BUILDING TRUST

PRODUCT DATA SHEET

Sikadur®-31 CF Normal

Sikadur-31 CF Normal is a moisture tolerant, thixotropic, structural two part adhesive and repair mortar, based on a combination of epoxy resins and special fillers.

DESCRIPTION

Sikadur®-31 CF Normal is a moisture tolerant, thixotropic, structural 2-component adhesive and repair mortar, based on a combination of epoxy resins and special fillers.

USES

Sikadur®-31 CF Normal may only be used by experienced professionals.

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 Normal 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

APPROVALS / STANDARDS

- Adhesive for structural bonding tested according to EN 1504-4, provided with the CE-mark
- Pull off test according to ASTM D4541

PRODUCT INFORMATION

Chemical Base	Epoxy resin	
Packaging	6 kg (A+B)	Pre-batched unit
		pallets of 480 kg (80 x 6 kg)
Colour	Component A: white Component B: dark grey Components A+B mixed: concrete grey	
Shelf Life	24 months from date of production	

Storage Conditions	Store in original, unopened, sealed and undamaged packaging in dry conditions. Protect from direct sunlight.
Density	1.90 + 0.1 kg/l (components A+B mixed) (at +23 °C) (evacuated)

TECHNICAL INFORMATION

Compressive Strength (DIN EN 196)

Curing time	Curing temperature		
	+10 °C	+23 °C	+ 30 °C
1 day	~ 30 N/mm²	~ 50N/mm²	~ 55 N/mm²
3 days	~ 45 N/mm²	~ 60 N/mm²	~ 65 N/mm²
7 days	~ 55 N/mm²	~ 65 N/mm²	~ 65 N/mm²

Modulus of Elasticity in Compression ~ 4,600 N/mm² (14 days at +23 °C) (ASTM D695)

Tensile Strength in Flexure (DIN EN 196)

Curing time	Curing temperature		
	+10 °C	+23 °C	+30 °C
1 day	~ 14 N/mm²	~ 25 N/mm²	~ 25 N/mm²
2 days	~ 25 N/mm²	~ 30 N/mm²	~ 30 N/mm²
7 days	~ 30 N/mm²	~ 35 N/mm²	~ 35 N/mm²

Tensile Strength (ISO 527)

Curing time	Curing temperature		
	+10 °C	+23 °C	+30 °C
1 day	~ 4 N/mm²	~ 8 N/mm²	~ 12 N/mm²
3 days	~ 12 N/mm²	~ 20 N/mm²	~ 20 N/mm²
7 days	~ 17 N/mm²	~ 21 N/mm²	~ 22 N/mm²

Modulus of Elasticity in Tension ~ 5,000 N/mm² (14 days at +23 °C) (ISO 527)

Elongation at Break 0.4 ± 0.1 % (7 days at +23 °C) (ISO 527)

Shrinkage Hardens without shrinkage.

Tensile Adhesion Strength (EN ISO 4624, EN 1542, EN 12188)

Curing time	Substrate	Curing temperature	Adhesion strength
1 day	Concrete dry	+10 °C	> 4 N/mm² *
1 day	Concrete moist	+10 °C	> 4 N/mm² *
1 day	Steel	+10 °C	~ 8 N/mm²
3 days	Steel	+10 °C	~ 12 N/mm²
3 days	Steel	+23 °C	~ 13 N/mm²
3 days	Steel	+30 °C	~ 15 N/mm²

*100 % concrete failure

Curing time	Substrate	Adhesion strength
14 days	Concrete dry	> 2MPa

(ASTM D4541)

Coefficient of Thermal Expansion 5.9 x 10^{-5} per °C (Temperature range from +23 °C to +60 °C) (EN 1770)

Heat Deflection Temperature (ISO 75)

Curing time	Curing temperature	HDT
7 days	+23 °C	+49 °C

(thickness 10 mm)

APPLICATION INFORMATION

Mixing Ratio	Component A : component B = 2 : 1 by weight or volume
Consumption	The consumption of Sikadur®-31 CF Normal is ~ 1.9 kg/m² per mm of thickness.
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.	
Sag Flow	On vertical surfaces it is non-sag up to 15 mm thickness.	(EN 1799)
Ambient Air Temperature	+10 °C min. / +30 °C max.	
Dew Point	Beware of condensation. Substrate temperature during application must be at least 3 °C above dew point.	
Substrate Temperature	+10 °C min. / +30 °C max.	
Substrate Moisture Content	Substrate must be dry or mat damp (no standing water). Brush the adhesive well into the substrate.	
Pot Life		(EN ISO 9514)

Temperature	Potlife*	Open time
+10 °C	~ 145 minutes	—
+23 °C	~ 55 minutes	—
+30 °C	~ 35 minutes	~ 50 minutes

*200 g
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 Product Data Sheet are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control.

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.
A structural engineer must be consulted for load calculations for the specific application.

ECOLOGY, HEALTH AND SAFETY

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

VOC DATA

The maximum content of Sikadur®-31 CF Normal is 79 g/L VOC for the ready to use product.

APPLICATION INSTRUCTIONS

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 blast cleaning and vacuum.
Avoid dew point conditions.

MIXING

Pre-batched units:
Mix components 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® Remover-208 immediately after use. Hardened / cured material can only be mechanically removed.

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.

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. It may be necessary to adapt the above disclaimer to specific local laws and regulations. Any changes to this disclaimer may only be implemented with permission of Sika® Corporate Legal in Baar.

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