



# Technical Data Sheet

**KYMAX<sup>®</sup>**

**Product # KYM-05**

Updated December 17, 2010

## DESCRIPTION

**KYMAX** is an innovative technology based on Kynar<sup>®</sup> Aquatec PVDF fluoropolymer resin, designed to deliver the proven durability and performance of traditional Kynar<sup>®</sup> PVDF coatings. However, rather than requiring high temperature baking, it is an air-dry finish that cures at ambient temperatures. **KYMAX** is a low-build elastomeric finish coating that provides the ultimate in reflectivity, color stability, algae resistance and weatherability over new or existing roof surfaces. Although it is highly flexible, it exhibits a tough, enamel-like finish that resists abrasion, biological growth, dirt, acid rain and all types of weather extremes.

## RECOMMENDED USES

**KYMAX** was designed for application as a thin-build finish coat over the Hydro-Stop PremiumCoat<sup>®</sup> System.

**KYMAX** can also be applied directly over approved substrates such as metal or specific single-ply membranes to rejuvenate color and/or increase reflectivity, dirt pick-up resistance, and algae/mildew resistance. Typical substrates include metal roofs, SPF, modified bitumen, PVC, TPO, Hypalon and EPDM.

**KYMAX** is recommended whenever exceptional weatherability and/or reflectivity are required, whether the threat is algae, mildew, dirt or industrial fallout. It also provides exceptional UV and color stability, even in bright colors.

**KYMAX** is an excellent barrier to plasticizer migration, and is also effective in preventing asphalt bleedthrough. The natural fire retardancy of the film provides long-term protection, eliminating the need for additional additives that migrate from the film.

## ADVANTAGES & BENEFITS

- **High Reflectivity/Emissivity** – **KYMAX** has been tested and certified by the Cool Roof Rating Council to have a Solar Reflectance of 0.87 and a Thermal

Emissance of 0.89. An independent test report performed by Atlas Material Testing Solutions calculated the Total Emissance at .94. The Solar Reflectance Index is 110 per ASTM E1980, which is among the highest of any roof coating system.

- **Reduced Energy Costs** –

**KYMAX** has the unique ability to repel dirt, biological growth, pollution fallout and other contaminants, as well as resist degradation from UV and weather exposure. This enables the white topcoat to effectively reflect the sun's heat over long-term exposure, unlike dark-colored roofing materials that retain heat and are subject to ultraviolet degradation. Roof temperatures can be reduced in excess of 70°F (40°C), which significantly reduces air conditioning loads and lowers electricity costs. Independent studies show a reduction of over 20% in air conditioning use.

- **Microbiological Resistance** –

**KYMAX** was independently tested for fungal resistance as per ASTM G21-96. After exposure to *Aspergillus niger*, *Aureobasidium pullulans*, *Chaetomium globosum*, *Penicillium funiculosum* and *Trichoderma virens* for 4 weeks at 28°C, the **KYMAX** test panels showed no growth.

- **Color and Gloss Stability** –

**KYMAX** is manufactured using Kynar<sup>®</sup> Aquatec resin, which is based on proven Kynar 500<sup>®</sup> technology. This PVDF homopolymer is universally known as the world's most weatherable coating resin, and is virtually immune to UV degradation.

The mixed metal oxide pigments used for tinting **KYMAX** provide ultimate color stability and gloss retention, and are able to provide relatively high reflectivity values even in darker colors.

- **Code Approvals** –

**KYMAX** is UL classified as a Class "A" Fluid Applied Coating System, as outlined in the UL Roofing Materials & Systems Directory and UL website. It is also certified to meet ENERGY STAR, LEED and California Title 24 reflectance and emissivity criteria.

## PRODUCT CHARACTERISTICS

### Colors

**KYMAX** is available in standard White, which is certified to meet ENERGY STAR<sup>®</sup>, Cool Roof Rating Council (CRRC) and LEED reflectance and emissivity criteria, as well as California Title 24 requirements. All other colors are custom matched by Hydro-Stop for the specific application. Color chips or samples must be furnished to Hydro-Stop for all customer colors (other than white).

### **1. Solids by Weight:**

52% (±2%) [ASTM D1644]

### **2. Solids by Volume:**

36% (±2%) [ASTM D2697]

### **3. Weight per Gallon:**

11.0 lbs/gal (1.32 kg/l) [ASTM D1475]

### **4. Dry Time for Water Resistance:**

6 hours @ 75°F (24°C)  
at 5 wet mils (127 microns)

### **5. VOC:**

185 g/l (coating) [per EPA 23]

### **6. Tensile Strength:**

1,000 psi (±100) (6.9 MPa)  
[ASTM D2370]

After 1,000 Hours Accelerated Weathering: 1,050 psi (7.2 Mpa)

### **7. Elongation:**

120% (±20) [ASTM D2370]

After 1,000 Hours Accelerated Weathering: 150%

### **8. Tear Resistance:**

>200 PLI (14.4 kN/m) [ASTM D1004]

### **9. Abrasion Resistance:**

30 l/mil Falling Sand Test  
[ASTM D968]

### **10. Water Absorption:**

5.2% = Pass [ASTM D570]

### **11. Permeance:**

>3 @ 3 mils Dry Film Thickness  
[ASTM D1653]

### **12. Accelerated Weathering:**

4,000 Hours = Pass  
[ASTM D4798/G155  
or G154 UVB 313]

**13. Florida Weathering G7 – 1 Year:**  
**Gloss Retention:** >80% [ASTM D523]  
**Fade:** ΔE<3.0 CIE units [ASTM D2244]  
**Chalking:** 9 minimum [ASTMD4214]  
**Adhesion:** 100% [ASTM D3359]

**14. Flexibility:**  
Passes 1/4" (6 mm) mandrel bend @ -15°F (-26°C) [ASTM D6083 / ASTM D522]

**15. Hail Resistance:**  
Passes FMRC moderate hail

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## APPROVALS

UL 790 Class A tested & listed

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## APPLICATION:

### PACKAGING/MIXING:

**KYMAX** is a single-component, ready-to-use material available in 1-gallon (3.8 liter) cans, 5-gallon (19 liter) pails and 55-gallon (208 liter) drums.

**KYMAX** may appear well mixed, however, all containers should be thoroughly mixed using a power mixer for a minimum of five (5) minutes prior to application. Use a 3/4 horsepower or larger mixer with a blade capable of uniformly mixing the entire container. For 5 gallon (19 liter) pails, use 3" (7.5 cm) minimum diameter mixing blades. For 55-gallon (208 liter) drums, use 6" (15 cm) minimum diameter mixing blades.

### THINNING OR REDUCING:

**KYMAX**, properly mixed, is easily pumped and sprayed at material temperatures of 60°F (16°C) or higher. **Thinning or reducing the mixture is not recommended.** The addition of water reduces the consistency and vertical hold of **KYMAX** and decreases its ability to achieve a uniform film build.

### SPRAY EQUIPMENT:

**KYMAX** can be applied over a wide variety of substrates utilizing many different brands, types and sizes of conventional and airless equipment. Airless spray equipment is best suited for field applications, although rollers can be used as necessary if overspray is a concern. The following minimums are recommended for commercial applications:

**PUMP:** 3/4 gallon (2.8 l) per minute output and 1,500 psi (10,345 kPa) pressure capability. **GUN:** Any airless spray gun compatible with pump used. **SCREEN SIZE:** Filter screens should be 60 mesh or larger. **TIP SIZE:** A reversible, self-cleaning tip with orifice size of .015" to .021" (.38 to .53 mm) and a fan angle of 40° to 50°.

Larger equipment will increase production capabilities. Larger diameter spray hoses

will extend distances and heights to which **KYMAX** can be pumped.

### SURFACE PREPARATION:

Whether **KYMAX** is direct applied or used as a topcoat over the **PremiumCoat® System**, all surfaces must be clean, dry, structurally sound, stable and well secured. All roof surfaces shall allow positive drainage and be free of excessive ponding water. Moisture content of the existing substrate, insulation or deck shall not exceed 15%. Any cracks, splits, tears, seams, holes, protrusions, blisters, drains, scuppers, vertical/horizontal interfaces, etc. must be reinforced using the **PremiumCoat® System**.

**KYMAX** shall not be applied when one or more of the following conditions exist:

1. If ambient and/or surface temperatures are below 45°F (7°C).
2. If relative humidity is in excess of 95%.
3. Threat of rain or freezing temperatures within 4 hours of application.
4. The dew point is less than 5°F (3°C) above the surface temperature.

In addition, caution must be exercised when applying **KYMAX** in dark colors under high heat conditions. Surfaces exposed to direct sunlight should be coated with thin, multiple passes during the morning or late afternoon hours. Application of dark colors under extreme direct sunlight can cause blistering and/or excessive cellular structure within the cured coating film.

Partially full containers of **KYMAX** may surface skin under hot conditions. Examine before mixing and remove skin (if present). To prevent skinning during application in hot weather or in partially full containers, pour a thin layer of water on surface after mixing and/or cover the container with plastic sheeting.

### COATING APPLICATION:

**KYMAX** can be applied directly to galvanized or prefinished metal surfaces, as well as select single-ply membranes to increase reflectivity, rejuvenate or change the color, and/or provide color uniformity, graphics, algae/mildew resistance and corrosion protection. The existing substrate must be clean, dry and sound, and all surface preparation must be completed prior to application of the **KYMAX** finish.

Whether used as a direct-applied finish coat or a topcoat over the **PremiumCoat System®**, the requirements for a standard warranty are as follows:

- For a 15-Year Warranty, **KYMAX** Finish coat shall be applied in two coats at the minimum rate of 300 sq. ft. per gallon (7.3 m<sup>2</sup>/l) per coat. Minimum dry film thickness shall be 3 mils (76 microns).

- For a 20-Year Warranty, **KYMAX** Finish coat shall be applied in two coats at the minimum rate of 250 sq. ft. per gallon (6.1 m<sup>2</sup>/l) per coat. Minimum dry film thickness shall be 4 mils (102 microns).

### APPLICATION TIPS:

As work proceeds, the Applicator must periodically check the number of gallons used and compare to square feet (meters) coated. If adequate material has not been used, adjust accordingly and apply additional material to previously coated areas. Allow additional material for roofs exhibiting a rough surface profile or texture.

Due to the thin film build requirements of the **KYMAX** finish, it is recommended that it be applied using airless spray equipment, although roller or brush application can be used for touch-up or confined areas, or where spray application is not possible. Care must be taken when spraying under windy conditions to avoid overspray. Use windscreens and do not spray under excessive wind conditions. **KYMAX** overspray may not wet into the surface, particularly in high temperatures, which will create a rough surface texture that will collect dirt.

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## LIMITATIONS & PRECAUTIONS

**KYMAX** should generally not be used over cold storage tanks or buildings where a vapor barrier coating is required. **KYMAX** shall not be used for interior applications in place of a thermal barrier.

**KYMAX** will freeze and become unusable at temperatures below 32°F (0°C). Do not ship or store unless protection from freezing is available.

**KYMAX** requires complete evaporation of water to cure. Cool temperatures and high humidity retard cure. Do not apply if weather conditions will not permit complete cure before rain, dew or freezing temperatures occur. Do not apply in the late afternoon if heavy moisture condensation can appear during the night. Do not apply **KYMAX** at temperatures below 45°F (7°C), or when there is a possibility of temperatures falling below 32°F (0°C) within a 4-hour period after application.

**KYMAX** is slippery when wet. Exercise caution when walking on roof under these conditions. For additional information, refer to OSHA guidelines and **KYMAX** Material Safety Data Sheet (MSDS).

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## ORDERING INFORMATION

**KYMAX** can be purchased in 5 gallon and 55 gallon containers at any official Hydro-Stop distributor. For a distributor in your area, please call us at 1-800-739-5566.