KingBond® EP100PC

Solvent free, two part epoxy adhesive for segmental concrete bridges.

DESCRIPTION

KingBond EP100PC is high viscosity, solvent free epoxy adhesive.

Quickmasst SBA is a two components product. Components are black and white in colour, when mixed turn into a uniform grey colour paste that bonds segmental concrete.

APPLICATIONS

KingBond EP100PC is used for bonding segmental concrete bridges. Its high bonding characteristics will improve construction speed and provide structurally sound and water tight joints.

ADVANTAGES

- Extremely high bond strength.
- Relativelly fast curing.
- Exhibit excellent squeezability.
- Damp tolerant.
- Available in four grades for different range of temperature application.

STANDARDS

KingBond EP100PC complies with the International Federation for Prestressing (FIP) - Standard for acceptance tests and verification of epoxy bonding agents for segmental construction.

METHOD OF USE

SURFACE PREPARATION

The surface must be structurally sound, free from oil, grease and other forms of contamination. Roughen the substrate by grit blasting to accept KingBond EP100PC for improved mechanical key.

APPLICATION

For bonding concrete segmental sections, an even layer of product should be applied to both surfaces within the adhesive open time using suitable spatula and ensuring that unbroken layer is achieved. Then the two segments are brought together under light pressure. Any excess paste which exudes from the joint should be removed and the joint finished to a neat finish. The assembled sections should be protected from movement until the resin is set.

MIXING

KingBond EP100PC comprises two components, a resin base and a hardener, which are supplied preweighed in the correct proportions. Under no circumstances should part mixing be carried out.

When required for application, the two components should be mixed well until a uniform consistency and grey colour are obtained, this should be ideally carried out using a mechanical mixer.

WORKING CONDITIONS

The four grades and their respective application temperatures are:

- KingBond EP100PC 1; Fast set for application at ambient temperature between 5°C to 20°C.
- KingBond EP100PC 2; Medium set for application at ambient temperature between 15°C to 30°C.
- KingBond EP100PC 3; Slow set for application at ambient temperature between 25°C to 40°C.
- KingBond EP100PC 4; Very slow set for application at temperature between 35°C to 60°C.

CURING

Full mechanical and chemical properties are achieved after 7 days (please consult our Technical Department for details of curing times at other temperatures).

CLEANING

Clean uncured material with KingKrete solvent. Cured material can only be removed mechanically.

PACKAGING

KingBond EP100PC is available in 6 and 10 kg packs.

COVERAGE

Approximately 3.3 - 3.4 kg per m² at 2 mm thickness.

YIELD

6 kg pack - 3.5 litres.

10 kg pack - 5.9 litres.

KINGKRETE®
We Create Future

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TECHNICAL PROPERTIES

Colour: FIP 5.11 Base Hardener Mixed	White Black Grey similar to adjoining concrete					
Mixed density:	1.70 ± 0.1 g/cm³					
KingKrete	SBA 1	SBA 2	SBA 3	SBA 4	FIP Requirements	
Application temperature:	5 - 20°C	15 - 30°C	25 - 40°C	35 - 60°C		
Pot life: FIP 5.1	> 20 min @ 20°C	> 20 min @ 30°C	> 20 min @ 40°C	> 20 min @ 60°C	≥ 20 min at the specified temperature	
Open time: FIP 5.2	> 60 min @ 20°C	> 60 min @ 30°C	> 60 min @ 40°C	> 60 min @ 60°C	≥ 60 min at the specified temperature	
Sag flow: FIP 5.3	< 30 mm @ 20°C	< 30 mm @ 30°C	< 30 mm @ 40°C	< 30 mm @ 60°C	≤ 30 mm after 10 min at the specified temperature using Daniel's Gauge	
Squeezability: FIP 5.4	≥ 3000 mm² @ 5°C	≥ 3000 mm² @ 15°C	≥ 3000 mm² @ 25°C	≥ 3000 mm² @ 35°C	For a volume of 3140 mm³ mixed material with lower limit of temperature	
Squeezability: FIP 5.4	≥ 3000 mm² @ 5°C	≥ 3000 mm² @ 15°C	≥ 3000 mm² @ 25°C	≥ 3000 mm² @ 35°C	Squeezing load, kg 15	Surface area mm² ≥ 3000
Curing rate by Compressive strength: FIP 5.6	> 20 MPa @ 12 hr @ 5°C > 40 MPa @ 1 day @ 5°C > 75 MPa @ 7 days @ 5°C	> 20 MPa @ 12 hr @ 15°C > 40 MPa @ 1 day @ 15°C > 75 MPa @ 7 days @ 15°C	> 20 MPa @ 12 hr @ 25°C > 40 MPa @ 1 day @ 25°C > 75 MPa @ 7 days @ 25°C	> 20 MPa @ 12 hr @ 35°C > 40 MPa @ 1 day @ 35°C > 75 MPa @ 7 days @ 35°C	Curing time	Compressive strength at the lower limit of temperature
Curing rate by Compressive strength: FIP 5.6	> 20 MPa @ 12 hr @ 5°C > 40 MPa @ 1 day @ 5°C > 75 MPa @ 7 days @ 5°C	> 20 MPa @ 12 hr @ 15°C > 40 MPa @ 1 day @ 15°C > 75 MPa @ 7 days @ 15°C	> 20 MPa @ 12 hr @ 25°C > 40 MPa @ 1 day @ 25°C > 75 MPa @ 7 days @ 25°C	> 20 MPa @ 12 hr @ 35°C > 40 MPa @ 1 day @ 35°C > 75 MPa @ 7 days @ 35°C	12 hr 24 hr 7 days	≥ 20 MPa ≥ 40 MPa ≥ 75 MPa
Compressive strength: FIP 5.12	≥ 60 MPa @ 24 hr @ 5°C ≥ 75 MPa @ 7 days @ 5°C	≥ 60 MPa @ 24 hr @ 15°C ≥ 75 MPa @ 7 days @ 15°C	≥ 60 MPa @ 24 hr @ 25°C ≥ 75 MPa @ 7 days @ 25°C	≥ 60 MPa @ 24 hr @ 35°C ≥ 75 MPa @ 7 days @ 35°C	≥ 60 MPa @ 24 hr ≥ 75 MPa @ 7 days	
Bonding of cured bonding agent and tensile bending strength: FIP 5.5/FIP 5.14	Concrete failure (cured 1 day @ 5°C)	Concrete failure (cured 1 day @ 15°C)	Concrete failure (cured 1 day @ 25°C)	Concrete Failure (cured 1 day @ 35°C)	Bonding between two concrete surfaces should be concrete failure (application at the lower limit of temperature)	
Shear strength: FIP 5.15 after 7 days	> 12 Mpa @ 5°C	> 12 Mpa @ 15°C	> 12 Mpa @ 25°C	> 12 Mpa @ 35°C	≥ 12 MPa after 7 days stored at the lower limit of temperature	

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TECHNICAL PROPERTIES

Heat resistance @ 50°C: FIP 5.10 after 7 days	Shear strength > 10 MPa	Minimum deflection temperature of 50°C (1.8 MPa load) ASTM D648 OR Shear strength to be ≥10 MPa (FIP 5.15) after 7 days @ 50°C			
Shrinkage: FIP 5.7	< 0.4% @ 20°C	< 0.4% @ 30°C	< 0.4% @ 40°C	< 0.4% @ 60°C	≤ 0.4% after 7 days at the upper limit of temperature
Modulus in comparison: FIP 5.13 after 7 days @ room temperature	> 8000 MPa	≥ 8000 MPa @ room temperature			
Shear modulus: FIP 5.16 after 7 days	> 1500 MPa @ 5°C	> 1500 MPa @ 15°C	> 1500 MPa @ 25°C	> 1500 MPa @ 35°C	≥ 1500 MPa after 7 days stored at the lower limit of temperature
Creep: Pure comparison Pure shear FIP 5.8	> 6000 MPa > 1000 MPa @ 20°C	> 6000 MPa > 1000 MPa @30°C	> 6000 MPa > 1000 MPa @ 40°C	> 6000 MPa > 1000 MPa @ 60°C	≥ 6000 MPa @ 1 hr ≥ 1000 MPa @ 28 days
Water absorption: and solubility in water: FIP 5.9	< 0.5% < 0.1%	After 7 days curing at the upper limit of temperature. Specimen rods are submerged in water @ 60°C for 14 days Water absorption ≤ 0.5% Quantity dissolved in water ≤ 0.1%			

STORAGE

Shelf life is 1 year when stored under cover, out of direct sunlight and protected from extremes of temperature. Failure to comply with the recommended storage conditions may result in premature deterioration of the product or packaging. For specific storage advice consult KingKrete's Technical Services Department.

HEALTH AND SAFETY

As with all chemical products, care should be taken during use and storage to avoid contact with eyes, mouth, skin and foodstuffs. Treat splashes to eyes and skin immediately. If accidentally ingested, seek medical attention. Reseal containers after use. Use in well ventilated areas and avoid inhalation.

NOTE

Field service, where provided, does not constitute supervisory responsibility. For additional information contact your local KingKrete representative. KingKrete Inc. reserves the right to have the true cause of any difficulty determined by accepted test methods.

QUALITY AND CARE

All products originating from KingKrete's Middle East facility are manufactured under a management system independently certified to conform to the requirements of the quality standards ISO 9001, ISO 14001 and ISO 45001.

* Properties listed are based on laboratory-controlled tests.

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