Construction

Sikadur®-31 CF Slow

2-part thixotropic epoxy adhesive

Product Description	Sikadur®-31 CF Slow is a solvent-free, moisture tolerant, thixotropic, structural two part adhesive and repair mortar, based on epoxy resins and special fillers for use at higher temperatures between +25°C and +45°C.
Uses	As a structural adhesive and mortar for: ■ Concrete elements ■ Hard natural stone ■ Ceramics, fibre cement ■ Mortar, Bricks, Masonry ■ Steel, Iron, Aluminium ■ Wood ■ Polyester, Epoxy ■ Glass As a fast setting rapid repair adhesive and mortar: ■ Corners and edges ■ Holes and void filling ■ For vertical and overhead use Joint filling and crack sealing: ■ Joint arris repair and crack sealing
Characteristics / Advantages	Sikadur®-31 CF Slow has the following advantages: ■ Easy to mix and apply ■ Suitable for dry and damp concrete surfaces ■ Very good adhesion to most construction materials ■ High strength adhesive ■ Thixotropic: non-sag in vertical and overhead applications ■ Solvent free ■ 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

Tests

Approval / Standards	Testing according to ASTM, C881M-02, Type I, Grade 3, Class B+C. Testing according to EN 1504-4.

Product Data

Form

Colours	Part A: Part B: Parts A+B mixed:	grey black 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	12 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	1.93 $\pm$ 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 / Creep: Hardens without shrinkage.	
Thermal Expansion Coefficient	Coefficient W: 79 x 10^{-6} per °C (Temp. range +23°C - +60°C)	(According to EN 1770)
Thermal Stability	Heat Deflection Temperature (HDT): +50°C (7 days / +35°C)	(According to ISO 75) (thickness 10 mm)

Mechanical / Physical Properties

Compressive Strength (According to DIN EN 196)

Curing time	+25°C	+35°C	+45°C
1 day	35 - 45 N/mm^2	40 - 50 N/mm^2	43 - 53 N/mm^2
3 days	44 - 54 N/mm^2	49 - 59 N/mm^2	44 - 54 N/mm^2
7 days	47 - 57 N/mm^2	52 - 62 N/mm^2	49 - 59 N/mm^2

Flexural Strength (According to DIN EN 196)

Curing time	+25°C	+35°C	+45°C
1 day	15 - 25 N/mm^2	15 - 25 N/mm^2	13 - 23 N/mm^2
3 days	20 - 30 N/mm^2	20 - 30 N/mm^2	14 - 25 N/mm^2
7 days	22 - 32 N/mm^2	23 - 33 N/mm^2	21 - 31 N/mm^2

Tensile Strength (According to ISO 527)

Curing time	+25°C	+35°C	+45°C
1 day	4 - 8 N/mm^2	10 - 16 N/mm^2	9 - 15 N/mm^2
3 days	10 - 16 N/mm^2	13 - 19 N/mm^2	9 - 15 N/mm^2
7 days	10 - 16 N/mm^2	14 - 20 N/mm^2	10 - 16 N/mm^2

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

Curing time	Temperature	Substrate	Bond strength
7 days	+35°C	Concrete dry	> 4 N/mm^2 *
7 days	+25°C	Concrete moist	> 4 N/mm^2 *
7 days	+35°C	Concrete moist	> 4 N/mm^2 *
7 days	+25°C	Steel	13 - 17 N/mm^2
7 days	+35°C	Steel	12 - 16 N/mm^2
7 days	+50°C	Steel	12 - 16 N/mm^2

*100% concrete failure

E-Modulus

Tensile:
~ 3'000 N/mm^2 (14 days at +35°C) (According to ISO 527)

Compressive:
~ 2'600 N/mm^2 (14 days at +35°C) (According to ASTM D695)

Elongation at Break 0.6 ± 0.1% (7 days at +35°C) (According to ISO 75)

Strength Development Confirm the strength development by producing cubes on site and testing them for compressive and flexural strength.

System Information

Application Details

Consumption / Dosage	The consumption of Sikadur®-31 CF Slow is ~ 1.9 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 must be clean, dry and free from all contaminants such as dirt, oil, grease, existing surface treatments and coatings etc.. Steel substrates must be derusted 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, 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. Other surfaces (polyester, epoxy, glass, ceramic): On these substrates pre-apply Sikafloor®-156 (primer) and then, “wet on wet“ apply Sikadur®-31 CF Slow.

Application Conditions / Limitations

Substrate Temperature	+25°C min. / +40°C max.
Ambient Temperature	+25°C min. / +45°C max.
Material Temperature	Sikadur®-31 CF Slow can be applied at temperatures between +25°C and +45°C.
Substrate Humidity	When applied to mat damp concrete, brush the adhesive well into the substrate.
Dew Point	Beware of condensation! Ambient temperature during application must be at least 3°C above dew point.

Application Instructions

Mixing	Part A : part B = 2 : 1 by weight
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 ~ 1 minute at low speed to keep air entrapment at a minimum. Mix only that quantity which can be used within its pot life.
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, press uniformly using props for at least 12 hours, dependent on the layer thickness applied (not more than 5 mm) and the room temperature. Once hardened check the adhesion by tapping with a hammer.

Construction

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

Potlife (200 g) (According to EN ISO 9514)

+25°C	+35°C	+45°C
~ 120 minutes	~ 70 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 and B before mixing them (not below +5°C).

Notes

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

Protective Measures

To avoid rare allergic reactions, use of protective gloves. Change soiled work clothes and wash hands before breaks and after finishing work.
When uncured, Sikadur®-31 CF Slow parts A+B, are water-pollutants and must not be discharged into drains, waterways or the ground.

Local regulation as well as health and safety advice on packaging labels must be observed.

Ecology

Transportation Class

Important Notes

Uncured / unmixed material must be removed according to local regulations. Fully cured material can be disposed of as household waste under agreement with the responsible local authorities.

Detailed health and safety information as well as detailed precautionary measures e.g. physical, toxicological and ecological data can be obtained from the material safety data sheet.

Toxicity

Legal Notes

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