Construction

Sikadur®-32

2-part structural epoxy bonding agent

Product Description

Sikadur®-32 is a moisture tolerant, structural, two part bonding agent, based on a combination of epoxy resins and special fillers, designed for use at temperatures between +10°C and +30°C.

Uses

As a structural bonding agent and adhesive for:

- Concrete elements (including bonding fresh to hardened concrete)
- Hard natural stone
- Ceramics, fibre-cement
- Mortar, Bricks, Masonry
- Steel, Iron, Aluminium
- Wood
- Polyester / fibreglass and Epoxy resin materials
- Glass

Characteristics / Advantages

Sikadur®-32 has the following advantages:

- Easy to mix and apply
- Suitable for dry and damp concrete surfaces
- Very good adhesion to most construction materials
- High Bond Strength
- Hardens without shrinkage
- Different coloured components (for mixing control)
- No primer needed
- High initial and ultimate mechanical strength
- Impermeable to liquids and water vapour
- Good chemical resistance

Product Data

Colours

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

Packaging

5 kg (A+B) Pre-batched unit.
1.2 kg (A+B) Pre-batched unit.

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	1.4 ± 0.1 kg/l at +23°C (part A+B mixed)	
Sag Flow	On vertical surfaces it is non-sag up to ~ 1 mm thickness.	(According to EN 1799)
Layer Thickness	~ 1 mm max.	
Change of Volume	Shrinkage: Hardens without shrinkage.	
Thermal Expansion Coefficient	Coefficient W: 8.2 x 10^{-5} per °C (Temp. range +23°C - +60°C)	(According to EN 1770)
Thermal Stability	Heat Deflection Temperature (HDT): HDT = +46°C (7 days / +23°C)	(According to ISO 75) (thickness 10 mm)

Mechanical / Physical Properties

Compressive Strength* (According to ASTM D 695-95)

	Curing temperature		
Curing time	+10°C	+23°C	+30°C
1 day	-	~24 N/mm^2	~30 N/mm^2
3 days	~13 N/mm^2	~28 N/mm^2	~41 N/mm^2
7 days	~32 N/mm^2	~39 N/mm^2	~52 N/mm^2
14 days	~42 N/mm^2	~49 N/mm^2	~56 N/mm^2

*at 4% elongation

Flexural Strength (According to DIN EN 53452)

	Curing temperature		
Curing time	+10°C	+23°C	+30°C
1 day	-	~29 N/mm^2	~52 N/mm^2
3 days	~12 N/mm^2	~48 N/mm^2	~57 N/mm^2
7 days	~24 N/mm^2	~50 N/mm^2	~60 N/mm^2
14 days	~42 N/mm^2	~56 N/mm^2	~65 N/mm^2

Tensile Strength (According to ISO 527)

	Curing temperature		
Curing time	+10°C	+23°C	+30°C
1 day	-	~16 N/mm^2	~24 N/mm^2
3 days	-	~25 N/mm^2	~30 N/mm^2
7 days	~20 N/mm^2	~32 N/mm^2	~33 N/mm^2
14 days	~25 N/mm^2	~33 N/mm^2	~34 N/mm^2

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

Time	Temperature	Substrate	Bond strength
7 days	+10°C	Concrete dry	> 3 N/mm^2 *
7 days	+10°C	Concrete moist	> 3 N/mm^2 *
1 day	+10°C	Steel	6 - 10 N/mm^2
3 days	+10°C	Steel	10 - 14 N/mm^2
3 days	+23°C	Steel	11 - 15 N/mm^2
3 days	+30°C	Steel	13 - 17 N/mm^2

*100% concrete failure.

E-Modulus	Tensile: ~ 4'000 N/mm^2 (14 days at +23°C)	(According to ISO 527)
	Flexural: ~ 3'600 N/mm^2 (14 days at +23°C)	(According to DIN EN 53452)
	Compressive: ~ 3'250 N/mm^2 (14 days at +23°C)	(According to ASTM D695-95)
Elongation at Break	1.0 $\pm$ 0.1% (14 days at +23°C)	(According to ISO 527)

System Information

Application Details

Consumption / Dosage	The consumption of Sikadur®-32 Normal is ~ 1.2 – 1.4 kg/m^2 per mm of thickness.
Substrate Quality	Hardened mortar and concrete must be older than 28 days (dependening on any minimal strength requirements). Verify the substrate strength by testing (concrete, masonry, natural stone). The substrate surface (all types) must be clean, dry and free from contaminants such as dirt, oil, grease, existing surface treatments and coatings etc. Steel substrates must be de-rusted to a condition similar to Sa 2.5. The substrate must be sound and all loose or friable particles must be removed.
Substrate Preparation	Concrete, mortar, stone and brick substrates.: Concrete and other hardened mineral substrates must be prepared by suitable means such as high pressure water jetting and / or blastcleaning, in order to obtain surfaces that are sound, clean, dry and free from any cement laitance, ice, standing water, grease, oils, old coatings or other surface treatments. Any loose or friable particles must also be removed to achieve a contaminant free and open textured surface. Steel substrates: Steel surfaces must be cleaned and prepared thoroughly to the acceptable quality standard equivalent to Sa 2.5 i.e. normally by blastcleaning and then removing any dust by vacuum. Avoid dew point conditions.

Application Conditions / Limitations

Substrate Temperature	+10°C min. / +30°C max.
Ambient Temperature	+10°C min. / +30°C max.
Material Temperature	Sikadur®-32 Normal must be applied at temperatures between +10°C and +30°C
Substrate Moisture Content	Can be applied to mat damp concrete. In these situations apply by brush and work the material well into the substrate.
Dew Point	Beware of condensation and dew point conditions! 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.

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Application Method / Tools

Apply the mixed Sikadur®-32 to the prepared surface by brush, roller, spray or with a trowel, and ensure uniform and complete coverage. On hardened concrete substrates mechanically prepared to receive fresh concrete, always apply by brush and work the material well into the substrate.

Place the fresh concrete whilst the Sikadur®-32 layer is still 'tacky'. If the material becomes glossy and loses tackiness, apply a fresh coat with additional Sikadur®-32 and proceed.

Cleaning of Tools

Clean all tools and application equipment with Sika® Colma Cleaner immediately after use. Hardened / cured material can only be mechanically removed.

Pot-life

Pot-life (200 g) (According to EN ISO 9514)

+10°C	+23°C	+30°C
~ 145 minutes	~ 55 minutes	~ 35 minutes

The pot-life 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 pot-life. To obtain longer workability at high temperatures, the mixed Sikadur®-32 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.

Legal Notes

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