Construction

Sikadur®-30

Adhesive for bonding reinforcement

Product Description

Sikadur®-30 is a thixotropic, structural two part adhesive, based on a combination of epoxy resins and special filler, designed for use at normal temperatures between +8°C and +35°C.

Uses

Adhesive for bonding structural reinforcement, particularly in structural strengthening works. Including:

- Sika® CarboDur® Plates to concrete, brickwork and timber (for details see the Sika® CarboDur® Technical Data Sheet).
- 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.
- Different coloured components (for mixing control).
- High initial and ultimate mechanical resistance.
- High abrasion and shock resistance.
- Impermeable to liquids and water vapour.

Tests

Approval / Standards

Deutsches Institut für Bautechnik Z-36.12-29, 2006: General construction authorisation for Sika® CarboDur®.

IBMB, TU Braunschweig, test report No. 1871/0054, 1994: Approval for Sikadur®-30 Epoxy adhesive.

IBMB, TU Braunschweig, test report No. 1734/6434, 1995: Testing for Sikadur®-41 Epoxy mortar in combination with Sikadur®-30 Epoxy adhesive for bonding of steel plates.

Testing according to EN 1504-4

Product Data

Form

Colours	Part A: white Part B: black Parts A+B mixed: light grey
Packaging	6 kg (A+B): pre-batched unit, pallets of 480 kg (80 x 6 kg).

Storage

Storage Conditions / Shelf-Life	24 months from date of production if stored properly in original unopened, sealed and undamaged packaging in dry conditions at temperatures between +5°C and +30°C. Protect from direct sunlight.

Technical Data

Chemical Base	Epoxy resin.
Density	1.65 kg/l ± 0.1 kg/l (parts A+B mixed) (at +23°C)
Sag Flow	(According to FIP (Fédération Internationale de la Précontrainte)) On vertical surfaces it is non-sag up to 3-5 mm thickness at +35°C.
Squeezability	(According to FIP (Fédération Internationale de la Précontrainte)) 4'000 mm^2 at +15°C at 15 kg
Layer Thickness	30 mm max. When using multiple units, one after the other. Do not mix the following unit until the previous one has been used in order to avoid a reduction in handling time.
Change of Volume	Shrinkage: 0.04% (According to FIP (Fédération Internationale de la Précontrainte))
Thermal Expansion Coefficient	Coefficient W: 2.5 x 10^{-5} per °C (temp. range -20°C to +40°C)
Thermal Stability	Glass transition temperature: (According to FIP (Fédération Internationale de la Précontrainte))

Curing time	Curing Temperature	TG
7 days	+45°C	+62°C

Heat deflection temperature: (According to 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

Service Temperature	-40°C to +45°C (when cured at > +23°C)

Mechanical / Physical Properties

Compressive Strength (According to EN 196)

	Curing temperature	
Curing time	+10°C	+35°C
12 hours	-	80 - 90 N/mm^2
1 day	50 - 60 N/mm^2	85 - 95 N/mm^2
3 days	65 - 75 N/mm^2	85 - 95 N/mm^2
7 days	70 - 80 N/mm^2	85 - 95 N/mm^2

Shear Strength Concrete failure (~ 15 N/mm^2) (According to FIP 5.15)

	Curing temperature	
Curing time	+15°C	+35°C
1 day	3 - 5 N/mm^2	15 - 18 N/mm^2
3 days	13 - 16 N/mm^2	16 - 19 N/mm^2
7 days	14 - 17 N/mm^2	16 - 19 N/mm^2

18 N/mm^2 (7 days at +23°C) (According to DIN 53283)

Tensile Strength (According to DIN 53455)

	Curing temperature	
Curing time	+15°C	+35°C
1 day	18 - 21 N/mm^2	23 - 28 N/mm^2
3 days	21 - 24 N/mm^2	25 - 30 N/mm^2
7 days	24 - 27 N/mm^2	26 - 31 N/mm^2

Bond Strength On steel > 21 N/mm^2 (mean values > 30 N/mm^2) (According to DIN EN 24624)
on correctly prepared substrate, ie. blastcleaned to Sa. 2.5

On concrete: (According to FIP (Fédération Internationale de la Précontrainte))
concrete failure (> 4 N/mm^2)

E-Modulus

Compressive:	9'600 N/mm^2	(at +23°C)	(According to ASTM D695)
Tensile:	11'200 N/mm^2	(at +23°C)	(initial, According to ISO 527)

System Information

System Structure Sika® CarboDur® System:
For Application Details of Sika® CarboDur® Plates with Sikadur®-30, see the Sika® CarboDur® Product Data Sheet.

Application Details

Substrate Quality See the Technical Data Sheet of Sika® CarboDur® Plates.

Substrate Preparation See the Technical Data Sheet of Sika® CarboDur® Plates.

Application Conditions / Limitations

Substrate Temperature	+8°C min. / +35°C max.
Ambient Temperature	+8°C min. / +35°C max.
Material Temperature	Sikadur®-30 must be applied at temperatures between +8°C and +35°C.
Substrate Moisture Content	Max. 4% pbw When applied to mat damp concrete, brush the adhesive well into the substrate.
Dew Point	Beware of condensation. Substrate temperature during application must be at least 3°C above dew point.

Application Instructions

Mixing

Part A : part B = 3 : 1 by weight or volume

Mixing Time

Pre-batched units:
Mix parts A+B together for at least 3 minutes with a mixing spindle attached to a slow speed electric drill (max. 600 rpm) until the material becomes smooth in consistency and a uniform grey colour. Avoid aeration while mixing. Then, pour the whole mix into a clean container and stir again for approx. 1 more minute at low speed to keep air entrapment at a minimum. Mix only that quantity which can be used within its potlife.

It is important to entrain as little air as possible when mixing Sikadur®-30. Air entrainment will result in lower compressive strength development.Do not dilute the product with solvent as this will affect the cure and service performance.

Consumption

Laminate type	Sikadur®-30
S512 / H514	~ 0.31 kg/m
S612 / S614 / M614	~0.38 kg/m
S812	~ 0.50 kg/m
S914 / M914	~ 0.56 kg/m
S1012	~ 0.62 kg/m
S1212 / S1214 / M1214	~ 0.74 kg/m

Application Method / Tools

See the Technical Data Sheet of Sika® CarboDur® Plates.

Cleaning of Tools

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

Potlife

(According to FIP (Fédération Internationale de la Précontrainte))

Temperature	+8°C	+20°C	+35°C
Potlife	~ 120 minutes	~ 90 minutes	~ 20 minutes
Open time	~ 150 minutes	~ 110 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 chill parts A+B before mixing them (not below +5°C).

Value Base

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.

Health and Safety Information

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 containing physical, ecological, toxicological and other safety-related data.

Note

The information, and, in particular, the recommendations relating to the application and end-use of Sika's 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 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 proprietary rights of third parties must be observed. All orders are accepted subject of our terms and conditions of sale. Users should always refer to the most recent issue of the Australian version of the Technical Data Sheet for the product concerned, copies of which will be supplied on request.

PLEASE CONSULT OUR TECHNICAL DEPARTMENT FOR FURTHER INFORMATION.

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