF Coatings



Measured with a UV-VIS-NIR Spectrometer with an integrating sphere  
10 (Perkin-Elmer Lambda 19).



# Conventional KYNAR 500 Formulating



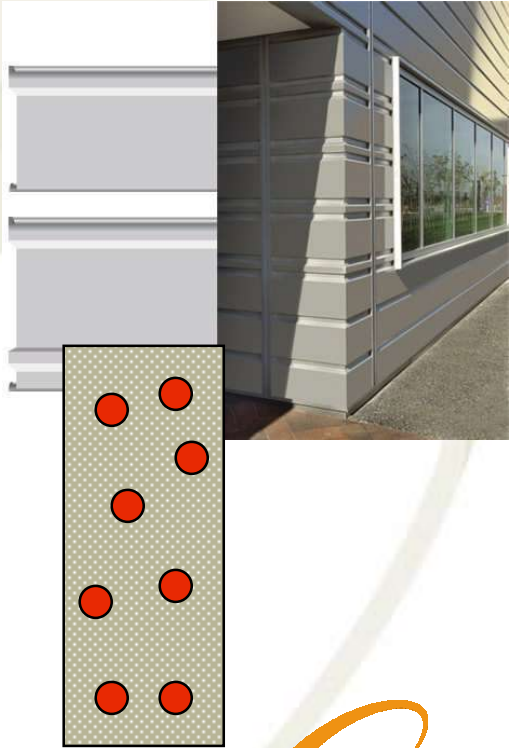
KYNAR

ACRYLIC

Blend to Make Paint

Apply Paint to Substrate

Bake the Painted Substrate

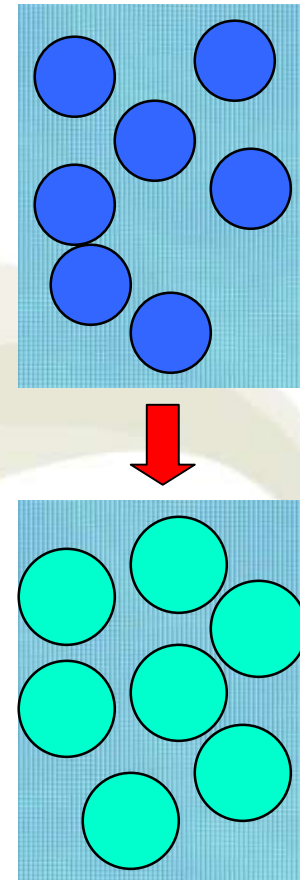


# Kynar Aquatec<sup>®</sup> Latex Technology

## – New platform for waterborne coatings

- Stage 1: KYNAR<sup>®</sup> PVDF Polymerization
- Stage 2: Seeded Acrylic Emulsion Polymerization
  - Hybrid PVDF/acrylic dispersion
  - Final latex at about 50 wt% solids
  - Formulates and applies like acrylic latex
  - Field or factory-applied coatings

■ KYNAR resin  
■ Blend





# Kynar Aquatec<sup>®</sup> latex paint- application options

**Flexible/Rigid  
non-metal  
Roof Coatings**

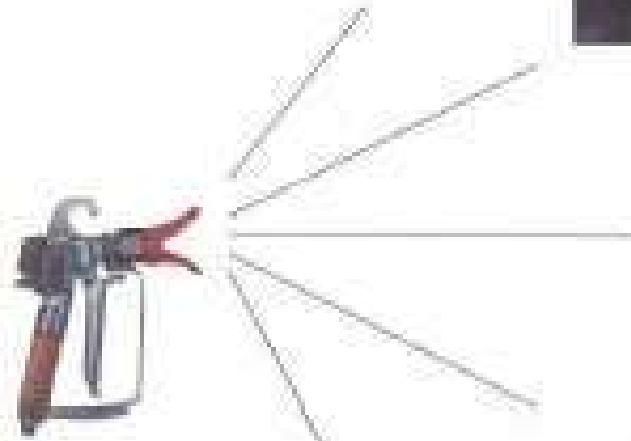


**Metal Roof  
Coatings**

**Water-based**

**Air Dry**

**Low VOC**



**Fabrics**

**Paints**

**Window  
Frames**

**Concrete  
Coatings**



**Stains and  
Varnishes**

# Kynar Aquatec® latex paints Florida performance

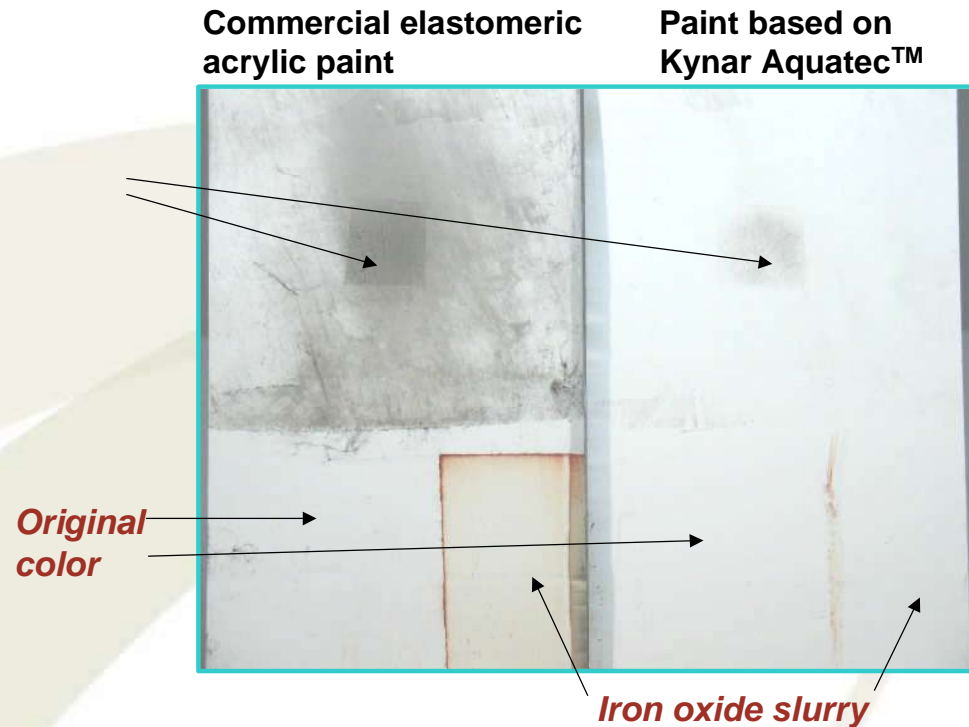
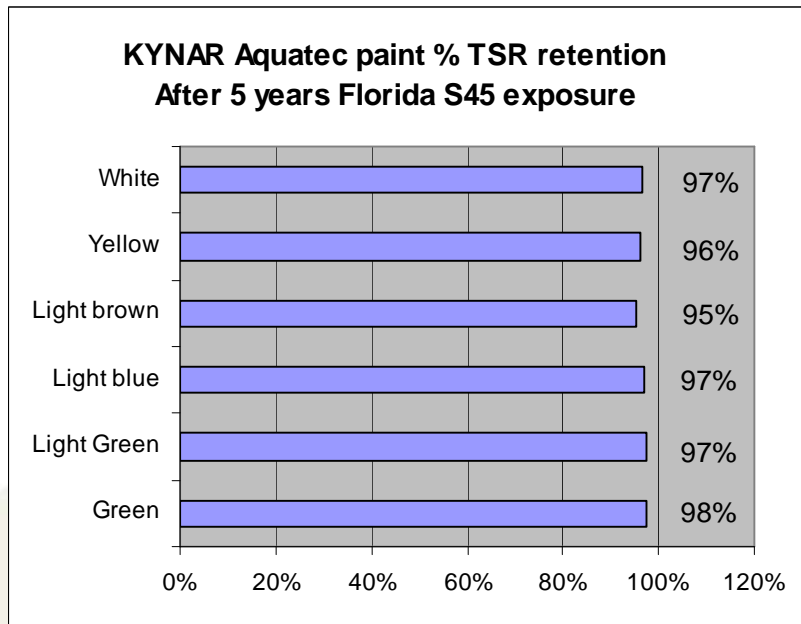
## 6.5 years Florida S45 color retention





# KYNAR Aquatec latex paints:

## Solar Reflectance retention and dirt pickup resistance



# Stain blocking of asphalt species

*Paints applied on SBS asphalt substrate; air-dried then baked at 60 C for one week*

Acrylic basecoat/  
Kynar Aquatec®  
latex-based  
topcoat  
10 + 2 mils dry-  
film thickness

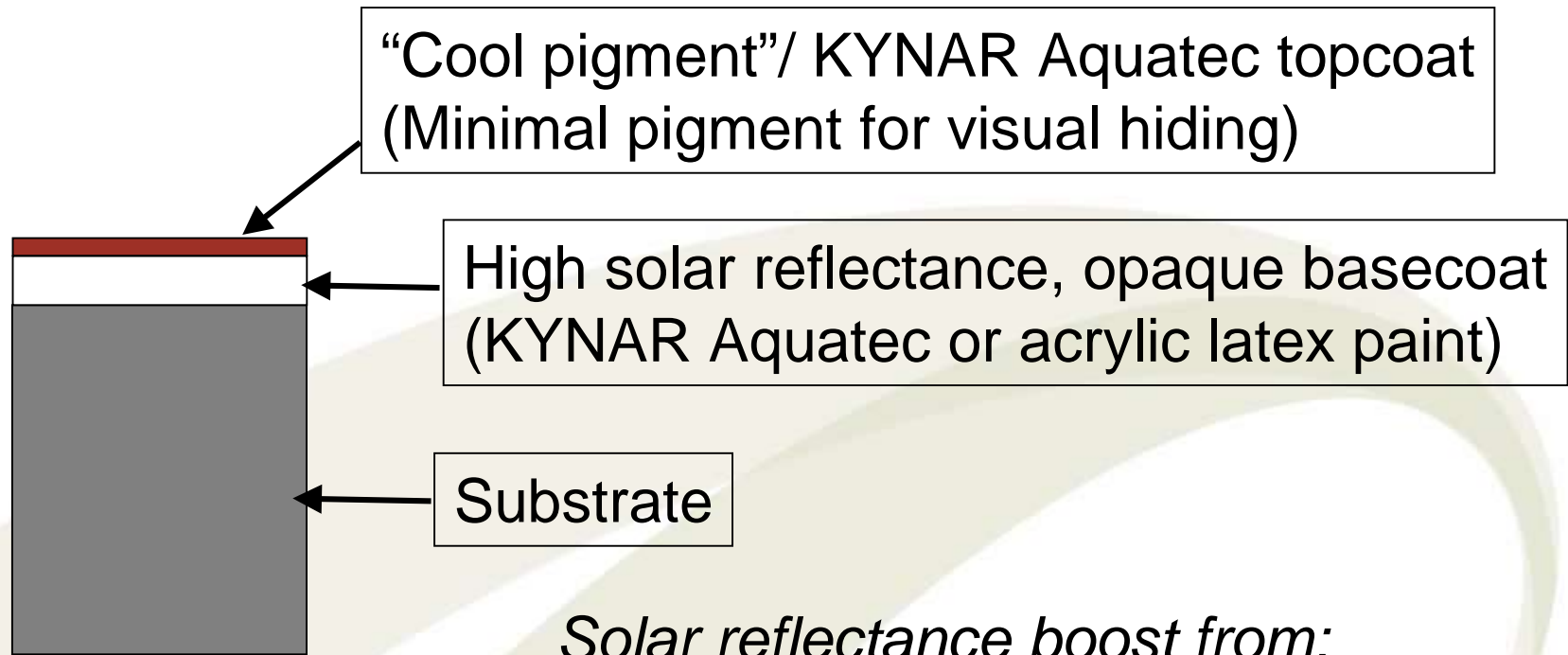
Commercial  
elastomeric acrylic  
paint- 10 mils dry-  
film thickness

Single coat, paint based on Kynar  
Aquatec® latex- 2 mils dry-film thickness

**Original paint colors**



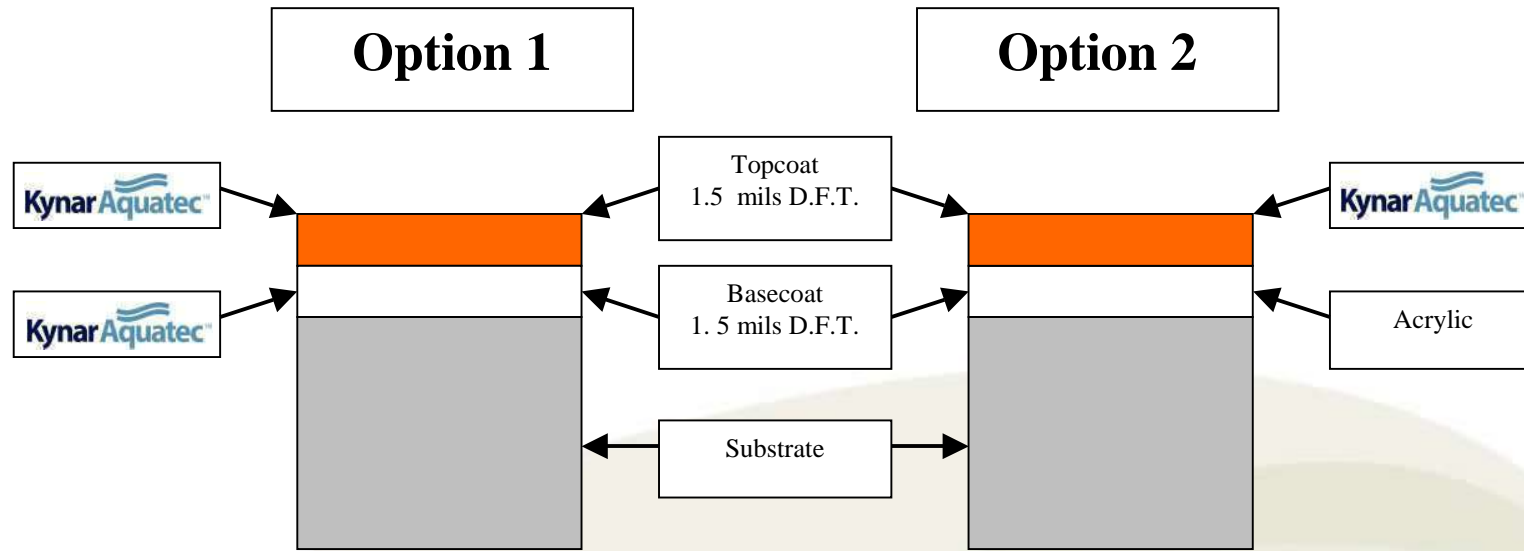
# Boosting cool roof properties by a basecoat/topcoat approach



*Solar reflectance boost from:*

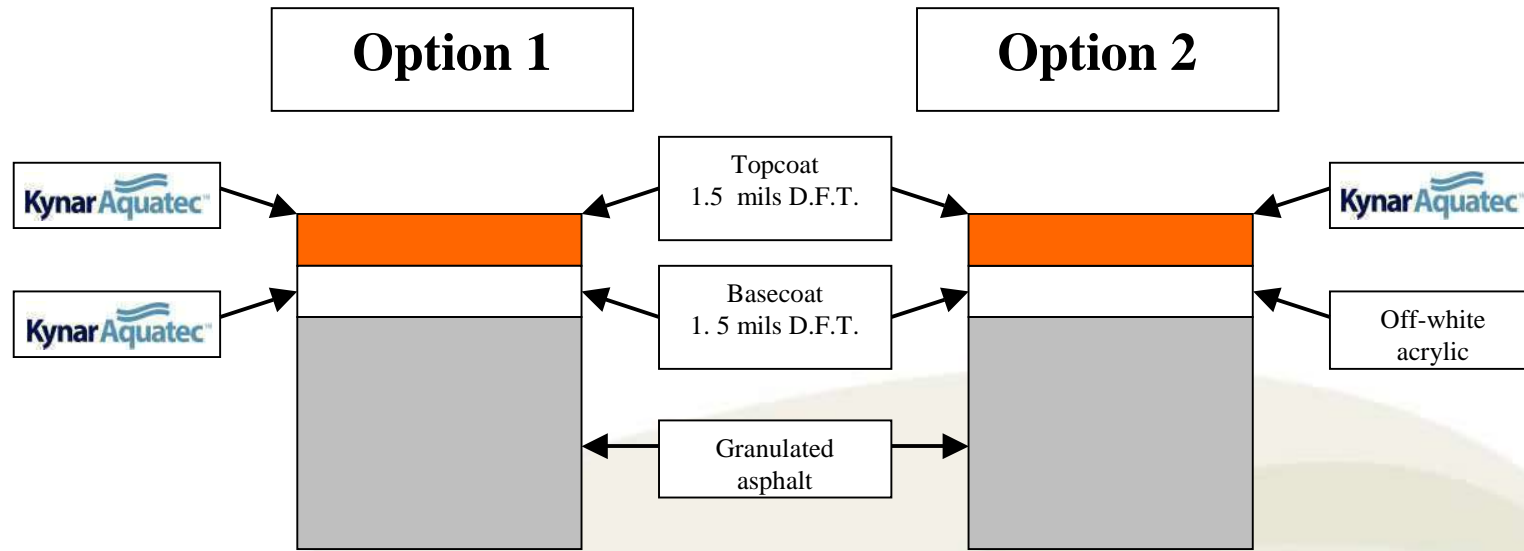
- *Cool pigment technology*
- *PVDF resin effect*
- *Basecoat contribution*

# Estimated cost of coatings, factory application



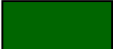



Coating Material Cost, ft <sup>2</sup>	
<b>Option 1:</b>	
Topcoat ----	\$0.30
Basecoat ---	\$0.30
Total -----	\$0.60
<b>Option 2:</b>	
Topcoat ----	\$0.30
Basecoat ---	\$0.06
Total -----	\$0.36

# Solar Reflectance properties of concept samples



*Arkema rho values using D&S reflectometer:*

Color	$\rho$ No basecoat	$\rho$ Option 1	$\rho$ Option 2	Estimated SRI potential
Chocolate brown 	0.331	0.281	0.299	35
Barn red 	0.449	0.483		55
Forest green 	0.213	0.331	0.284	35
Bluish gray 	0.267	0.288		29



# Kynar Aquatec™ Coatings

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- The performance of KYNAR 500® with...
  - Low VOC, Low Water Pickup, Dirt and Stain Repellant, Fire Retardant
  - Air Dry, No Bake – Non bakeable substrates possible
  - Field Applied or OEM
  - KYNAR® Brand Name – Instant Recognition in the Architectural Community (Siding, Lineals, Roofing...)
  - Cutting Edge Technology