

## PRODUCT DATA SHEET

# Sikadur<sup>®</sup>-31 SBA S-09 IN

Segmental bridge adhesive for use at +20 °C to +50 °C

### DESCRIPTION

Sikadur<sup>®</sup>-31 SBA S-09 IN is a 2-part epoxy based moisture tolerant, thixotropic, solvent-free, structural adhesive especially formulated for segmental bridge construction. It has good squeezability, high initial strength gain, hardens without shrinkage and complies with many international and national standards such as FIP, ASTM etc. Application temperature range +20 °C to +50 °C.

### USES

Sikadur<sup>®</sup>-31 SBA S-09 IN may only be used by experienced professionals.

Sikadur<sup>®</sup>-31 SBA S-09 IN is used as segmental bridge adhesive for use on substrate temperatures of +20 °C to +50 °C.

Sikadur<sup>®</sup>-31 SBA S-09 IN in segmental bridge construction:

- Provides a watertight joint between segments
- Lubricates the surfaces
- Transfers the loading stresses between segments

### CHARACTERISTICS / ADVANTAGES

- Meets and / or exceeds International and National Standards (such as FIP, BS, ASTM etc.)
- Lubricates the surfaces and makes positioning 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
- Solvent free
- Hardens without shrinkage
- Different coloured components (for mixing control)
- No primer needed

### APPROVALS / STANDARDS

Test report on Sikadur<sup>®</sup>-31 SBA S-09 IN, Bureau Veritas (India) Pvt Ltd, February 2018

### PRODUCT INFORMATION

<b>Chemical base</b>	Epoxy resin and selected fillers		
<b>Packaging</b>	Part A+B prebatched unit	6 kg x 2 sets	
	Part A	4.5 kg container	
	Part B	1.5 kg container	
<b>Colour</b>	Part A+B	Concrete grey	(FIP 5.11)
	Part A	Off white	
	Part B	Black	
<b>Shelf life</b>	12 months from date of production		

<b>Storage conditions</b>	The product must be stored properly in original, unopened and undamaged sealed packaging in dry conditions at temperatures between +5 °C and +40 °C. Protect from direct sunshine.
<b>Density</b>	Part A+B mixed : 1.8 ± 0.1 kg/L (at +30 °C)
<b>Product declaration</b>	According to FIP / fib 9/2 Proposal for a standard for acceptance tests and verification of epoxy bonding agents for segmental construction

## TECHNICAL INFORMATION

<b>Compressive strength</b>	<b>Curing time</b>	<b>Curing temperature</b>	<b>Compressive strength</b>	(FIP 5.12)
	24 hours	+20 °C	≥ 60 N/mm <sup>2</sup>	
	7 days	+20 °C	≥ 75 N/mm <sup>2</sup>	
<b>Modulus of elasticity in compression</b>	~13 000 N/mm <sup>2</sup> (Instantaneous Modulus)			(FIP 5.13)
<b>Tensile adhesion strength</b>	Bond strength on wet concrete	100 % concrete failure (24 hours / +20 °C)		(FIP 5.5)
	Tensile bending on wet concrete	100 % concrete failure (24 hours / +20 °C)		(FIP 5.14)
<b>Shear strength</b>	≥ 12 N/mm <sup>2</sup> (7 days / +20 °C)			(FIP 5.15)
<b>Shrinkage</b>	Hardens without shrinkage			
	≤ 0.4 % (7 days / +50 °C)			(FIP 5.7)
<b>Creep</b>	Deferred modulus in compression (1 hour)	~7500 N/mm <sup>2</sup>		(FIP 5.8)
<b>Heat resistance</b>	Meets the requirements of FIP 5.10, DIN 53458 and ASTM D648			
	≥ +50 °C (7 days / +50 °C)			(FIP 5.10)
<b>Heat deflection temperature</b>	≥ +50 °C (7 days / +50 °C)			(ASTM D648) (DIN 53458)
<b>Water absorption</b>	Water absorption	≤ 0.5 %		(FIP 5.9)
	Solvability in water	≤ 0.1 %		

## SYSTEM INFORMATION

<b>System structure</b>	A full range of Sikadur®-31 SBA segmental bridge epoxy adhesives covering application temperatures between +10 °C and +50 °C is available:	
	<b>Application temperature</b>	<b>Segmental bridge epoxy adhesive</b>
	+20 °C to +50 °C	Sikadur®-31 SBA S-09 IN
	+25 °C to +45 °C	Sikadur®-31 SBA S-02 IN
	+10 °C to +20 °C	Sikadur®-31 SBA S-04 IN

## APPLICATION INFORMATION

<b>Mixing ratio</b>	Part A : Part B = 3 : 1 (by weight)	
<b>Layer thickness</b>	30 mm max.	
<b>Sag flow</b>	< 10 mm (+50 °C)	(FIP 5.3)
	No sag flow at min. thickness of 3 mm (+50 °C)	(ASTM D2730)

<b>Squeezability</b>	~6000 mm <sup>2</sup> (15 kg load / +20 °C)	(FIP 5.4)												
<b>Product temperature</b>	Sikadur®-31 SBA S-09 IN must be at a temperature of between +20 °C and +50 °C for application.													
<b>Ambient air temperature</b>	+20 °C min. / +50 °C max.													
<b>Dew point</b>	Beware of condensation. Substrate temperature during application must be at least 3 °C above dew point.													
<b>Substrate temperature</b>	+20 °C min. / +50 °C max.													
<b>Substrate moisture content</b>	When applied to matt moisture concrete, brush the adhesive well into substrate.													
<b>Pot life</b>	~30 minutes (100 g mass at +50 °C) The potlife starts when the resin and hardener are mixed. It is shorter at high temperatures and longer at low temperatures. The larger the quantity mixed, the shorter the potlife.	(FIP 5.1)												
<b>Open time</b>	~65 minutes (100 g mass at +50° C)	(FIP 5.2)												
<b>Curing Rate</b>	<table border="1"> <thead> <tr> <th>Curing time</th> <th>Curing temperature</th> <th>Compressive strength</th> </tr> </thead> <tbody> <tr> <td>12 hours</td> <td>+20 °C</td> <td>≥ 20 N/mm<sup>2</sup></td> </tr> <tr> <td>24 hours</td> <td>+20 °C</td> <td>≥ 40 N/mm<sup>2</sup></td> </tr> <tr> <td>7 days</td> <td>+20 °C</td> <td>≥ 75 N/mm<sup>2</sup></td> </tr> </tbody> </table>	Curing time	Curing temperature	Compressive strength	12 hours	+20 °C	≥ 20 N/mm <sup>2</sup>	24 hours	+20 °C	≥ 40 N/mm <sup>2</sup>	7 days	+20 °C	≥ 75 N/mm <sup>2</sup>	(FIP 5.6)
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## BASIS OF PRODUCT DATA

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.

## FURTHER DOCUMENTS

Where applicable, reference must also be made to International and National Standards such as FIP, BS, ASTM etc.

## IMPORTANT CONSIDERATIONS

- When using multiple units during application, do not mix the following unit until the previous one has been used in order to avoid a reduction in workability and handling time.
- Sikadur® resins are formulated to have low creep under permanent loading. However due to the creep behaviour of all polymer materials under load, when using adhesive for structural applications, 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. A structural engineer must be consulted for design calculations for specific structural applications.

## ECOLOGY, HEALTH AND SAFETY

For information and advice on the safe handling, storage and disposal of chemical products, users shall refer to the most recent Safety Data Sheet (SDS) containing physical, ecological, toxicological and other safety-related data.

## APPLICATION INSTRUCTIONS

### SUBSTRATE QUALITY

Concrete must be at least 28 days old and have an open textured profile. Any cement laitance must be removed.

Concrete surfaces must be clean, dry or matt damp, free from standing water, ice, dirt, oil, grease, laitance, surface treatments, all loose particles and any other surface contaminants that could affect adhesion of the adhesive.

### SUBSTRATE PREPARATION

Concrete surfaces must be prepared mechanically using suitable abrasive blast cleaning or other suitable approved equipment to achieve an open textured, laitance free, gripping surface profile. All dust and loose material must be completely removed from surfaces before application of the adhesive.

### MIXING

Prior to mixing all parts, mix part A (resin) briefly using a mixing spindle attached to a slow speed electric drill (max. 300 rpm). Add part B (hardener) to part A and mix parts A+B continuously for at least 3 minutes until a uniformly coloured smooth consistency mix has been achieved. To ensure thorough mixing pour materials into a clean container and mix again for approximately 1 minute. Over mixing must be avoided to minimise air entrainment. Mix full units only. Mixing time for A+B = 4 minutes. Mix only the quantity which can be used within its pot life.

## 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.

## LOCAL RESTRICTIONS

Please note that as a result of specific local regulations the declared data for this product may vary from country to country. Please consult the local Product Data Sheet for the exact product 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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### Product Data Sheet

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