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PRODUCT DATA SHEET: PPC HFST

PPC HFST is Kwik Bond Polymers' unique hybrid polymer-based resin binder system for High Friction Surface Treatments (HFST). When applied with specified aggregate, the PPC HFST system is designed to improve the coefficient of friction and reduce crashes in horizontal curves, ramps, roundabouts, steep grades, and intersections. The material has been formulated specifically to wick into high friction aggregates and bond to various pavement substrates. PPC HFST is easily mixed and applied with basic tools or with automated installation equipment. Because this hybrid polymer-based system gains strength so quickly, it can be applied rapidly and returned to traffic within a normal production shift.

SPECIAL FEATURES

- PPC HFST is tough enough to retain aggregates under highly abrasive impact (such as snowplows), and variable climatic conditions which result in extreme thermal cycles.
- Exhibits high compressive and tensile strengths.
- When properly used with calcined bauxite aggregate, PPC HFST will maintain the high friction values required for High Friction Surface Treatments.
- Return to traffic safely within 2 hours at temperatures below 50° F (10°C). PPC HFST can be installed at temperatures as low as 40ºF with the support of a KBP Technical Representative.
- Excellent adhesion to concrete (primer required) and asphalt pavements.
- UV stable.
- PPC HFST hybrid polymer binder resin technology has a long history of performance
  (In use for over 35 years).

PHYSICAL PROPERTIES - KBP PPC HFST	
Viscosity (ASTM D2556)	1000-2000 cps
Cure rate (ASTM D1640)	<3 hour
Gel Time (ASTM C881)	10-30 minutes
Tensile Elongation at Break (ASTM D638)	>30%
Ultimate Tensile Strength (ASTM D638)	>2700 psi
Bond Strength (ASTM C1583)	>250psi or 100% substrate failure

SURFACE PREPARATION

Surface Prep:
Asphalt Concrete substrates: Prior to any installation, it is important to ensure that the pavement condition has been properly assessed for this application. Asphalt pavements shall be free of any dirt, dust, or debris that could potentially inhibit the bond of the polymer HFST system. Exposed aggregate at surface is preferred. Remove any marking paints and striping to be treated with HFST by grinding, milling, or sandblasting to insure good adhesion. The shot-blasting of asphalt pavements is also sometimes specified by an owner's agency. Follow with a high-pressure air blast of the area with clean, oil-free, 185 CFM minimum, 1.5" diameter maximum compressed air until all contaminants are removed.

Portland Cement Concrete substrates: Shotblasting is required to remove surface contaminants from Portland cement concrete prior to applying polymer surface treatments. The final surface should have a roughened profile as specified, be clean, free of oils, dirt, curing compounds, and other materials that may affect the adhesion of the polymer system, and expose some aggregate within the concrete and open pores of the cement paste. Areas not accessible to the shot blast equipment should be abrasive sand blasted to same character, open pores, and exposed aggregate. Follow abrasive blasting by a high-pressure, 185 CFM minimum air blast of the area with clean, oil-free, compressed air until all surface contaminants are removed and the clean, open pore structure of the concrete is clearly visible. Any unsound concrete shall be removed and replaced (PPC 1121 recommended).

HFST APPLICATION

KBP 204 Primer (REQUIRED on concrete substrates):

1. Using a drill mixer, premix the entire container of KBP 204 Pro Prime to ensure that monomer is well mixed before portioning out material to be mixed.
2. Mix 1-gallon KBP 204 Pro Prime "healer/sealer" primer with 3 fluid ounces of Cumene Hydro Peroxide (also known as CHP, or Trigonox K90) and stir for approximately 30 seconds. Next mix in Z-Cure accelerator if needed. (4 gallons KBP 204 Pro Prime, 12oz CHP is a convenient size batch for overlay work.)

(For customers not using the pre-promoted Pro Prime, add 3oz of 6% Cobalt to 1-gallon KBP 204, mix well and then add CHP and Z Cure as indicated above.)

Immediately empty the entire pail contents onto the substrate surface. Application rate ranges from 70-100 sf/gal depending on porosity and surface texture of the deck. Evenly distribute the primer

using a paint brush for small areas or rollers, squeegees, or brooms for larger areas. Wet-out the entire surface of the area to be repaired or overlaid. KBP 204 is very fluid and will wet the surface quickly. The excess will build-up at the lowest points in the prepared area. Excess primer is undesirable, but some build-up is unavoidable. Before proceeding with placement of PPC MLS, ensure that any dry areas which have soaked up material are saturated. Allow approximately 20-60 minutes of dwell time before placing PPC MLS material.

PPC HFST Hand Mixing: Mix at a ratio of 4 gallons of PPC HFST Binder Resin with 7-12 fluid ounces of MEKP (also referred to as DDM9). When installing in temperatures below 70˚F (21°C), store, or pre-condition the PPC HFST Binder Resin to 70°F (21˚C) prior to installation. For faster strength gain requirements, see chart below for Z cure recommendations. When mixing by hand use a drill motor mixer and a JIFFY® mixer blade, or similar bladed mixer for mixing to minimize the entrainment of air. Mix for 30 seconds. Dispense the material on the work area. Apply evenly using the proper serrated squeegees at a rate of 25-32 sf./gal., to achieve 50-65 wet mils in thickness on the given substrate. Without delay and prior to the gelling of the resin binder, evenly broadcast the graded aggregate until refusal at a minimum rate of 11-15 lbs. per square yard.

Fahrenheit	Zcure (%Wt)	Zcure (oz/gal)
41	2	2.8
50	1.25	1.7
60	0.75	1
68	0.4	0.6
77	0.175	0.25
86	0.15	0.2
95	0.075	0.1
104	0.05	0.03
113	0	0

PPC HFST Automated Equipment: A pump system and automated application equipment must be designed in accordance with the manufacturer's recommendations to specifically mix, spread, and proportion the KPB PPC HFST system.

When the final coat has achieved sufficient strength to hold the aggregate, sweep or vacuum up any excess remaining on the surface. Traffic can safely be returned within 45 minutes to two hours after final sweeping. It is recommended to sweep again after 24 hours to remove any additional loose aggregate.

When the PPC HFST resin binder system is properly catalyzed, initial gel time should be between 20-40 minutes. Initial gel should not take place in less than 15 minutes for proper saturation of the pavement substrate.

STANDARD PACKAGING

PPC HFST Components

- PPC HFST Binder Resin: 4-gallon pails, 55-gallon drums, 250-gallon totes, 40,000 lb tankers
- MEKP (DDM9): 1-gallon bottles
- Z Cure: 1-gal pails, 5 gal pails

KBP 204 Pro Prime Primer

- KBP 204 Pro Prime primer: 4-gallon pails, 50-gallon drums, 250-gallon totes
- CHP: 1-gallon bottles
- Z Cure: pre-packaged bottles, 1-gal cans, 5-gal pails

Calcined Bauxite

- KBP Calcined Bauxite: 2,205 lb supersacks

SAFETY & STORAGE

Follow all OSHA, and other guidelines as well as all applicable fire codes. Refer to SDS for storage, handling, and use. Gloves, eye protection, and other protective clothing should be worn while working with PPC HFST resin. Respirator with Organic Vapor cartridges may be desired while working with PPC HFST Binder Resin. Dust protection must be worn while working with neat aggregates. If liquid components come in direct contact with skin, wash off with soap and water. If any component gets in eyes, flush immediately with eye wash.

Store all components in a cool, dry location out of direct sunlight and in their original containers. Always protect components from moisture. Minimum shelf life is 12 months when properly stored.

The technical data furnished is true and accurate to the best of our knowledge. However, no guarantee of accuracy is given or implied. We suggest that customers evaluate these recommendations and suggestions in conjunction with their specific application. Kwik Bond Polymers, LLC warrants its products to be free from manufacturing defects conforming to its most recent material specifications. In the event of defective materials, Kwik Bond Polymers, LLC.'s liability will be limited to the replacement of material or the material value only at the sole discretion of Kwik Bond Polymers, LLC. Kwik Bond Polymers, LLC assumes no responsibility for coverage, suitability of application, performance or injuries resulting from use. 4/22/2021