

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
- 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

Construction



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 \pm 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 mm² 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 time	Curing temperature	
	+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/mm²)

(According to FIP 5.15)

Curing time	Curing temperature	
	+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/mm² (7 days at +23°C)

(According to DIN 53283)

Tensile Strength

(According to DIN 53455)

Curing time	Curing temperature	
	+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/mm² (mean values > 30 N/mm²) (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/mm²)

E-Modulus

Compressive: 9'600 N/mm² (at +23°C) (According to ASTM D695)
Tensile: 11'200 N/mm² (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 "Method Statement for Sika® CarboDur® Externally Bonded Reinforcement" and the "Method Statement for Sika® CarboDur® Near Surface Mounted Reinforcement"

Application Details

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"

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 When using bulk material the exact mixing ratio must be safeguarded by accurately weighing and dosing each component.
Mixing Time	 <p>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. 300 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.</p> <p>Bulk packing, not pre-batched: First, stir each part thoroughly. Add the parts in the correct proportions into a suitable mixing pail and stir correctly using an electric low speed mixer as above for pre-batched units.</p>

Application Method / Tools	See the "Method Statement for Sika® CarboDur® Externally Bonded Reinforcement" and the "Method Statement for Sika® CarboDur® Near Surface Mounted Reinforcement"
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Consumption	Width of CarboDur® plate	Typical Consumption of Sikadur®-30
	50 mm	0.25 - 0.35 kg/m
	60 mm	0.30 - 0.40 kg/m
	80 mm	0.40 - 0.55 kg/m
	90 mm	0.50 - 0.70 kg/m
	100 mm	0.55 - 0.80 kg/m
	120 mm	0.65 - 1.00 kg/m
	150 mm	0.85 - 1.25 kg/m

Cleaning of Tools	Clean all tools and application equipment with Sika® Colma Cleaner immediately after use. Hardened / cured material can only be mechanically removed.
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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, the mixed adhesive may be divided into portions. Another method is to chill parts A+B before mixing them (not below +5°C).

Notes on Application / Limitations

Sikadur[®] resins are formulated to have low creep under permanent loading. However due to the creep behaviour 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. Please consult a structural engineer for load calculations for your specific application.

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

Disclaimer

SikagROUT and Sikadur products are tested in accordance with Australian Standards and/or Internationally accepted Standards. The published performance data is achieved by testing strictly in accordance to the procedures of these standards.

Any test procedures performed by others on our products that are not in strict accordance with the standard in every facet will likely produce results different from the published above. On site testing by others can be affected by external factors such as incorrect mixing methods, poor sampling techniques, varying temperatures, curing, crushing procedures etc.

Sika can provide Certificates of Compliance of all products delivered to site prior to installation if required.

If results of site testing or testing facilities by others vary from the Sika published data we recommend the following items be reviewed before contacting the manufacturer as one or all of these items could be influencing the results attained on site.

These include but are not limited to the following: site conditions, ambient, substrate and product temperature, mixing equipment, mixer speed, pump equipment, contractor experience, and incorrect test methods.

Sika Australia do not take responsibility nor have to make a case for any such tests where results of testing by others do not achieve the published data as above.

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.

