Construction

Sikadur®-31 SBA S-02 MY

High modulus and high strength, solvent-free and moisture tolerant, structural epoxy resin, paste adhesive

Product Description

Sikadur®-31 SBA S-02 MY is a unique, two component epoxy resin based structural adhesive. It is a moisture tolerant during application and curing and provides high-modulus and high strength properties once cured. The materials is specifically formulated as an adhesive paste, available in different temperature grades to accommodate specific site conditions and construction requirements. The Sikadur®-31 SBA group of adhesives has a proven track record and is widely used in bonding hardened concrete in the erection of segmental bridges, amongst other applications.

Uses

- Segmental bridge adhesive for use on substrates at +30°C to +45ºC

Characteristics / Advantages

Sikadur®-31 SBA S-02 MY has the following advantages:

- Meets and / or exceeds International and National Standards (FIP, BS, ASTM etc.)
- Lubricates the surfaces and makes location of the shear keys easier
- High strength and high modulus of elasticity
- High initial and ultimate strengths
- Impermeable to liquids and water vapour
- Minimal water absorption
- Suitable for dry and damp concrete surfaces (moisture tolerant)
- Hardening is not affected by humidity
- Thixotropic: non-sag in vertical and overhead applications
- Hardens without shrinkage
- Different coloured components (for mixing control)
- No primer needed
- Good chemical resistance

Note: There are at least 5 types of Skadur-31 SBA available for substrate temperatures of +5°C to +60°C. Please consult our technical department.

Product Data

Form

Colours

Part A:	white
Part B:	black
Part A+B mixed:	concrete grey

Packaging

6 kg (A+B) Prebatched unit, Pallets of 480 kg (80 x 6 kg).

Storage

Storage Conditions / Shelf-Life

24 months from date of production if stored properly in original unopened, sealed and undamaged packaging, in dry conditions at temperatures between +5°C and +30°C. Protect from direct sunshine.

Technical Data

Chemical Base

Epoxy resin

Density

1.44 kg/l ± 0.1 kg/l (part A+B mixed) (at +23°C)

Sag Flow

Flow at 4mm (According to FIP 5.3 with measurement according to ASTM D2730)

(Requirement: Flow at minimum thickness of 3 mm).

Squeezability

(According to FIP 5.4)

Squeeze Load	Squeeze Area
15 kg	5'410 mm^2
200 kg	7'854 mm^2

Layer Thickness

30 mm max.

When using multiple units, one after the other. Do not mix the following unit until the previous one has been used in order to avoid a reduction in handling time.

Change of Volume

Hardens without shrinkage.

Thermal Stability

Heat Deflection Temperature (HDT): (According to FIP 5.10)

Curing conditions:
7 days / +40°C Martens point = +64.5°C
7 days / +35°C ASTM D648 heat deflection temperature = +58°C

Mechanical / Physical Properties

Compressive Strength

(According to FIP 5.12 and DIN 1164.7)

Curing time	Temperature	Compressive strength
24 hours	+10°C	> 45 N/mm^2
24 hours	+15°C	> 60 N/mm^2
24 hours	+20°C	65 - 70 N/mm^2
24 hours	+25°C	75 - 80 N/mm^2
24 hours	+30°C	75 - 80 N/mm^2

Shear Strength

(According to FIP 5.15, Slant shear cylinder test)

Temperature	Shear strength
+40°C	> 15 N/mm^2
+45°C	14 - 16 N/mm^2
+50°C	13 - 15 N/mm^2

E-Modulus

Instant Modulus: 9120 N/mm^2 (According to FIP 5.13)
Requirements: 8'000 N/mm^2

Deferred Modulus: 8160 N/mm^2 (According to FIP 5.13)
Requirements: 6'000 N/mm^2

Elongation at Break

0.6% (14 days / +23°C)

Resistance

Thermal Resistance

Meets the requirements of FIP 5.10, DIN 53458 and ASTM D648.

System Information

Application Details

Substrate Quality	Concrete should be cured for at least 28 days, (depends on minimal requirement of strengths) and have an open textured profile. Any cement laitance should be removed. Substrate must be sound and free of all loose or friable particles with a minimum compressive strength 25 N/mm² and a minimum pull off 1.5 N/mm². Substrate must be clean and free of all contaminants such as dirt, oils and grease, surface treatments or coatings etc.. Substrate must be dry or mat damp and free from any standing water, ice etc..
Substrate Preparation	Concrete: The surfaces must be cleaned and mechanically prepared to achieve the desired substrate quality.

Application Conditions / Limitations

Substrate Temperature	+30°C min. / +45°C max.
Ambient Temperature	+30°C min. / +45°C max.
Material Temperature	Sikadur®-31 SBA S-02 MY must be at a temperature of between +5°C and +30°C for application.
Substrate Moisture Content	When applied to mat moisture concrete, brush the adhesive well into substrate.
Dew Point	Beware of condensation! Substrate temperature during application must be at least 3°C above dew point.

Application Instructions

Mixing	Part A : part B = 2.2 : 1 by weight
Mixing Time	 Pre-batched units: Mix parts A+B together for at least 3 minutes with a mixing spindle attached to a slow speed electric drill (max. 600 rpm) until the material becomes smooth in consistency and a uniform grey colour. Avoid aeration while mixing. Then, pour the whole mix into a clean container and stir again for approx. 1 more minute at low speed to keep air entrapment at a minimum. Mix only that quantity which can be used within its potlife.
Application Method / Tools	Apply the mixed adhesive to the prepared surface with a spatula, trowel, notched trowel, or with hands protected by gloves.
Cleaning of Tools	Clean all tools and application equipment with Sika® Colma Cleaner immediately after use. Hardened / cured material can only be mechanically removed.
Potlife	Quantity: 1 litre (~ 1.44 kg) (According to FIP 5.1 and 5.2)

Temperature	+27°C
Potlife	~ 65 minutes
Open time	~ 75 minutes

The potlife begins when the resin and hardener are mixed. It is shorter at high temperatures and longer at low temperatures. The greater the quantity mixed, the shorter the potlife.

Construction

Notes on Application / Limitations	Sikadur® resins are formulated to have low creep under permanent loading. However due to the creep behaviour of all polymer materials under load, the long term structural design load must account for creep. Generally the long term structural design load must be lower than 20-25% of the failure load. Please consult a structural engineer for load calculations for your specific application.
Value Base	All technical data stated in this Product Data Sheet are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control.
Health and Safety Information	For information and advice on the safe handling, storage and disposal of chemical products, users shall refer to the most recent Material Safety Data Sheet containing physical, ecological, toxicological and other safety-related data.
Legal Notes	The information, and, in particular, the recommendations relating to the application and end-use of Sika products, are given in good faith based on Sika's current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with Sika's recommendations. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any written recommendations, or from any other advice offered. The user of the product must test the product's suitability for the intended application and purpose. Sika reserves the right to change the properties of its products. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users must always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be supplied on request.

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