

# PRODUCT DATA SHEET

## Sikadur<sup>®</sup>-30

### 2-part epoxy structural adhesive for bonding reinforcement

#### DESCRIPTION

Sikadur<sup>®</sup>-30 is a 2-part epoxy based thixotropic structural adhesive which bonds to most construction materials. It has high mechanical strength and is used for bonding structural reinforcement and structural strengthening using steel or Sika<sup>®</sup> CarboDur<sup>®</sup> plates.

#### USES

Sikadur<sup>®</sup>-30 may only be used by experienced professionals.

Suitable for structural concrete repair (Principle 3, Method 3.1 of EN 1504-9). Repair of spalling and damaged concrete in buildings, bridges, infrastructure and superstructure works.

Suitable for structural strengthening (Principle 4, Method 4.3 of EN 1504-9). Increasing the bearing capacity of the concrete structure by bonding plate reinforcement

Adhesive for bonding structural reinforcement, particularly in structural strengthening works. Especially for the following uses:

- Sika<sup>®</sup> CarboDur<sup>®</sup> Plates to concrete, brickwork and timber (for details see the Sika<sup>®</sup> CarboDur<sup>®</sup> Product Data Sheet, the "Method Statement for Sika<sup>®</sup> CarboDur<sup>®</sup> Externally Bonded Reinforcement" Ref: 850 41 05 and the "Method Statement for Sika<sup>®</sup> CarboDur<sup>®</sup> Near Surface Mounted Reinforcement" Ref: 850 41 07).
- Steel plates to concrete (for details see the relevant Sika Technical information).

#### CHARACTERISTICS / ADVANTAGES

Sikadur<sup>®</sup>-30 has the following advantages:

- Easy to mix and apply.
- No primer needed.
- High creep resistance under permanent load.
- Very good adhesion to concrete, masonry, stonework, steel, cast iron, aluminium, timber and Sika<sup>®</sup> CarboDur<sup>®</sup> Plates.
- Hardening is not affected by high humidity.
- High strength adhesive.
- Thixotropic: non-sag in vertical and overhead applications.
- Hardens without shrinkage.
- Suitable for structural concrete repair, class R4
- Different coloured components (for mixing control).
- High initial and ultimate mechanical resistance.
- High abrasion and shock resistance.
- Impermeable to liquids and water vapour.

#### ENVIRONMENTAL INFORMATION

- Conformity with LEED v4 MRc 2 (Option 1): Building Product Disclosure and Optimization – Environmental Product Declarations
- Conformity with LEED v4 MRc 4 (Option 2): Building Product Disclosure and Optimization - Material Ingredients
- Conformity with LEED v4 EQc 2: Low-Emitting Materials
- IBU Environmental Product Declaration (EPD)
- VOC emission classification GEV-Emicode EC1PLUS, license number 4865/20.10.00

## APPROVALS / STANDARDS

- ETA-21/0276 (European Technical Assessment) based on EAD 160086-00-0301 – "Kits For The Strengthening of Concrete Elements by Externally Bonded CFRP Strips"

- CE Marking and Declaration of Performance to EN 1504-3 - Concrete repair product for structural repair
- CE Marking and Declaration of Performance to EN 1504-4 - Structural bonding

## PRODUCT INFORMATION

<b>Product Declaration</b>	Complies with the general requirements of EN 1504-3: Class R4 Complies with the general requirements of EN 1504-4: Structural bonding	
<b>Chemical Base</b>	Epoxy resin and selected fillers	
<b>Packaging</b>	Parts A+B: 6 kg	Pre-batched unit
		pallets of 72 units
	Bulk individual part packaging:	
	Part A	30 kg container
	Part B	10 kg container
<b>Shelf Life</b>	24 months from date of production	
<b>Storage Conditions</b>	Store in original, unopened and undamaged packaging in dry conditions at temperatures between +5 °C and +30 °C. Protect from direct sunlight.	
<b>Colour</b>	Part A: white Part B: black Part A+B mixed: light grey	
<b>Density</b>	(1.98 ± 0.10) kg/l (parts A+B mixed) (at +23 °C)	
<b>Volatile Organic Compound (VOC) Content</b>	Compliant with VOC emission classification GEV-Emicode EC1 <sup>PLUS</sup>	

## TECHNICAL INFORMATION

<b>Compressive Strength</b>	Class R4		(EN 1504-3)	
	~90 MPa		(EN 12190)	
	<b>Curing Time</b>	<b>Curing Temperature</b>		(EN 196)
		<b>+10 °C</b>	<b>+35 °C</b>	
	12 hours	-	~85 N/mm <sup>2</sup>	
	1 day	~55 N/mm <sup>2</sup>	~90 N/mm <sup>2</sup>	
	3 days	~70 N/mm <sup>2</sup>	~90 N/mm <sup>2</sup>	
	7 days	~75 N/mm <sup>2</sup>	~90 N/mm <sup>2</sup>	
	<b>Curing Time/Temperature</b>	<b>Mean Value*</b>	<b>Characteristic*</b>	(2.2.2 and 2.2.3 of EAD 160086-00-0301)
	3 days at 21 °C	73.8 N/mm <sup>2</sup>	72.4 N/mm <sup>2</sup>	
7 days at 21 °C	80.8 N/mm <sup>2</sup>	79.7 N/mm <sup>2</sup>		
3 days at 8 °C	73.3 N/mm <sup>2</sup>	71.8 N/mm <sup>2</sup>		
7 days at 8 °C	76.2 N/mm <sup>2</sup>	75.0 N/mm <sup>2</sup>		
*Values based on Annex A3 (Table A3.2) of ETA-21/0276				
<b>Tensile Strength in Flexure</b>	<b>Curing Time/Temperature</b>	<b>Mean Value*</b>	<b>Characteristic*</b>	(2.2.2 and 2.2.3 of EAD 160086-00-0301)
	3 days at 21 °C	45.8 N/mm <sup>2</sup>	44.0 N/mm <sup>2</sup>	
	7 days at 21 °C	48.3 N/mm <sup>2</sup>	47.0 N/mm <sup>2</sup>	
	3 days at 8 °C	43.5 N/mm <sup>2</sup>	39.1 N/mm <sup>2</sup>	
	7 days at 8 °C	45.6 N/mm <sup>2</sup>	44.3 N/mm <sup>2</sup>	
	*Values based on Annex A3 (Table A3.2) of ETA-21/0276			

<b>Tensile Strength</b>	<b>Curing Time</b>	<b>Curing Temperature</b>		(DIN EN ISO 527-3)	
		<b>+15 °C</b>	<b>+35 °C</b>		
	1 day	~20 N/mm <sup>2</sup>	~26 N/mm <sup>2</sup>		
	3 days	~23 N/mm <sup>2</sup>	~27 N/mm <sup>2</sup>		
	7 days	~26 N/mm <sup>2</sup>	~29 N/mm <sup>2</sup>		
<b>Modulus of Elasticity in Tension</b>	~11 200 N/mm <sup>2</sup> (+23 °C)			(ISO 527)	
<b>Shear Strength</b>	<b>Curing time</b>	<b>Curing Temperature</b>		(FIP 5.15)	
		<b>+15 °C</b>	<b>+23 °C</b>		<b>+35 °C</b>
	1 day	~4 N/mm <sup>2</sup>	-		~17 N/mm <sup>2</sup>
	3 days	~15 N/mm <sup>2</sup>	-		~18 N/mm <sup>2</sup>
	7 days	~16 N/mm <sup>2</sup>	18 N/mm <sup>2</sup> <sup>(1)</sup>	~18 N/mm <sup>2</sup>	
	Concrete failure (~15 N/mm <sup>2</sup> ) <sup>(1)</sup> (DIN EN ISO 4624)				
<b>Tensile Adhesion Strength</b>	<b>Curing time</b>	<b>Substrate</b>	<b>Curing temperature</b>	<b>Adhesion strength</b>	(EN ISO 4624, EN 1542, EN 12188)
	7 days	Concrete dry	+23 °C	> 4 N/mm <sup>2</sup> *	
	7 days	Steel	+23 °C	> 17 N/mm <sup>2</sup>	
	*100 % concrete failure				
<b>Shrinkage</b>	0.04 %		(FIP: Fédération Internationale de la Précontrainte)		
	~3.8 MPa (Restrained shrinkage / expansion)			(EN 12617-4)	
<b>Coefficient of Thermal Expansion</b>	2.5 x 10 <sup>-5</sup> per °C (Temperature range: -20 °C to +40 °C)			(EN 1770)	
<b>Service Temperature</b>	-40 °C to +45 °C (when cured at +23 °C)				
<b>Glass Transition Temperature</b>	<b>Curing time</b>	<b>Curing temperature</b>	<b>TG</b>	(EN 12614)	
	30 days	+30 °C	+52 °C		
<b>Heat Deflection Temperature</b>	<b>Curing time</b>	<b>Curing temperature</b>	<b>HDT</b>	(ASTM-D 648)	
	3 hours	+80 °C	+53 °C		
	6 hours	+60 °C	+53 °C		
	7 days	+35 °C	+53 °C		
	7 days	+10 °C	+36 °C		
<b>Thermal Compatibility</b>	<b>Durability</b>	Pass		(EN 13733)	
<b>Reaction to Fire</b>	Euroclass C-s1, d0 Euroclass B <sub>f</sub> -s1			(EN 13501-1)	

## APPLICATION INFORMATION

<b>Mixing Ratio</b>	Part A : Part B = 3 : 1 by weight or volume When using bulk material the exact mixing ratio must be safeguarded by accurately weighing and dosing each part.	
<b>Layer Thickness</b>	30 mm max.	
<b>Sag Flow</b>	On vertical surfaces it is non-sag up to 3-5 mm thickness at 35 °C	(FIP: Fédération Internationale de la Précontrainte)
<b>Squeezability</b>	4000 mm <sup>2</sup> at +15 °C at 15 kg (FIP: Fédération Internationale de la Précontrainte)	
<b>Product Temperature</b>	Sikadur®-30 must be applied at temperatures between +8 °C and +35 °C.	
<b>Ambient Air Temperature</b>	+8 °C min. / +35 °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>	+8 °C min. / +35 °C max.			
<b>Substrate Moisture Content</b>	Max. 4 % pbw When applied to mat damp concrete, brush the adhesive well into the substrate.			
<b>Pot Life</b>	<b>Temperature</b>	<b>Potlife</b>	<b>Open time</b>	(FIP: Fédération Internationale de la Précontrainte)
	+8 °C	~120 minutes	~150 minutes	
	+20 °C	~90 minutes	~110 minutes	
	+35 °C	~20 minutes	~50 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. To obtain longer workability at high temperatures, the mixed adhesive may be divided into portions. Another method is to chill components A+B before mixing them (not below +5 °C).

## 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.

## LIMITATIONS

Sikadur® resins are formulated to have low creep under permanent loading. However, due to the creep behavior 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.

**A structural engineer must be consulted for load calculations for the specific application.**

## 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 Material Safety Data Sheet (MSDS) containing physical, ecological, toxicological and other safety-related data.

## APPLICATION INSTRUCTIONS

### SUBSTRATE QUALITY

See the Product Data Sheet of Sika® CarboDur® Plates and Sika® CarboDur® BC rods.

### SUBSTRATE PREPARATION

See the “Method Statement for Sika® CarboDur® Externally Bonded Reinforcement” Ref: 850 41 05 and the “Method Statement for Sika® CarboDur® Near Surface Mounted Reinforcement” Ref: 850 41 07.

### MIXING

#### IMPORTANT

Avoid over mixing to minimise air entrainment.

Note: Use a spiral paddle in an electric single (Pre-batched unit) or double paddle mixer (Bulk container)

at a maximum speed of 300 rpm.

Pre-batched unit:

1. Mix Part A (resin) for ~30 seconds.
2. Add Part B (hardener) to Part A.
3. Mix Part A+B continuously for ~3 minutes until a uniformly smooth, coloured mix is achieved.
4. To ensure thorough mixing, pour materials into another clean container and mix again to achieve a smooth and uniform mix.

Bulk container:

Note: Mix only the quantity which can be used within its pot life.

Add both parts in the correct proportion into a suitable clean, dry container and mix in the same way as for the pre-batched unit.

### APPLICATION METHOD / TOOLS

See the “Method Statement for Sika® CarboDur® Externally Bonded Reinforcement” Ref: 850 41 05 and the “Method Statement for Sika® CarboDur® Near Surface Mounted Reinforcement” Ref: 850 41 07.

### CLEANING OF TOOLS

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

### LOCAL RESTRICTIONS

Please note that as a result of specific local regulations the performance of this product may vary from country to country. Please consult the local Product Data Sheet for the exact description of the application fields.

## 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. It may be necessary to adapt the above disclaimer to specific local laws and regulations. Any changes to this disclaimer may only be implemented with permission of Sika® Corporate Legal in Baar.

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### Product Data Sheet

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