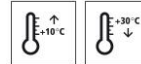


Technical Data Sheet

StoPox SK 41

EP adhesive



Characteristics

Area of application

- for bonding CFRP composites onto concrete structures
- for bonding steel reinforcement onto concrete
- for bonding concrete elements

Properties

- very good bond to the substrate and to the materials to be bonded
- high compressive strength
- high tensile strength
- very high adhesive strength
- very good non-sag properties
- solvent-free

Information/notes

- product is in accordance with EN 1504-4
- product for reinforcing concrete members with bonded reinforcement in accordance with the DAfStb guideline (German committee for reinforced concrete)
- observe the national technical approval

Technical data

Criterion	Standard / test specification	Value/ Unit	Notes
Density (mixture 23 °C)	ISO 2811	1,70 - 1,80 g/cm ³	

The characteristic values stated are average values or approximate values. Due to the natural raw materials in our products, the stated values can vary slightly in the same delivery batch; this does not affect the suitability of the product for its intended use.

Substrate

Requirements

Requirements on the substrate:
The concrete substrate must be load-bearing and free from native and foreign substances that could interfere with adhesion, as well as from corrosion-promoting components (e.g. chlorides).
Remove less strong layers and laitance.

Dry in accordance with the definition of the DAfStb (German) Repair Guideline 2001-10, but depending on the compressive strength class. The moisture content may not exceed 4 CM per cent for concrete qualities up to C30/37 and max. 3 CM per cent for C35/45 concrete, measured with a calcium carbide meter.

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Substrate temperature higher than +8 °C and 3 K above dew point.

Average bond strength: 1.5 N/mm²

Bond strength, lowest single value: 1.0 N/mm²

Preparations

Prepare the substrate using a suitable mechanical process, such as abrasive blasting or high-pressure water blasting (> 800 bar).
Open pores and blow-holes sufficiently.

Application

Application temperature

Lowest application temperature: +10 °C

Highest temperature of substrate and air: +30 °C

Mixing ratio

component A : component B = 100.0 : 25.0 parts by weight

Material preparation

Component A and Component B are supplied in the correct mixing ratio and should be mixed in accordance with the following instructions. Stir Component A, then add all of Component B. Mix thoroughly with a slow-running paddle mixer (max. 300 rpm) until a homogeneous, streak-free compound develops. It is also vital to stir thoroughly at the sides and the bottom in order to evenly distribute the hardener. Mixing time at least 3 minutes. After mixing, transfer the material into a clean container and stir it thoroughly once again. Do not apply from the delivery container!

Coating build-up

System 1: Bonding concrete with concrete

- 1) Substrate preparation
- 2) Bonding concrete with StoPox SK 41

System 2: Bonding steel plates on concrete

- 1) Substrate preparation
- 2) StoPox ZNP as protection against corrosion in 2 application cycles
- 3) Bonding the steel plates with StoPox SK 41
- 4) Top coat of StoPox UA in 2 application cycles (optional)

System 3: Bonding the Sto S&P CFK Lamelles on concrete

- 1) Substrate preparation
- 2) Preparing the CFRP plates with StoCryl VV
- 3) Bonding the CFRP plates with StoPox SK 41

System 4: Bonding the Sto S&P CFK-Lamelles in slots

- 1) Making the slots
- 2) Preparing the CFRP plates
- 3) Bonding the CFRP plates

Application

Please observe the product-specific technical data sheets

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Filling and levelling unevenness as part of structural strengthening:
Level larger unevenness with StoPox KSH thix and StoPox Mörtel standfest in several layers (see also German technical approval).

Consumption: StoPox KSH thix approx. 0.5 - 0.8 kg/m², StoPox Mörtel standfest approx. 1.7 kg/m² per mm layer thickness

System 1: Bonding concrete with concrete
(see also German technical approval)

1) After preparing the substrate, apply StoPox SK 41 directly onto the prepared concrete surface.

2) Apply StoPox SK 41 using a notched trowel, selecting a notching that produces an adhesive joint between 1 mm and 5 mm.
Then press the concrete elements together to bond them and secure them.

They need to be supported for:

at +10 °C: approx. 48 h

at +20 °C: approx. 30 h

at +30 °C: approx. 24 h

Consumption of StoPox SK 41: approx. 1.75 kg/m² per mm of layer thickness.

System 2: Bonding steel plates on concrete
(see also German technical approval)

1) Prepare the substrate using a suitable mechanical process.
Steel: preparation grade Sa 2½ in accordance with ISO 8501-1

2) Corrosion protection
Immediately after preparing the steel parts, apply a double layer of StoPox ZNP corrosion protection.
The waiting time until subsequent bonding is min. 3 days (at +23 °C).

Consumption: StoPox ZNP approx. 200 - 250 g/m² per layer

3) Applying StoPox SK 41 to the steel plates:
Using a trowel, apply StoPox SK 41 to the steel plates in the shape of a long peaked roof.
Use enough material to produce an adhesive joint of min. 1 mm and max. 5 mm.

4) Bonding the steel plates:
Then press the steel plates evenly on to the concrete.
Make sure that the adhesive evenly oozes out of the adhesive joint.
Wipe off the excess adhesive and do not reuse.

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The steel plate needs to be supported for:

at +10°C: approx. 48 hours

at +23°C: approx. 30 hours

at +30°C: approx. 24 hours

5) Checking the steel plates:

Once the adhesive has hardened, check the steel plates for cavities by tapping them.

If there are cavities, obtain special technical advice.

The evenness of the steel plate surface may not deviate across a test stretch of 30 cm by more than 1 mm.

6) Top coat

A suitable protective coating may be necessary e.g. StoCryl V 100.

System 3: Bonding the Sto S&P CFK Lamelles with concrete
(see also German technical approval)

1) Prepare the substrate using a suitable mechanical process.

2) Preparing the Sto S&P CFK Lamelles:

Clean the rough, blank surface of the Sto S&P CFK Lamelle using StoCryl VV and a white, lint-free cloth.

Clean until no more traces of black carbon dust are visible on the white, lint-free cloth.

3) Applying StoPox SK 41 adhesive to the CFRP plates

Apply the homogeneously mixed StoPox SK 41 adhesive in the shape of a long peaked roof on to the rough, blank surface of the cleaned and completely dry Sto S&P CFK Lamelle.

Adhesive application approx. 2 mm.

Consumption: approx. 90 g per cm CFRP plate width and running meter

4) Bonding the Sto S&P CFK Lamelles:

Fix the Sto S&P CFK Lamelle to the prepared concrete area by applying light finger pressure.

Then press on the Sto S&P CFK Lamelle using a wooden or metal bar, so that the adhesive oozes evenly out of the adhesive joint.

Wipe off the excess adhesive and do not reuse.

The adhesive layer should have an average thickness of 2 mm (min. 1 mm and max. 3 mm).

Avoid vibrations in the vulnerable area of the adhesive reinforcement for approx. 2 days during the adhesive's application and curing.

5) Checking the bonding of the CFRP plates:

Once the adhesive has hardened, check the CFRP plates for cavities by tapping

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them.

The evenness of the plate surface may not deviate across a stretch of 30 cm by more than 1 mm.

System 4: Bonding the Sto S&P CFK Lamelles in slots (see also German technical approval)

1) Cut slots into the building element at right angles (perpendicular) to the surface of the building element. The slots must be free from dust and loose particles.

2) Preparing the Sto S&P CFK Lamelles (slot application)

Clean the surface of the Sto S&P CFK Lamelle using StoCryl VV and a white, lint-free cloth.

Clean until no more traces of black carbon dust are visible on the white, lint-free cloth.

3) Bonding the Sto S&P CFK Lamelles

Insert the homogeneously mixed StoPox SK 41 adhesive into the slot using a spatula or a gun.

Press the Sto S&P CFK Lamelle 10 x 1.4 NM (10 mm wide and 1.4 mm thick) into the slot in an upright position.

Using a spatula, trowel off the adhesive that has emerged to produce a smooth finish.

Consumption: approx. 80 g per running meter

Notes, recommendations, special information, miscellaneous

When strengthening structures using CFRP plates, it is important to observe the current technical approvals from the German Institute for Building Technology (DIBt) and the guideline "Strengthening of concrete members with adhesively bonded reinforcement" from the German Committee for Reinforced Concrete (DAfStb).

The strengthening work may only be carried out by companies which can provide evidence of valid proof of suitability, issued by a certified test place, for bonding CFRP plates.

If there are any requirements for structural fire protection, please observe that epoxy resin adhesives, here StoPox SK 41, are only temperature-resistant to a limited extent.

If there is a required fire resistance time to comply with, carry out assessments for the existing building element in accordance with DIN EN 1992-1-2/NA without the CFRP plates.

If necessary, check whether the required fire resistance can be achieved by applying fire protection boards, in this case also without the involvement of the CFRP plates.

If the CFRP plates should continue to provide structural support in the case of fire, additionally apply fire protection cladding. If there is no approved fire protection system, approval on an individual basis is necessary.

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Damage to the CFRP plates during storage, application, or while in use poses a risk as to the reliability of the structural strengthening. Damaged CFRP plates may not be applied or must be replaced immediately after consulting with a qualified planner.

Please also observe the general application instructions on the website www.stocretec.de
The declaration(s) of performance can be obtained from the StoCretec Technisches InfoCenter

Delivery

Packaging pail and tin

Storage

Storage conditions Store in dry and frost-free conditions. Avoid direct sunlight.

Storage life In the original container until ... (see packaging).

Certificates/approvals

Z-36.1-87 GUT-00001001

Z-36.12-86 GUT-00001002

Z-36.12-88 Sto S&P CFK Lamella, slotted

Identification

Product group Adhesive

GISCODE RE30

Safety

This product is subject to compulsory labelling in accordance with the current EU regulation.

You will receive an EU Safety Data Sheet with your first order.

Please observe the information regarding the handling of the product, its storage, and disposal.

Handling epoxy resins: "Praxisleitfaden für den Umgang mit Epoxidharzen", (Practical guide for handling epoxy resins) and test report: "Prüfbericht zur Schutzwirkung von acht

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Chemikalienschutzhandschuhen gegenüber EP-Beschichtungen" (Test report on the protective effect of eight chemical protective gloves against EP coatings),
Gloves: "Handschuhe für den Umgang mit lösemittelfreien Epoxidharzen" (Gloves for handling solvent-free epoxy resins), and
Protective gloves: "Die richtige Anwendung von Schutzhandschuhen" (The correct use of protective gloves)
<https://www.bgbau.de/themen/sicherheit-und-gesundheit/gefahrstoffe/umgang-mit-epoxidharzen/>

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Guidelines for the planning of building site facilities: "Wirtschaftliche and sichere Baustelleneinrichtung"

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Friedrich-Henkel-Weg 1-25, 44149 DE-Dortmund
Tel. (+49) 231 9071-0, Fax. (+49) 231 9071-2454,
E-mail: poststelle@baua.bund.de, homepage: www.baua.de

Special notes

The information in this Technical Data Sheet serves to ensure the product's intended use, or its suitability for use, and is based on our findings and experience. Users are nevertheless responsible for establishing the product's suitability and use.
Applications not specifically mentioned in this Technical Data Sheet are permissible only after prior consultation. Where no approval is given, such applications are at the user's own risk. This applies in particular when the product is used in combination with other products.

When a new Technical Data Sheet is published, all previous Technical Data Sheets are no longer valid. The latest version is available on the Internet.

StoCretec GmbH
Gutenbergstr. 6
D-65830 Kriftel

Tel.: +49 6192 401-104
Fax: +49 6192 401-105
stocretec@sto.com
www.stocretec.de