

**KYNARAQUATEC<sup>®</sup>**  
BY ARKEMA

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**INTRODUCING KYNAR AQUATEC<sup>®</sup>**  
**THE NEXT GENERATION IN KYNAR<sup>®</sup> PVDF**



**KYNAR<sup>®</sup>**

**Water-Based  
Field Applied  
High Performance  
Coatings**

**ARKEMA**  
INNOVATIVE CHEMISTRY

## KYNAR AQUATEC® : A WATER-BASED FLUOROPOLYMER PLATFORM

Kynar Aquatec® is a new innovative platform of emulsions, which are used by paint formulators to make premium weatherable water-based coatings. Coatings formulated with these emulsions can provide the durability and performance of traditional Kynar

500® based coatings. They can easily be applied to a variety of substrates, including metals, plastics, wood, concrete, textiles, and previously painted surfaces. Now, the extreme weatherability of a Kynar 500® based coating is available in a VOC-

compliant, field- or factory-applied, ambient air-dry system. Additional benefits include tremendous resistance to dirt pick-up, outstanding water repellency, and high initial and long-term Total Solar Reflectance and Emissivity.

### EXCELLENT DIRT SHEDDING

Coatings based on Kynar Aquatec® emulsions pickup very little dirt, which allows white coatings to stay white. They can achieve Total Solar Reflectance values greater than 0.80 and retain that level for many years. Figures 1 and 2 show the dirt shedding performance of these coatings compared to an acrylic coating.

Kynar Aquatec® emulsion-based coating



Acrylic coating



Nine years in central Florida

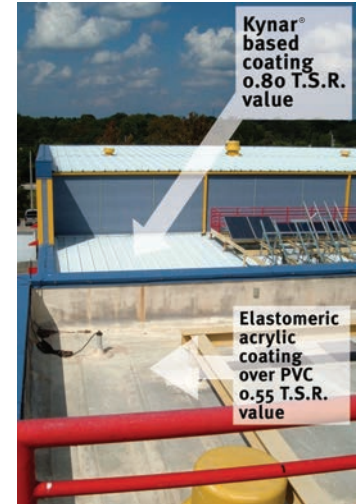
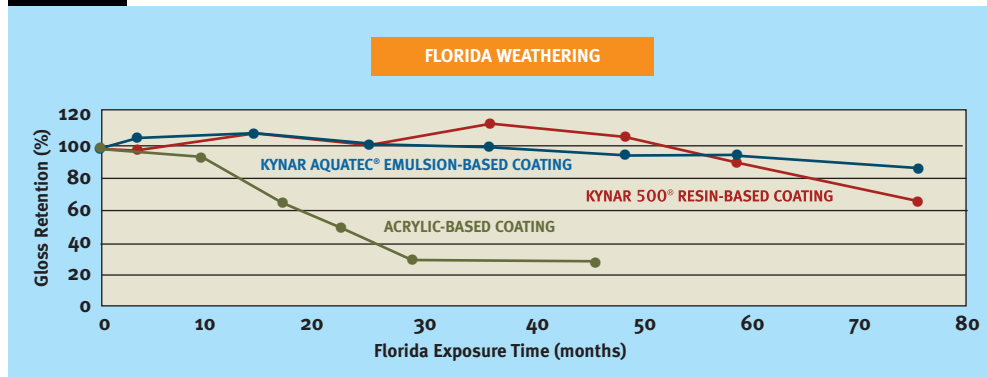


Photo courtesy of Florida Solar Energy Center

### EXTREME WEATHERABILITY

Outdoor exposure will break down almost all coatings causing them to chalk, fade, and discolor. Kynar 500® based coatings are known for excellent performance under severe conditions. Similarly, coatings based on Kynar Aquatec® emulsions will withstand extended exposure to water, humidity, temperature extremes, ultraviolet rays, oxygen, and atmospheric pollutants. These coatings retain color and gloss like no other conventional water-based coating. The graph in Figure 3 shows the weathering performance of a white coating based on Kynar Aquatec® and compares it to a Kynar 500® based coating and an acrylic coating.

Figure 3



### SUPERB MILDEW RESISTANCE

Coatings based on this new emulsion fluoropolymer technology have a very low tendency to support biological growth in harsh conditions, such as high-humidity and mildew-prone areas. This has been verified through test panel exposures in south Florida. Figure 4 shows panels of Kynar Aquatec® based coatings, which illustrate no biological growth and excellent retention of color after six years.

Figure 4



Florida exposure of Kynar Aquatec® based masstone colors

**OUTSTANDING WATER REPELLENCY**

Kynar Aquatec® based coatings are excellent at preventing water from penetrating the surface. Even after 200 hours of immersion, a coating based on this technology shows minimal water pick-up at 2% by weight versus an acrylic coating that can pick-up more than 13% as shown in Figure 5. The result of low water pick-up is excellent adhesion of the coating to the surface and reduced maintenance cost related to delamination and water damage.

**EXCELLENT STAIN RESISTANCE**

Over time, conventional elastomeric acrylic roof coatings can yellow and stain. Coatings based on this new technology have excellent resistance to staining. Figures 6 and 7 show before and after differences in stain resistance of an acrylic-based elastomeric basecoat and the Kynar Aquatec® based coating on SBS asphalt substrate. After a one-week heat aging period, the Kynar Aquatec® based coating retains its white color while the elastomeric coating yellows due to the migration of the plasticizers from the asphalt substrate.

**COOL ROOFING**

More than \$40 billion is spent annually in the United States on electricity to cool buildings, which is about a sixth of the total electricity generated. And, these energy costs are rising in hot climate regions. White cool roofs have been proven to reflect the sun's energy and reduce the roof surface temperature by up to 100°F. This reduction in temperature reduces the heat transferred into the building and lowers the electrical demand for cooling.

Kynar Aquatec® based coatings have been reported by CRRC (Cool Roof Rating Council) to have initial Total Solar Reflectance and Emissivity values greater than 0.85 each. Furthermore, additional south Florida exposure studies suggest that these coatings are expected to retain values over 0.80 for more than seven years. Conventional elastomeric acrylic based roof coatings drop to 0.55 Total Solar Reflectance in less than two years. These new fluoropolymer coatings will revolutionize the roof coating market by providing long-term energy savings that no conventional coating can achieve.

**METAL RESTORATION**

Coatings based on Kynar Aquatec® can now be applied in the field to protect metal surfaces with a weatherable fluoropolymer based finish. This enables metal surfaces to be touched-up, repaired, or restored. A non-cool metal roof can easily be converted to a white cool roof, the color of the roof can be changed to match building decor, and faded colors can be restored. And, these coatings have good adhesion to previously coated surfaces including Kynar 500® based coatings and acrylic coatings.

Figure 5

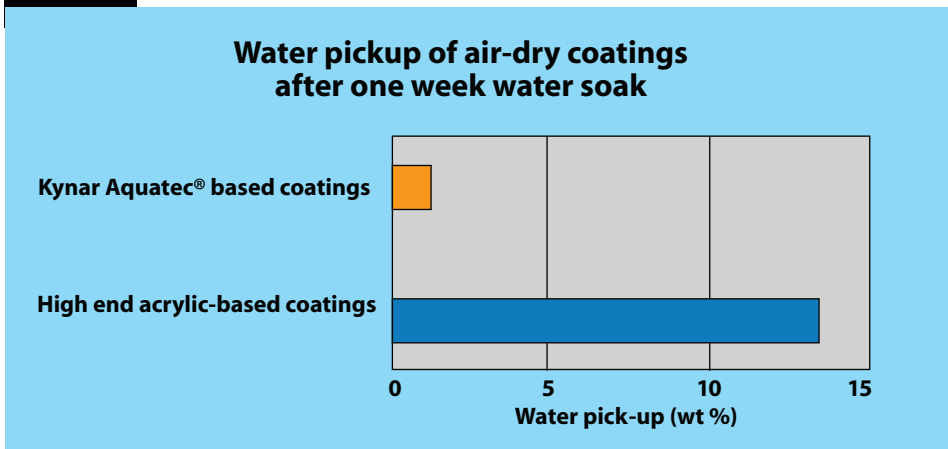
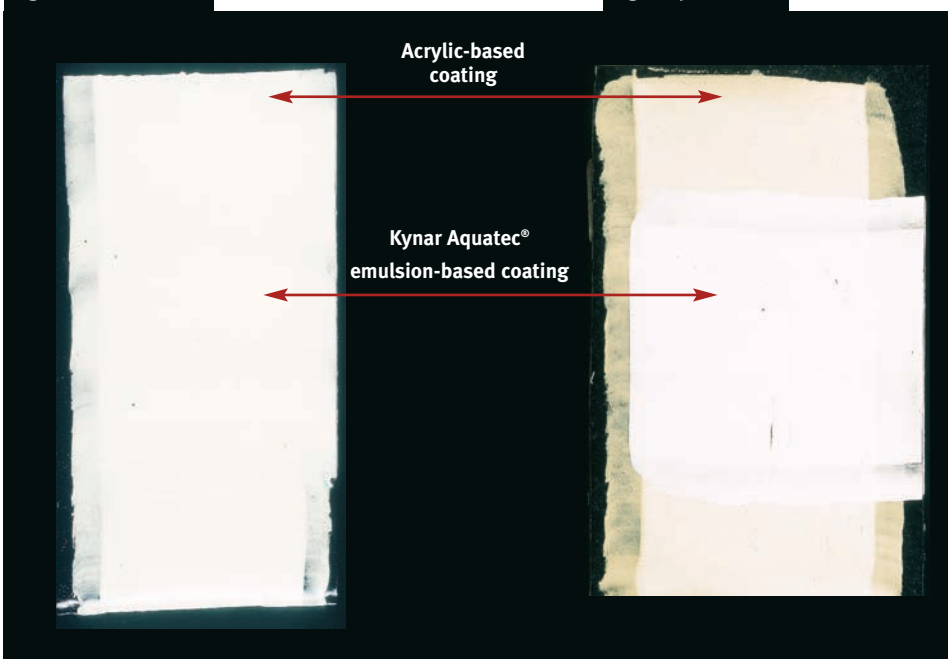


Figure 6: Before

Figure 7: After



Kynar Aquatec® emulsion-based paint being applied to convert to a white cool roof



Photo courtesy of ER Systems, Rockford, MN

Metal Roof Restoration



Photo courtesy of ER Systems, Rockford, MN





### CASE STUDY: BROADWAY TRUCK REPAIR CENTER

The Broadway Truck Repair Center is a 60,000 square foot corrugated steel facility located in Spokane Valley, WA. This project included roofing repair and recoating of the open-door depot.

United Coatings of Spokane Valley, WA supplied the Roof Mate™ coating for waterproofing and KYMAX™ coating (Kynar Aquatec® emulsion-based coating) for Total Solar Reflectance for this job. Seams, fasteners, and equipment were detailed out with Roof Mate™ and Roof Mate™ Butter Grade to waterproof the coating system included.

One coat of metal primer at 8 wet mils and one coat of white KYMAX™ (with an initial Total Solar Reflectance value of 0.87 as reported by CRRC) at 8 wet mils were used. As one worker stated, “The section of the building with the repaired cool roof was significantly cooler than the unrepaired section.”



Photographs courtesy of United Coatings, Spokane Valley, WA

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