

# PRODUCT DATA SHEET

## Sikadur<sup>®</sup>-32 Normal

### 2-PART STRUCTURAL EPOXY BONDING AGENT

#### DESCRIPTION

Sikadur<sup>®</sup>-32 Normal 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<sup>®</sup>-32 Normal 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

#### APPROVAL / STANDARDS

Tested according to EN 1504-4

#### PRODUCT INFORMATION

<b>Chemical Base</b>	Epoxy resin.	
<b>Packaging</b>	5 kg (A+B) Pre-batched unit	
<b>Appearance / Colour</b>	Part A:	White
	Part B:	Dark grey
	Part A+B mixed:	Concrete grey
<b>Shelf Life</b>	24 months from date of production if stored properly in original unopened, sealed and undamaged packaging.	
<b>Storage Conditions</b>	Store in dry conditions at temperatures between +5 °C and +30 °C. Protect from direct sunshine.	
<b>Density</b>	1.4 + 0.1 kg/L at +23°C (part A+B mixed)	

## TECHNICAL INFORMATION

### Compressive Strength

(ASTM D 695-95)

Curing Time	+10 °C	+23°C	+30°C
1 days	-	~24 N/mm <sup>2</sup>	~30 N/mm <sup>2</sup>
3 days	~13 N/mm <sup>2</sup>	~28 N/mm <sup>2</sup>	~41 N/mm <sup>2</sup>
7 days	~32 N/mm <sup>2</sup>	~39 N/mm <sup>2</sup>	~52 N/mm <sup>2</sup>
14 days	~42 N/mm <sup>2</sup>	~49 N/mm <sup>2</sup>	~56 N/mm <sup>2</sup>

### Flexural Strength

(DIN EN 53452)

Curing Time	+10 °C	+23°C	+30°C
1 days	-	~29 N/mm <sup>2</sup>	~52 N/mm <sup>2</sup>
3 days	~12 N/mm <sup>2</sup>	~48 N/mm <sup>2</sup>	~57 N/mm <sup>2</sup>
7 days	~24 N/mm <sup>2</sup>	~50 N/mm <sup>2</sup>	~60 N/mm <sup>2</sup>
14 days	~42 N/mm <sup>2</sup>	~56 N/mm <sup>2</sup>	~65 N/mm <sup>2</sup>

### Tensile Strength

(ISO 527)

Curing Time	+10 °C	+23°C	+30°C
1 days	-	~16 N/mm <sup>2</sup>	~24 N/mm <sup>2</sup>
3 days	-	~25 N/mm <sup>2</sup>	~30 N/mm <sup>2</sup>
7 days	~20 N/mm <sup>2</sup>	~32 N/mm <sup>2</sup>	~33 N/mm <sup>2</sup>
14 days	~25 N/mm <sup>2</sup>	~33 N/mm <sup>2</sup>	~34 N/mm <sup>2</sup>

### Tensile Adhesion Strength

(EN ISO 4624, EN 1542 and EN 12188)

Time	Temperature	Substrate	Bond Strength
7 days	+10 °C	Concrete dry	>3 N/mm <sup>2</sup>
7 days	+10 °C	Concrete moist	>3 N/mm <sup>2</sup>
1 day	+10 °C	Steel	6 – 10 N/mm <sup>2</sup>
3 days	+10 °C	Steel	10 – 14 N/mm <sup>2</sup>
3 days	+23 °C	Steel	11 – 15 N/mm <sup>2</sup>
3 days	+30 °C	Steel	13 – 17 N/mm <sup>2</sup>

\*100 % concrete failure.

### Coefficient of Thermal Expansion

Coefficient W:

8.2 x 10<sup>-5</sup> per °C (Temp. range +23 °C - +60 °C)

(EN 1770)

### Thermal Stability

Heat Deflection Temperature (HDT):

HDT = +46 °C (7 days / +23 °C)

(According to ISO 75)

(thickness 10 mm)

### Change of Volume

Shrinkage: Hardens without shrinkage.

### Sag flow

On vertical surfaces it is non-sag up to ~ 1 mm thickness.

(EN 1799)

### E-Modulus

Tensile:

~4 000 N/mm<sup>2</sup> (14 days at +23°C)

(ISO 527)

Flexural:

~3 600 N/mm<sup>2</sup> (14 days at +23°C)

(DIN EN 53452)

Compressive:

~3 250 N/mm<sup>2</sup> (14 days at +23°C)

(ASTM D695-95)

**Elongation at Break** 1.0 + 0.1 % (14 days at +23 °C) (ISO 527)

**Pot Life** (ISO 9514)

Temperature	+10 °C	+23 °C	+30 °C
Potlife (200 g)	~145 minutes	~55 minutes	~35 minutes
Open Time	-	~120 minutes	~60 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 Normal may be divided into portions. Another method is to chill parts A+B before mixing them (not below +5°C).

## APPLICATION INFORMATION

<b>Consumption</b>	The consumption of Sikadur®-32 Normal is ~1.2 – 1.4 kg/m <sup>2</sup> per mm of thickness
<b>Mixing Ratio</b>	Part A : part B = 2 : 1 by weight or volume
<b>Layer Thickness</b>	~1 mm max
<b>Material Temperature</b>	Sikadur®-32 Normal must be applied at temperatures between +10 °C and +30 °C
<b>Ambient Temperature</b>	+10 °C min. / +30 °C max.
<b>Dew Point</b>	Beware of condensation. Substrate temperature during application must be at least 3 °C above dew point.
<b>Substrate Temperature</b>	+10 °C min. / +30 °C max.
<b>Substrate Moisture Content</b>	Can be applied to mat damp concrete. In these situations apply by brush and work the material well into the substrate.

## APPLICATION INSTRUCTIONS

### SUBSTRATE QUALITY

Hardened mortar and concrete must be older than 28 days (depending 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.

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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.

### MIXING



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 pot life.

## APPLICATION METHOD / TOOLS

Apply the mixed Sikadur®-32 Normal 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 Normal layer is still 'tacky'. If the material becomes glossy and loses tackiness, apply a fresh coat with additional Sikadur®-32 Normal 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.

## 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.

## 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.

## LOCAL RESTRICTIONS

Please note that as a result of specific local regulations the declared data and recommended uses for this product may vary from country to country. Please consult the local Product Data Sheet for the exact product data and uses.

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## 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 Safety Data Sheet (SDS) containing physical, ecological, toxicological and other safety-related data.

## 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.