Quickmast SBA

Solvent free, two part epoxy adhesive for segmental concrete bridges

Description

Quickmast SBA 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

Quickmast SBA 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

Quickmast SBA 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 Quickmast SBA for improved mechanical key.

Mixing

Quickmast SBA 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.

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.

Working Conditions

The four grades and their respective application temperatures are:

i. **Quickmast SBA 1**; Fast set for application at ambient temperature between 5°C to 20°C.
ii. **Quickmast SBA 2**; Medium set for application at ambient temperature between 15°C to 30°C.
iii. **Quickmast SBA 3**; Slow set for application at ambient temperature between 25°C to 40°C.
iv. **Quickmast SBA 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 Quickmast solvent. Cured material can only be removed mechanically.

Packaging

Quickmast SBA is available in 6 and 10 kg packs.

Coverage

Approximately 3.3 - 3.4 kg per m^2 at 2 mm thickness.

Quickmast SBA

Technical Properties:						
Colour: FIP 5.11 Base Hardener Mixed		White Black Grey similar to adjoining concrete				
Mixed density:		1.70 ± 0.1 g/cm³				
Quickmast	**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	
					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
					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	

Technical Properties:					
Heat resistance @ 50°C: FIP 5.10 after 7 days	Shear strength > 10 MPa	Shear strength > 10 MPa	Shear strength > 10 MPa	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	> 8000 MPa	> 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%	< 0.5% < 0.1%	< 0.5% < 0.1%	< 0.5% < 0.1%	After 7 days curing at the upper limit of temperature Specimen rods are submerged in wat @ 60°C for 14 days Water absorption ≤ 0.5% Quantity dissolved in water ≤ 0.1%

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Yield

6 kg pack - 3.5 litres.
10 kg pack - 5.9 litres.

Storage

Protect from frost and store under dry warehouse conditions at a temperature between 5°C and 40°C.

Shelf Life

Quickmast SBA has a shelf life of 12 months from date of manufacture if stored in unopened, undamaged, sealed containers and stored under good conditions.

If these conditions are exceeded, DCP Technical Department should be contacted for advice.

Cautions

Health and Safety

Consult the appropriate Material Safety Data Sheet prior to using Quickmast SBA.

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- Surface treatments
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- Tile adhesives and grouts.
- Building products.
- Structural strengthening.