

## PRODUCT DATA SHEET: PPC™ — 1121

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### PRODUCT DESCRIPTION

PPC™ - 1121 is Kwik Bond's polyester-based overlay and patching system specifically designed to seal bridge deck surfaces, develop high mechanical strengths, have the ability to pave variable depth cross sections, and return traffic quickly. PPC™-1121 achieves over 4000 psi in compressive strength within 24 hours as well as over 800 psi in tensile strength. Because of its strength gain curve, traffic can be safely returned within 2 hours at temperatures of down to 40 F. In direct adhesion testing to Portland cement concrete used for bridge deck applications, the failure mode is cohesion within the Portland cement concrete.

PPC™ -1121 has the following performance advantages:

- PPC™ - 1121 conforms to all latest draft specifications for polyester polymer concrete
- PPC™ - 1121 has high strength properties in both compression and tensile
- PPC™ - Binder Resin has a long history of performance (In use since 1983)
- PPC™ - 1121, when mixed and applied properly, can return traffic safely within 1.5-3 hours at temperatures down to 40 F.

For today's congested bridges and highways, PPC™ - 1121 is the right material for overlaying, patching, repairing, and rehabilitating Portland cement concrete, latex modified concrete, or silica fume modified concrete.

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### SPECIAL FEATURES

- Low viscosity for easy mixing
- KBP 204 "healer/sealer" primer re-bonds cracks in Portland cement concrete base and promotes adhesion to the polyester polymer concrete
- Superior adhesion to Portland cement concrete, latex modified concrete, silica fume concrete even under damp conditions
- Rapid cure and strength development, traffic can be returned within 2 hours of finishing
- Excellent finishing and sealing characteristics
- Superior abrasion resistance to chains and studded snow tires

PHYSICAL PROPERTIES - PPC Binder Resin	
Specific Gravity	1.05-1.10
Weight per gallon (resin binder only)	9.0-9.4
Viscosity (ASTM D2196)	75-200 cps
Flash Point (Seta flash)	90 F
Tensile Strength (ASTM D-638, ¼")	>2500 psi
Tensile Elongation (ASTM D-638, ¼")	35%, min.
Silane Coupler	1.0% min by weight of polyester resin
Styrene content	40-50%
Meets CARB (California Air Resources Board)	Rule 1162
PHYSICAL PROPERTIES - PPC Composite	
Cured Density (ASTM C-138)	134-136 lbs/cf
Adhesion (Cal-Trans Test Method 551)	>500 psi

TYPICAL AGGREGATE GRADATION*	
Screen Size	% Passing
3/8"	100
No. 4	70
No. 8	50
No. 16	44
No. 30	30
No. 50	5-20
No. 100	1
No. 200	T

\*Combined average moisture absorption of the aggregates is less approximately 1%. Crushed aggregate particle is less than 45%.

## APPLICATION

**Surface Preparation:** Shot-blasting is the preferred method of preparation for bridge deck overlays. The goal of surface preparation is to remove all deleterious dirt, asphalt and curing compounds from the deck surface as well as expose aggregate. Sandblasting, scarifying, chipping, or other cleaning processes are required to provide proper surface preparation for a long-lasting polymer overlay and/or patching system. Unsound concrete areas should be located by using a chain-drag or hammer. The unsound areas must be removed until a sound concrete base is established.

**Patching:** Patch all unsound bridge deck concrete with PPC 1121. Patches can be filled to 3" depth and more. Deep areas up to 5' x 5' can be deep without normally impacting stiffness of the PCC bridge deck. Design engineers should consider the semi-rigid nature of Polyester Polymer Concrete in those calculations. If design factors require a rigid patch system, utilize high alumina concrete patch systems. Properly placed high alumina concrete patch systems may be overlaid with PPC 24 hours after placement.

### KBP 204 Primer:

Mix 1 gallon KBP 204 "healer/sealer" primer with 3 fluid ounces of 6% Cobalt Drier (Dark Blue Material). Stir for 10 seconds. Add 3 fluid ounces of Cumyl Hydro Peroxide and stir for another 30 seconds. Immediately empty the entire pail contents onto the PCC surface. Application rate ranges from 70-100 sf/gal depending on porosity and surface texture of the deck. Re-distribute the primer using a paint brush for small area or rollers, squeegees, brooms for larger areas, wet-out the entire surface of the area to be repaired. KBP 103/204

is very fluid and will wet the surface quickly. The excess will rapidly build-up at the lowest points in the prepared area. Excess primer is undesirable. Apply primer carefully to have as little excess build-up as possible. Some build-up is unavoidable. Note: This mix design represents a starting point for anticipated temperatures of 70 F during daytime conditions. Modifications may be required for working under different temperature conditions or during night time application. For very warm temperatures, night time application should be considered. Reducing CHP levels to 1 fl oz per gallon during elevated temperatures should be evaluated. During cold night time application, both catalyst and accelerator concentrations will need to be increased.

**PPC™-1121 Mix:**

To a clean 9 cubic foot mortar mixer, add 4 gallons of PPC Binder Resin. Add 7-12 fl oz of DDM 9(MEKP). Note: for faster strength gain at low temperatures add .1-.4% Z Cure accelerator to resin. While mortar mixer is turning with PPC Binder Resin™ and catalyst, add 2-50 lb bags of B39 (S39 alternative) rock and 4-50 lb bags of B-11 sand. Rock can be added first to reduce mixer splashing. Mix for 2 minutes depending on temperature. Dump catalyzed patching compound into a wheelbarrow or similar transfer device. Immediately recharge mixer with proper volume of PPC Binder Resin™. Continue mixing procedure ONLY if crew is ready for another mix. The agitating mortar mixer with Binder Resin™ only, without catalyst, will keep your mixer clean and reduce build-up. Mix design modifications are required for changes in temperature or nighttime application. Higher or lower catalyst additions may be required for meeting traffic control requirements. Temperature and application timing have a definite effect upon set time of the polyester polymer concrete and the ultimate return to service.

Volumetric mixers may also be utilized for high output applications. The utilization of volumetric equipment is almost essential for projects requiring rapid return to surface on major Interstate projects.

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**FINISHING**

Mixed PPC™ 1121 material is placed utilizing a vibratory strike off screed, a slip form paving machine, or standard hand finishing tools for smaller patches. For small areas an aluminum straight edge or a vibrastrike screed may be acceptable to develop appropriate surface finish and compaction. After strike-off to final surface grade, apply topping sand in slight excess plus mechanically texture the surface utilizing spring steel tines 1/8" deep spaced 3/4"-1" apart. Typical work time is 30 minutes. UV light accelerates the set time. PPC™- 1121 is best used at temperatures between 40-90F. Adjustments to catalyst and concentrations are necessary when working outside the optimum temperature range. Trial batches are required to determine work times and set time based on anticipated application temperatures, conditions, and lane closure timing.

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**STANDARD PACKAGING**

- PPC Binder Resin™ 4 gal pail, 55 gal drum, 4400 gal tank truck
- B-11 Sand-50 lb bags, 2 ton Super Sacks
- B-39 Rock - 50 lb bags, 2 ton Super Sacks
- S-39 Rock - 50 lb bags, 2 ton Super Sacks

- Top Sand 10 x 30- 50 lb bags
- DDM-9- 1 gallon bottles
- KBP 103/204 primer- available in 4 gallon pails 50 gallon drums, 250 gallon Tote Tanks
- 6% Cobalt Drier- available in pre-packaged bottles, 1-gallon cans, 4 gallon pails
- Cumyl Hydro Peroxide- available in 1-gallon bottles, or 4-gallon cases
- Z Cure- pre-packaged bottles, 1 gal cans, 5 gal bottle

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## SAFETY

PPC™ 1121 system consists 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™ Binder Resin is FLAM- MABLE! NO SMOKING is allowed! Fire extinguishers must be available as well as plans for emergency situations. Emergency situations are unlikely, but preparation is always SMART!

The KBP 103/204 primer is a three-component system. The 6% Cobalt Drier and the Cumyl Hydro Peroxide are INCOMPATIBLE materials. They must NEVER be mixed together by themselves! A FLASH FIRE WILL OCCUR! To safely mix the KBP 103/204 primer, follow the mixing instructions EXACTLY! Follow the mixing instructions outlined in this product data sheet and safety will be maintained.

For emergency situations, always have available clean water for accidental contact in the eyes, fire extinguishers, and emergency center addresses, phone numbers.

Wear 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.

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## STORAGE

Aggregates, PPC™ Binder Resin, and KBP 103/204 should be stored in a cool, dry location and in their original containers. The shelf life for these materials stored at temperatures 80 F and below is 12 months. PPC™ Binder Resin and KBP 103/204 contain reactive polymers. At elevated temperature, storage shelf life is reduced. Store all bagged aggregates in a clean, dry location away from moisture. Aggregates must absolutely be protected from any moisture.

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. 3-16-2014