

# PRODUCT DATA SHEET

## Sikadur<sup>®</sup>-31 IN

### 2-PART THIXOTROPIC STRUCTURAL EPOXY ADHESIVE

#### DESCRIPTION

Sikadur<sup>®</sup>-31 IN is a solvent-free, moisture tolerant, thixotropic, two part structural adhesive and repair mortar, based on epoxy resins and special fillers, designed for use at temperatures between +10°C and +40°C.

#### USES

##### Structural adhesive for bonding:

- Concrete elements
- Hard natural stone
- Ceramics, fibre cement
- Mortar, Bricks, Blocks, Masonry etc.
- Steel, Iron, Aluminium
- Wood
- Polyester, Epoxy
- Glass

##### Fast setting repair mortar and adhesive for:

- Corners and edges
- Hole and void filling
- Joint arises

##### Joint filling and crack sealing:

- Rigid joint filling
- Crack filling and sealing (non moving)

#### CHARACTERISTICS / ADVANTAGES

- Easy to mix and apply
- Suitable for dry and damp concrete surfaces
- Very good adhesion to most construction materials
- High strength adhesive
- Thixotropic: non-sag and suitable for vertical and overhead application
- Solvent free
- Hardens without shrinkage
- Different coloured components (for mixing control)
- No primer needed
- High initial and ultimate strengths
- Good abrasion & Chemical resistance
- Adhesive and filler in one
- Impermeable to liquids and water vapour

#### APPROVALS / STANDARDS

Conforms to ASTM C 881, Type I, Grade 3 Class B+C

#### PRODUCT INFORMATION

Chemical Base	Epoxy Resin	
Packaging	Part A : 2 kg, Part B : 1 kg	3 kg x 2 sets
	Part A : 4 kg, Part B : 2 kg	6 kg x 2 sets
	Part A : 20 kg, Part B : 10 kg	30 kg x 1 set
Colour	Grey Paste	
Shelf Life	12 months from date of production	
Storage Conditions	Store properly in original unopened, sealed and undamaged packaging in dry conditions at temperatures between +5°C and +40°C. Protect from direct sun light.	
Density	Part A+B Mixed : 1.80 ± 0.1 kg/L at 30°C	

## TECHNICAL INFORMATION

<b>Compressive Strength</b>	<u>1 day</u>	<u>≥ 45 N/mm<sup>2</sup></u>	(ASTM C 579)
	<u>3 days</u>	<u>≥ 50 N/mm<sup>2</sup></u>	
	<u>7 days</u>	<u>≥ 55 N/mm<sup>2</sup></u>	
	<u>14 days</u>	<u>≥ 60 N/mm<sup>2</sup></u>	
	Values at temperature +30°C		
<b>Tensile Strength in Flexure</b>	<u>1 day</u>	<u>≥ 10 N/mm<sup>2</sup></u>	(DIN EN 196)
	<u>3 days</u>	<u>≥ 15 N/mm<sup>2</sup></u>	
	<u>7 days</u>	<u>≥ 20 N/mm<sup>2</sup></u>	
	<u>14 days</u>	<u>≥ 25 N/mm<sup>2</sup></u>	
	Values at temperature +30°C		
<b>Tensile Strength</b>	<u>3 days</u>	<u>≥ 5 N/mm<sup>2</sup></u>	(ISO 527)
	<u>7 days</u>	<u>≥ 8 N/mm<sup>2</sup></u>	
	Values at temperature +30°C		
<b>Modulus of Elasticity in Tension</b>	1500 MPa		(ISO 527)
<b>Elongation at Break</b>	0.28%		(ISO 527)
<b>Tensile Adhesion Strength</b>	≥ 10 N/mm <sup>2</sup> (Concrete failure) Tested on Dry substrate after 7 days at +30°C		(ASTM C 882)
<b>Shrinkage</b>	Hardens without shrinkage		

## APPLICATION INFORMATION

<b>Mixing Ratio</b>	Part A : Part B = 2 : 1 (by weight)		
<b>Consumption</b>	~2.0 kg/m <sup>2</sup> per mm of thickness. Consumption depends on the roughness and absorbency of the substrate. This figure is theoretical and does not allow for any additional material due to surface porosity, surface profile, variations in level or wastage etc.		
<b>Layer Thickness</b>	30 mm max. For non- structural adhesive or other applications, if layer thickness's of >30 mm are required, apply in successive 30 mm layers or once the previous layer has hardened. The surface of the freshly applied intermediate layers should be scratched to form a key for subsequent layers. If layer application is to be longer than 2 days, the wet applied adhesive must be blinded to excess with quartz sand immediately after application.		
<b>Sag Flow</b>	Non-sag up to 10 mm thickness on vertical surfaces		(ASTM D 2730)
<b>Product Temperature</b>	+10°C min. / +40°C max.		
<b>Ambient Air Temperature</b>	+10°C min. / +40°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>	+10°C min. / +40°C max.		
<b>Substrate Moisture Content</b>	Cementitious substrates must be dry or matt damp (no standing water). Brush the adhesive well into the substrate if matt damp.		
<b>Pot Life</b>	≥ 40 minutes (100g mass at +30°C)		(FIP 5.1)
	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. To obtain longer workability at high temperatures, the mixed adhesive may be divided into portions. Another method is to chill parts A+B before mixing them (not below +5°C).		

## APPLICATION INSTRUCTIONS

### SUBSTRATE QUALITY

#### Concrete / masonry / mortar / stone

Concrete and mortar must be at least 28 days old. Substrate surfaces must be sound, clean, dry or matt damp. Free from standing water, ice, dirt, oil, grease, coatings, laitance, efflorescence, old surface treatments, all loose particles and any other surface contaminants that could affect adhesion of the adhesive.

#### Steel

Surfaces must be clean, dry, free from oil, grease, coatings, rust, scale, all loose particles and any other surface contaminants that could affect adhesion of the adhesive.

#### Wood

Substrate surfaces must be sound, clean, dry and free from dirt, oil, grease, coatings, all loose particles and any other surface contaminants that could affect adhesion of the adhesive.

### SUBSTRATE PREPARATION

#### Concrete / masonry / mortar / stone

Substrates must be prepared mechanically using suitable abrasive blast cleaning, needle gunning, light scabbling, bush hammering, grinding or other suitable equipment to achieve an open textured gripping surface profile.

#### Steel

Surfaces must be prepared mechanically using suitable abrasive blast cleaning, grinding, rotating wire brush or other suitable equipment to achieve a bright metal finish with a surface profile to satisfy the necessary tensile adhesion strength requirement. Avoid dew point conditions before and during application.

#### Wood

Surfaces must be prepared by planing, sanding or other suitable equipment.

#### All substrates

All dust and loose material must be completely removed from all substrate surfaces before application of the product by vacuum / dust removal equipment.

### MIXING

#### Pre-batched units

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

### Adhesive

Apply mixed adhesive to the prepared surfaces with a spatula, trowel, notched trowel or by gloved hand. For optimum adhesion, it is recommended to apply adhesive to both surfaces that require bonding. For heavy components positioned vertically or overhead, provide temporary support until Sikadur®-31 IN has fully hardened /cured. Hardening and curing will be dependent on ambient temperatures.

### Repair

Apply mixed adhesive to the prepared surfaces with a spatula, trowel or by gloved hand. Use temporary formwork as required.

### Joint filling and crack sealing

Apply mixed adhesive to the prepared surfaces with a spatula or trowel.

### CLEANING OF TOOLS

Clean all tools and application equipment with Sika® Colma Cleaner immediately after use. Hardened / cured material can only be mechanically removed.

## LIMITATIONS

- 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.
- 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.
- For heavy components positioned vertically or overhead, provide temporary support.

## 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.

## 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.

## 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.

## 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**

**Sikadur®-31 IN**  
December 2019, Version 01.01  
020204030010000266