



Specialist Construction Supplies for Repair, Maintenance, Building & Infrastructure

Sikadur 31 CF Rapid Data Sheet

Specification notes

Product: **Sikadur 31 CF Rapid**

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Sikadur 31 CF Rapid Data Sheet

Sikadur®-31 CF Rapid

2-part thixotropic epoxy adhesive

Product Description

Sikadur®-31 CF Rapid is a moisture tolerant, thixotropic, structural two part adhesive and repair mortar, based on a combination of epoxy resins and special fillers, designed for use at temperatures between +5°C and +20°C.

Uses

As a structural adhesive and mortar for:

- Concrete elements
- Hard natural stone
- Ceramics, fiber cement
- Mortar, Bricks, Masonry
- Steel, Iron, Aluminium
- Wood
- Polyester, Epoxy
- Glass

As a repair mortar and adhesive:

- Corners and edges
- Holes and void filling
- Vertical and overhead use

Joint filling and crack sealing:

- Joint and crack arris / edge repair

Characteristics / Advantages

Sikadur®-31 CF Rapid has the following advantages:

- Easy to mix and apply
- Very good adhesion to most construction materials
- High strength adhesive
- Thixotropic: non-sag in vertical and overhead applications
- Hardens without shrinkage
- Different coloured components (for mixing control)
- No primer needed
- High initial and ultimate mechanical strength
- Good abrasion resistance
- Impermeable to liquids and water vapour
- Good chemical resistance

Construction



Tests

Approval / Standards Testing according to EN 1504-4.

Product Data

Form

Colours Part A: white
 Part B: dark grey
 Parts A+B mixed: concrete grey

Packaging 6 kg (A+B) Pre-batched unit, pallets of 480 kg (80 x 6 kg).
 1.2 kg (A+B) Pre-batched unit, box of 6 x 1.2 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 sunshine.

Technical Data

Chemical Base Epoxy resin.

Density 1.94 ± 0.1 kg/l (part A+B mixed) (at +23°C) (evacuated)

Sag Flow On vertical surfaces it is non-sag up to 15 mm thickness. (According to EN 1799)

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:
 Hardens without shrinkage.

Thermal Expansion Coefficient Coefficient W:
 6.1 x 10⁻⁵ per °C (Temp. range +23°C - +60°C) (According EN 1770)

Thermal Stability Heat Deflection Temperature (HDT):
 HDT = +49°C (7 days / +23°C) (According to ISO 75)
 (thickness 10 mm)

Mechanical / Physical Properties

Compressive Strength

(According to DIN EN 196)

Curing time	Curing temperature	
	+5°C	+20°C
1 day	33 - 43 N/mm ²	52 - 62 N/mm ²
3 days	53 - 63 N/mm ²	58 - 68 N/mm ²
7 days	58 - 68 N/mm ²	69 - 79 N/mm ²

Flexural Strength

(According to DIN EN 196)

Curing time	Curing temperature	
	+5°C	+20°C
1 day	9 - 19 N/mm ²	21 - 31 N/mm ²
3 days	16 - 26 N/mm ²	23 - 33 N/mm ²
7 days	21 - 31 N/mm ²	25 - 35 N/mm ²

Tensile Strength

(According to ISO 527)

Curing time	Curing temperature	
	+5°C	+20°C
1 day	1 - 11 N/mm ²	11 - 21 N/mm ²
3 days	13 - 23 N/mm ²	12 - 22 N/mm ²
7 days	13 - 23 N/mm ²	14 - 24 N/mm ²

Bond Strength

(According to EN ISO 4624, EN 1542 and EN 12188)

Time	Temperature	Substrate	Bond strength
1 day	+20°C	Concrete dry	> 4 N/mm ² *
1 day	+20°C	Concrete moist	> 4 N/mm ² *
1 day	+10°C	Steel	6 - 10 N/mm ²
3 days	+5°C	Steel	10 - 14 N/mm ²
3 days	+10°C	Steel	11 - 15 N/mm ²
3 days	+20°C	Steel	13 - 17 N/mm ²

*100% concrete failure.

E-Modulus

Tensile:

~ 5'500 N/mm² (14 days at +20°C)

(According to ISO 527)

Compressive:

~ 6'000 N/mm² (14 days at +20°C)

(According to ASTM D695)

Elongation at Break

0.5 ± 0.1% (7 days at +20°C)

(According to ISO 527)

System Information


Application Details

Consumption / Dosage	The consumption of Sikadur®-31 CF Rapid is ~ 1.94 kg/m ² per mm of thickness.
Substrate Quality	Mortar and concrete must be older than 28 days (depends on minimal requirement of strengths). Verify the substrate strength (concrete, masonry, natural stone). The substrate surface (all types) must be clean, dry or mat damp (no standing water) and free from contaminants such as dirt, oil, grease, existing surface treatments and coatings etc.. Steel substrates must be de-rusted similar to Sa 2.5. The substrate must be sound and all loose particles must be removed.
Substrate Preparation	Concrete, mortar, stone, bricks: Substrates must be sound, dry or mat damp (no standing water), clean and free from laitance, ice, standing water, grease, oils, old surface treatments or coatings and all loose or friable particles must be removed to achieve a laitance and contaminant free, open textured surface. Steel: Must be cleaned and prepared thoroughly to an acceptable quality i.e. by blastcleaning and vacuum. Avoid dew point conditions.

Application Conditions / Limitations

Substrate Temperature	+5°C min. / +20°C max.
Ambient Temperature	+5°C min. / +20°C max.
Material Temperature	Sikadur®-31 CF Rapid must be applied at temperatures between +5°C and +20°C.
Substrate Moisture Content	Substrate must be dry or mat damp (no standing water) 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 = 2 : 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. 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.
Application Method / Tools	When using a thin layer adhesive, apply the mixed adhesive to the prepared surface with a spatula, trowel, notched trowel, (or with hands protected by gloves). When applying as a repair mortar use some formwork. When using for bonding metal profiles onto vertical surfaces ,support and press uniformly using props for at least 12 hours, depending on the thickness applied (not more than 5 mm) and the room temperature. Once hardened check the adhesion by tapping with a hammer.

Cleaning of Tools	Clean all tools and application equipment with Sika® Thinner C immediately after use. Hardened / cured material can only be mechanically removed.		
Potlife	Potlife (200 g)		(According to EN ISO 9514)
	+5°C	+10°C	+20°C
	~ 60 minutes	~ 55 minutes	~ 45 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.		
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.		
Local Restrictions	Please note that as a result of specific local regulations the performance of this product may vary from country to country. Please consult the local Product Data Sheet for the exact description of the application fields.		
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.		
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