

PRODUCT DATA SHEET

Sikadur[®]-32 EF

EPOXY STRUCTURAL BONDING AGENT



DESCRIPTION

Sikadur[®]-32 EF is a 2-part, epoxy based structural bonding agent. It is moisture tolerant and can bond wet or dry materials to damp or dry substrates.

USES

Structural adhesive for bonding:

- Concrete elements (including bonding fresh to hardened concrete)
- Hard natural stone
- Ceramics, fibre cement
- Mortar, bricks, masonry, render
- Steel, iron, aluminium
- Wood
- Polyester, epoxy
- Polyester / fibreglass and epoxy resin materials
- Glass

CHARACTERISTICS / ADVANTAGES

- Application temperature range +10 °C to +30 °C
- Thickness up to ~1 mm
- Suitable for dry and damp concrete substrates
- Easy to mix and apply
- Very good adhesion to a range of construction materials
- Hardens without shrinkage
- Different coloured parts (for mixing control)
- No primer needed
- High initial and ultimate mechanical strength
- Impermeable to liquids and water vapour
- Good chemical resistance

APPROVALS / CERTIFICATES

- CE Marking and Declaration of Performance to EN 1504-4 - Structural bonding

PRODUCT INFORMATION

Composition	Epoxy resin	
Packaging	Parts A+B	1 kg pre-batched unit
	Parts A+B	4,5 pre-batched unit
Colour	Part A	Light grey
	Part B	Dark grey
	Parts A+B mixed	Concrete grey
Shelf life	24 months from date of production	
Storage conditions	The product must be stored in original, unopened and undamaged packaging in dry conditions at temperatures between +5 °C and +30 °C. Always refer to packaging.	
Density	Mixed resin ~1,5 ± 0,1 kg/l Value at +23 °C.	

TECHNICAL INFORMATION

Compressive Strength	Curing time	Curing temperature			(ASTM D 695-95)
		+10 °C	+23 °C	+30 °C	
	1 day	~5 N/mm ²	~35 N/mm ²	~49 N/mm ²	
	3 days	~40 N/mm ²	~42 N/mm ²	~55 N/mm ²	
	7 days	~45 N/mm ²	~48 N/mm ²	~57 N/mm ²	
14 days	~51 N/mm ²	~52 N/mm ²	~58 N/mm ²		
Modulus of Elasticity in Compression	~3300 N/mm ² (14 days at +23 °C)				(ASTM D 695-95)
Tensile Strength in Flexure	Curing time	Curing temperature			(DIN EN ISO 178)
		+10 °C	+23 °C	+30 °C	
	1 day	~13 N/mm ²	~18 N/mm ²	~31 N/mm ²	
	3 days	~35 N/mm ²	~37 N/mm ²	~36 N/mm ²	
	7 days	~41 N/mm ²	~40 N/mm ²	~39 N/mm ²	
14 days	~50 N/mm ²	~42 N/mm ²	~40 N/mm ²		
Modulus of Elasticity in Flexure	~3700 N/mm ² (14 days at +23 °C)				(DIN EN ISO 178)
Tensile Strength	Curing time	Curing temperature			(ISO 527)
		+10 °C	+23 °C	+30 °C	
	1 day	~10 N/mm ²	~16 N/mm ²	~18 N/mm ²	
	3 days	~28 N/mm ²	~30 N/mm ²	~31 N/mm ²	
	7 days	~34 N/mm ²	~36 N/mm ²	~30 N/mm ²	
14 days	~38 N/mm ²	~35 N/mm ²	~32 N/mm ²		
Modulus of Elasticity in Tension	~3800 N/mm ² (14 days at +23 °C)				(ISO 527)
Elongation at Break	1,3 ± 0,1 % (14 days at +23 °C)				(ISO 527)
Tensile Adhesion Strength	Curing time	Substrate	Curing temperature	Adhesion strength	(EN ISO 4624, EN 1542, EN 12188)
	7 days	Concrete dry	+10 °C	> 3 N/mm ² *	
	7 days	Concrete moist	+10 °C	> 3 N/mm ² *	
	7 days	Steel	+25 °C	~20 N/mm ²	
*100% concrete failure					
Shrinkage	Hardens without shrinkage.				
Coefficient of Thermal Expansion	8,7 × 10 ⁻⁵ 1/K (linear expansion between +23 °C and +60 °C)				(EN 1770)
Heat Deflection Temperature	Curing time	Curing temperature	HDT		(ASTM D 648)
	7 days	+23 °C	+47 °C		

APPLICATION INFORMATION

Mixing Ratio	Part A : Part B = 1 : 2 by weight or volume
Consumption	~1,5 kg/m ² per mm of thickness This figure is theoretical and does not allow for any additional material due to surface porosity, surface profile, variations in level or wastage etc.
Layer Thickness	~1 mm max.
Sag Flow	Non-sag up to ~1 mm thickness on vertical surfaces (EN 1799)
Product Temperature	+10 °C min. / +30 °C max.

Ambient Air Temperature	+10 °C min. / +30 °C max.		
Dew Point	Beware of condensation. Steel substrate temperature during application must be at least +3 °C above dew point.		
Substrate Temperature	+10 °C min. / +30 °C max.		
Substrate Moisture Content	Cementitious substrates must be dry or matt damp (no standing water). Brush the adhesive well into the substrate if matt damp.		
Pot Life	Temperature	Potlife*	Open time
	+10 °C	~120 minutes	~150 minutes
	+23 °C	~45 minutes	~90 minutes
	+30 °C	~34 minutes	~60 minutes
	*200 g The potlife begins when Parts A+B 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 smaller quantities. Another method is to chill Parts A+B before mixing (not below +5 °C).		

APPLICATION INSTRUCTIONS

SUBSTRATE QUALITY

Concrete / masonry / mortar / stone

Concrete and mortar must be at least 3–6 weeks old. Substrate surfaces must be sound, clean, dry or matt damp. Free from standing water, ice, dirt, oil, grease, coatings, laitance, efflorescence, old surface treatments, all loose particles and any other surface contaminants that could affect adhesion of the bonding agent.

Steel

Surfaces must be clean, dry, free from oil, grease, coatings, rust, scale, all loose particles and any other surface contaminants that could affect adhesion of the bonding agent.

Wood

Substrate surfaces must be sound, clean, dry and free from dirt, oil, grease, coatings, all loose particles and any other surface contaminants that could affect adhesion of the bonding agent.

Polyester / epoxy / ceramics / glass

Surfaces must be clean, dry, free from oil, grease and any other surface contaminants that could affect adhesion of the bonding agent.

SUBSTRATE PREPARATION

Concrete / masonry / mortar / stone

Substrates must be prepared mechanically using suitable abrasive blast cleaning, needle gunning, light scabbling, bush hammering, grinding or other suitable equipment to achieve an open textured gripping surface profile.

Steel

Surfaces must be prepared mechanically using suitable abrasive blast cleaning, grinding, rotating wire brush or other suitable equipment to achieve a bright metal finish with a surface profile to satisfy the necessary

tensile adhesion strength requirement. Avoid dew point conditions before and during application.

Wood

Surfaces must be prepared by planing, sanding or other suitable equipment.

Polyester / epoxy

Surfaces must be prepared by abrading using suitable equipment.

Ceramics / glass

Surfaces must be prepared by abrading using suitable equipment. Do not apply to siliconised substrates.

All substrates

All dust and loose material must be completely removed from all substrate surfaces before application of the product by vacuum / dust removal equipment.

MIXING

Prior to mixing all parts, mix part A (resin) briefly using a mixing spindle attached to a slow speed electric mixer (max. 300 rpm). Add part B (hardener) to part A and mix parts A+B continuously for at least 3 minutes until a uniformly coloured smooth consistency mix has been achieved. To ensure thorough mixing pour materials into a clean container and mix again for approximately 1 minute. Over mixing must be avoided to minimise air entrainment. Mix full units only. Mixing time for A+B = 4,0 minutes. Mix only the quantity which can be used within its pot life.

APPLICATION METHOD / TOOLS

Apply the mixed Sikadur®-32 EF to the prepared substrate by brush, roller, spray or trowel ensuring uniform and complete coverage.

For optimum adhesion, it is recommended to apply adhesive to both substrates that require bonding.

On damp prepared concrete substrates, always apply by brush and work the product well into the substrate. For bonding wet fresh concrete to hardened prepared concrete, place the concrete whilst the Sikadur®-32 EF layer is still 'tacky'. If the product becomes glossy and

loses 'tackiness', apply another coat of Sikadur®-32 EF and proceed to place concrete.

CLEANING OF EQUIPMENT

Removal of fresh remnants from tools and application equipment can be carried out using Sika® Colma immediately after use. Hardened material can only be mechanically removed.

IMPORTANT CONSIDERATIONS

- Sikadur® resins are formulated to have low creep under permanent loading. However due to the creep behaviour of all polymer materials under load, when using adhesive for structural applications, 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 design calculations for specific structural applications.
- When using multiple units during application, do not mix the following unit until the previous one has been used in order to avoid a reduction in workability and handling time.
- For heavy components positioned vertically or overhead, provide temporary support.

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 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.

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.

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