

PRODUCT DATA SHEET

Sikadur®-30

2-part epoxy structural adhesive for bonding reinforcement

DESCRIPTION

Sikadur®-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® CarboDur® plates.

USES

Sikadur®-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® CarboDur® Plates to concrete, brickwork and timber (for details see the Sika® CarboDur® Product Data Sheet, 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).
- Steel plates to concrete (for details see the relevant Sika Technical information).

CHARACTERISTICS / ADVANTAGES

Sikadur®-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® CarboDur® 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.

SUSTAINABILITY

- 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 / CERTIFICATES

- 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

Product declaration	Complies with the general requirements of EN 1504-3: Class R4 Complies with the general requirements of EN 1504-4: Structural bonding	
Composition	Epoxy resin and selected fillers	
Packaging	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
Shelf life	24 months from date of production	
Storage conditions	Store in original, unopened and undamaged packaging in dry conditions at temperatures between +5 °C and +30 °C. Protect from direct sunlight.	
Colour	Part A: white Part B: black Part A+B mixed: light grey	
Density	(1.98 ± 0.10) kg/l (parts A+B mixed) (at +23 °C)	
Volatile organic compound (VOC) content	Compliant with VOC emission classification GEV-Emicode EC1 ^{PLUS}	

TECHNICAL INFORMATION

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

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BUILDING TRUST



Tensile strength	Curing Time	Curing Temperature		(DIN EN ISO 527-3)	
		+15 °C	+35 °C		
	1 day	~20 N/mm ²	~26 N/mm ²		
	3 days	~23 N/mm ²	~27 N/mm ²		
	7 days	~26 N/mm ²	~29 N/mm ²		
Modulus of elasticity in tension	~11 200 N/mm ² (+23 °C)			(ISO 527)	
Shear strength	Curing time	Curing Temperature		(FIP 5.15)	
		+15 °C	+23 °C		+35 °C
	1 day	~4 N/mm ²	-		~17 N/mm ²
	3 days	~15 N/mm ²	-		~18 N/mm ²
	7 days	~16 N/mm ²	18 N/mm ² ⁽¹⁾	~18 N/mm ²	
	Concrete failure (~15 N/mm ²) ⁽¹⁾ (DIN EN ISO 4624)				
Tensile adhesion strength	Curing time	Substrate	Curing temperature	Adhesion strength	(EN ISO 4624, EN 1542, EN 12188)
	7 days	Concrete dry	+23 °C	> 4 N/mm ² *	
	7 days	Steel	+23 °C	> 17 N/mm ²	
	*100 % concrete failure				
Shrinkage	0.04 %		(FIP: Fédération Internationale de la Précontrainte)		
	~3.8 MPa (Restrained shrinkage / expansion)			(EN 12617-4)	
Coefficient of thermal expansion	2.5 x 10 ⁻⁵ per °C (Temperature range: -20 °C to +40 °C)			(EN 1770)	
Service temperature	-40 °C to +45 °C (when cured at +23 °C)				
Glass transition temperature	Curing time	Curing temperature	TG		(EN 12614)
	30 days	+30 °C	+52 °C		
Heat deflection temperature	Curing time	Curing temperature	HDT		(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		
Thermal compatibility	Durability	Pass		(EN 13733)	
Reaction to fire	Euroclass C-s1, d0 Euroclass B _f -s1			(EN 13501-1)	

APPLICATION INFORMATION

Mixing ratio	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.	
Layer thickness	30 mm max.	
Sag flow	On vertical surfaces it is non-sag up to 3-5 mm thickness at 35 °C	(FIP: Fédération Internationale de la Précontrainte)
Squeezability	4000 mm ² at +15 °C at 15 kg (FIP: Fédération Internationale de la Précontrainte)	
Material temperature	Sikadur®-30 must be applied at temperatures between +8 °C and +35 °C.	
Ambient air temperature	+8 °C min. / +35 °C max.	

Dew point	Beware of condensation. Substrate temperature during application must be at least +3 °C above dew point.		
Substrate temperature	+8 °C min. / +35 °C max.		
Substrate moisture content	Max. 4 % pbw When applied to mat damp concrete, brush the adhesive well into the substrate.		
Pot Life	Temperature	Potlife	Open time (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.

IMPORTANT CONSIDERATIONS

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 Safety Data Sheet (SDS) 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 EQUIPMENT

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 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

Any information or suggestions for use concerning Sika's products, which we either in writing or orally have given buyers or end-users of the product, have been given in good faith based on our own experiences and based on approved praxis and the technological and scientific knowledge on the time of giving such suggestions and information, which are given without any type of guarantees, and which do not lead to any further responsibility from Sika Danmark A/S, besides what is stated in the sales agreement in question. The buyer or end-user should themselves investigate or otherwise make sure, that our products are suitable for the use in question and further make sure that the products are kept and used correct and in agreement with the published rules and considering the actual conditions in order to avoid damages or less satisfactory results. Any order is accepted and any deliverance is affected according to the general terms of sales and delivery from Sika Danmark A/S, which are considered known and accepted, and which could be handed out when asked for. Our catalogues are not up-dated automatically. The present product data sheet is only for use in Denmark. Values stated in the present product data sheet should be seen as recommended, unless stated otherwise.

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