BUILDING TRUST

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 EC1PLUS

TECHNICAL INFORMATION

Compressive strength

Class R4 (EN 1504-3)
~90 MPa (EN 12190)

Curing Time	Curing Temperature	
	+10 °C	+35 °C
12 hours	-	~85 N/mm²
1 day	~55 N/mm²	~90 N/mm²
3 days	~70 N/mm²	~90 N/mm²
7 days	~75 N/mm²	~90 N/mm²

(EN 196)

Curing Time/Temperature (2.2.2 and 2.2.3 of EAD 160086-00-0301)

	Mean Value*	Characteristic*
3 days at 21 °C	73.8 N/mm²	72.4 N/mm²
7 days at 21 °C	80.8 N/mm²	79.7 N/mm²
3 days at 8 °C	73.3 N/mm²	71.8 N/mm²
7 days at 8 °C	76.2 N/mm²	75.0 N/mm²

*Values based on Annex A3 (Table A3.2) of ETA-21/0276

Tensile strength in flexure

(2.2.2 and 2.2.3 of EAD 160086-00-0301)

Curing Time/Temperature	Mean Value*	Characteristic*
3 days at 21 °C	45.8 N/mm²	44.0 N/mm²
7 days at 21 °C	48.3 N/mm²	47.0 N/mm²
3 days at 8 °C	43.5 N/mm²	39.1 N/mm²
7 days at 8 °C	45.6 N/mm²	44.3 N/mm²

*Values based on Annex A3 (Table A3.2) of ETA-21/0276

Tensile strength

(DIN EN ISO 527-3)

Curing Time	Curing Temperature	
	+15 °C	+35 °C
1 day	~20 N/mm²	~26 N/mm²
3 days	~23 N/mm²	~27 N/mm²
7 days	~26 N/mm²	~29 N/mm²

Modulus of elasticity in tension

~11 200 N/mm² (+23 °C) (ISO 527)

Shear strength

(FIP 5.15)

Curing time	Curing Temperature		
	+15 °C	+23 °C	+35 °C
1 day	~4 N/mm²	-	~17 N/mm²
3 days	~15 N/mm²	-	~18 N/mm²
7 days	~16 N/mm²	18 N/mm² (1)	~18 N/mm²

Concrete failure (~15 N/mm²)
(1) (DIN EN ISO 4624)

Tensile adhesion strength

(EN ISO 4624, EN 1542, EN 12188)

Curing time	Substrate	Curing temperature	Adhesion strength
7 days	Concrete dry	+23 °C	> 4 N/mm²*
7 days	Steel	+23 °C	> 17 N/mm²

*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

(EN 12614)

Curing time	Curing temperature	TG
30 days	+30 °C	+52 °C

Heat deflection temperature

(ASTM-D 648)

Curing time	Curing temperature	HDT
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_{fl}–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 mm² 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	See table below	(FIP: Fédération Internationale de la Précontrainte)

Temperature	Potlife	Open time
+8 °C	~120 minutes	~150 minutes
+20 °C	~90 minutes	~110 minuets
+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 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

User must read the most recent corresponding Safety Data Sheets (SDS) before using any products. The SDS provides information and advice on the safe handling, storage and disposal of chemical products and contains 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® and the “Method Statement for Sika® CarboDur® Near Surface Mounted Reinforcement”.

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® and the “Method Statement for Sika® CarboDur® Near Surface Mounted Reinforcement”.

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

Note that as a result of specific local regulations the declared data and recommended uses for this product may vary from country to country. Consult the local Product Data Sheet for exact product data and uses.

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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