KWIK BOND POLYMERS

BRIDGE DECK & ROADWAY REHABILITATION SYSTEMS

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PRODUCT DATA SHEET: PPC™-HFST

PRODUCT DESCRIPTION

PPC™- HFST is Kwik Bond Polymers' unique hybrid polymer-based resin binder system for High Friction Surface Treatments. This technology is designed specifically to wick into high friction aggregates and bond to various pavement substrates. PPC™-HFST is easily mixed and applied with serrated squeegees, or with current 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. PPC™-HFST has the following performance advantages:

- PPC™-HFST is tough enough to meet the most stringent demands in the retention of durable aggregates through extreme thermal cycles and exposure to snow plows.
- PPC™-HFST has high strength characteristics in both compression and tensile properties.
- PPC™-HFST when properly used with Calcined Bauxite aggregate will maintain the high friction values required for High Friction Surface Treatment (HFST).
- PPC™-HFST hybrid polymer binder resin technology has a long history of performance (In use since 1983)
- PPC™-HFST when mixed and applied properly, can be returned to traffic safely within 2 hours at temperatures below 50˚ F (10˚C).
- PPC™-HFST has superior adhesion to Portland cement concrete and Asphalt pavements and has demonstrated superior UV stability relative to other polymer based systems.

PPC™-HFST is designed to provide exceptional adhesion to concrete and asphalt pavements while retaining aggregates under extreme, highly abrasive impact, and variable climatic conditions. The designed intent of the PPC™-HFST system is to improve coefficient of friction and reduce crashes in horizontal curves, ramps, roundabouts, steep grades and intersections. PPC™- HFST is also designed to work as a resin binder for colored glass and other aggregates used for bus and bike lane demarcation, or other safety demarcations.

PHYSICAL PROPERTIES - KBP PPC HFST	
Weight per gallon	9.5 lbs
Viscosity	1000-2000 cps
Tensile Strength (ASTM D-638)	2650-3900 psi
Tensile Elongation at Break (ASTM D-638)	>30% min
Meets California Air Resource Board Regulations	

TYPICAL APPLICATIONS

As a polymer resin binder for use as a part of a High Friction Surface Treatment (HFST) designed to reduce roadway departure crashes in areas where friction demand is higher than the roadway surface can provide. PPC™ -HFST is also used for colored lane demarcation.

- High Friction Surface Treatment for Horizontal Curves and Intersections, Ramps, Roundabouts and Steep Grades
- Colored Bus Lanes, Bike Lanes, Toll Lanes and other forms of Lane Demarcation
- Safety Crossings and other Pedestrian Demarcation

Aggregates must be cleaned, kiln- dried with a maximum moisture content of 1.2%. Calcined Bauxite, or other approved aggregates.

SURFACE PREPARATION

Surface Prep:
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. Remove any marking paints and striping by grinding, milling or sand-blasting that will be covered by the HFST system to insure good adhesion. Follow with a high pressure air blast of the area with clean, oil-free, compressed air until all contaminants are removed.
Portland Cement Concrete substrates: Shot-blasting is required to remove surface contaminants from Portland cement concrete prior to applying polymer surface treatments. The final surface should be clean, free of oils, dirt, curing compounds, and other materials that may affect the adhesion of the polymer system. Follow by a high pressure 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.

Patching Steps (if required for PCC): Saw cut (dry blade) a minimum ¾" depth shoulder around the edge of the prepared area

1. Chip out the delaminated, unsound PCC areas
2. Blow off dust from saw cutting operations and chipping operations
3. Patch unsound areas with PPC™ "EASY" Patch
4. Fill the prepared area to rough grade; strike-off to final grade

HFST APPLICATION

PPC™-HFST Hand Mixing: Mix at a ratio of 4 gallons of PPC™-HFST Binder Resin with 7-12 fluid ounces of MEKP-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., or 50-65 wet mils in thickness. 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.

PPC™-HFST Automated Equipment: A pump system and automated application equipment must be designed in accordance to the manufacturer's recommendations. This automated equipment shall be designed specifically to 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 an hour and half after final sweeping. It is recommended to sweep again after 24 hours to remove any additional loose aggregate.

A minimum gel time of 25 minutes is required for maximum aggregate adhesion and bond strength.

Mix Guidance for KBP PPC HFST to Achieve 30 minute Thin Film Gel Time				
Substrate Temperature		Zcure Addition Level		
Fahrenheit	Celsius	Zcure (%Wt)	Zcure (oz/gal)	Zcure (ml/gal)
41	5	2	2.8	83
50	10	1.25	1.7	50
60	15	0.75	1	30
68	20	0.4	0.6	18
77	25	0.175	0.25	7
86	30	0.15	0.2	6
95	35	0.075	0.1	3
104	40	0.05	0.03	1
113	45	0	0	0

STANDARD PACKAGING

PPC™-HFST Components
- PPC™ HFST Binder resin-available in 4 gallon, 55 gallon drums, 250 gallon totes, tankers
- MEKP-DDM9- available in 1 gallon containers
- Z Cure- available in pre-packaged bottles, 1 gal cans, 5 gal pails

PPC™ "EASY" Patch
- .43 cf Pre-Packaged Patch Kit
- Larger kits available upon request

STORAGE

Aggregates, PPC™-HFST Resin, and catalyst components should be stored in a cool, dry location and in their original containers. The shelf life for these materials, properly stored at temperatures 80˚F(27˚C) and below, greater than 12 months. At elevated temperature, storage shelf life is reduced. Store all bagged aggregates in a clean, dry location away from moisture.

SAFETY

PPC™-HFST and PPC™ Patch systems consist of polymer materials that have been used safely for over 20 years. However, there are certain safety issues that need to be readily understood. PPC™-HFST Resin and "EASY" patch Binder Resin are FLAMMABLE! Safety equipment and protective gear should be available for those unexpected emergency situations. Emergency equipment includes clean water for accidental contact in the eyes, fire extinguishers, and emergency center addresses, phone numbers, protective clothing, eye protection, and chemical resistant gloves. Organic vapor respirators are not normally required. For individuals highly sensitive to chemical vapors, organic vapor respirators are suggested.

Follow the mixing instructions outlined in this product data sheet and safety will be maintained.