

PRODUCT DATA SHEET

Sikadur®-32+

2-part structural epoxy adhesive for bonding, fixing and anchoring with sustainable benefits

PRODUCT DESCRIPTION

Sikadur®-32+ is a moisture tolerant, structural, 2-part adhesive, based on a combination of epoxy resins and special fillers, designed for use at temperatures between +10 °C and +30 °C.

USES

The Product is used as a structural adhesive for bonding the following:

- Fresh concrete to hardened concrete.
- Concrete elements.
- Hard natural stone.
- Ceramics and fibre cement.
- Mortar, bricks, masonry and render.
- Iron and steel.
- Wood.
- Polyester, epoxy, polyurethane (PU) grouts (e.g. Sika® Icosit® KC Range).
- Polyester / fibreglass and epoxy resin materials.

The Product is used as an adhesive for fixing and anchoring the following:

- Small anchors.
- Fasteners.
- Railway fasteners.

The Product is used as a primer for the Sika® Icosit® KC System:

- On prepared dry and matt damp concrete surfaces.
- On prepared metal surfaces.

CHARACTERISTICS / ADVANTAGES

- Application temperature range +10 °C to +30 °C.
- Suitable for dry and matt 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.

ENVIRONMENTAL INFORMATION

- Contributes towards satisfying Materials and Resources (MR) Credit: Building product disclosure and optimization — Environmental Product Declarations under LEED® v4.
- Contributes towards satisfying Materials and Resources (MR) Credit: Building Product Disclosure and Optimization — Material Ingredients under LEED® v4.
- Environmental Product Declaration (EPD) in accordance with EN 15804. EPD independently verified by Institut für Bauen und Umwelt e.V. (IBU).

APPROVALS / STANDARDS

- CE / UKCA marking and declaration of performance based on EN 1504-4:2004 Products and systems for the protection and repair of concrete structures — Structural bonding.
- CE / UKCA marking and declaration of performance based on EN 1504-6:2004 Products and systems for the protection and repair of concrete structures — Anchoring reinforcing steel bar.

PRODUCT INFORMATION

Product Declaration	EN 1504-4: Structural bonding EN 1504-6: Anchoring	
Chemical Base	Epoxy resin	
Packaging	Pre-batched Unit (Part A + Part B)	4.5 kg container
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. Refer to the current Safety Data Sheet for information on safe handling and storage.	
Colour	Part A	Light grey
	Part B	Dark grey
	Parts A+B mixed	Concrete grey
Density	Mixed resin at +23 °C.	(1.5 ± 0.1) kg/l

TECHNICAL INFORMATION

Compressive Strength	61 N/mm ²			(EN 12190)	
	Curing time	+10 °C	+23 °C	+30 °C	(ASTM D695)
	1 day	~5 N/mm ²	~35 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	~60 N/mm ²	
	14 days	~51 N/mm ²	~52 N/mm ²	-	
Modulus of Elasticity in Compression	Cured 14 days at +23 °C	~3300 N/mm ²		(ASTM D695)	
		~5000 N/mm ²		(EN 13412)	
Flexural Strength	Curing time	+10 °C	+23 °C	+30 °C	(EN ISO 178)
	1 day	~10 N/mm ²	~18 N/mm ²	-	
	3 days	~35 N/mm ²	~37 N/mm ²	-	
	7 days	~40 N/mm ²	~40 N/mm ²	~35 N/mm ²	
	14 days	~42 N/mm ²	~42 N/mm ²	-	
	Flexural E-Modulus	Cured 14 days at +23 °C	~3700 N/mm ²		(EN ISO 178)
Tensile Strength	Curing time	+10 °C	+23 °C	+30 °C	(EN ISO 527-2)
	1 day	~10 N/mm ²	~16 N/mm ²	-	
	3 days	~28 N/mm ²	~30 N/mm ²	-	
	7 days	~34 N/mm ²	~35 N/mm ²	-	
	14 days	~36 N/mm ²	~37 N/mm ²	-	
	Tensile Modulus of Elasticity	Cured 14 days at +23 °C	~3800 N/mm ²		(EN ISO 527-2)
Elongation at Break	Cured 14 days at +23 °C	(1.4 ± 0.1) %		(EN ISO 527-2)	
Shear Strength	~11 MPa			(EN 12615)	

Tensile adhesion strength	<u>Pull-Out Resistance</u>	≤ 0.60 mm at load of 75 kN	(EN 1881)	
	<u>Pull-Out Railway Applications</u>	No damage at 60 kN	(EN 13146-10)	
	<u>Fastening Systems</u>	~ 100 kN		
	<u>Bond or Adhesion Strength</u>	Pass	(EN 12636)	
	Curing Time	Substrate	Curing Temperature	Adhesion Strength
	7 days	Concrete dry	+10 °C	> 3 N/mm ² 100% concrete failure
	7 days	Concrete moist	+10 °C	> 3 N/mm ² 100% concrete failure
7 days	Steel	+25 °C	~ 15 N/mm ²	
Creep	<u>Durability / Creep under tensile loads</u>	≤ 0.6 mm at load of 50 kN after 3 months	(EN 1544)	
Shrinkage		< 0.1 %	(EN 12617-1)	
Coefficient of Thermal Expansion		$(8.7 \times 10^{-5} \pm 0.1 \times 10^{-5})$ 1/K linear expansion between +23 °C and +60 °C	(EN 1770)	
Electrical Resistivity		4.3 GΩ	(EN 50122-2)	
Glass transition temperature		+64 °C	(EN 12614)	
Heat deflection temperature	<u>Curing time</u>	<u>Curing temperature</u>	<u>HDT</u>	
	7 days	+23 °C	+47 °C	
Thermal Compatibility	<u>Durability</u>	Pass	(EN 13733)	
Resistance to moisture	<u>Sensitivity to Water</u>	Pass	(EN 12636)	
Reaction to Fire		Class C-s1,d0 Class B _{FL} -s1	(EN 13501-1)	

APPLICATION INFORMATION

Mixing Ratio	Part A : Part B	1 : 2 by weight or volume				
	* It is essential that both components are fully used, ensuring no excess material remains within the container prior to mixing. Failure to do so could adversely affect the chemical reaction.					
Consumption	1.5 kg/m ² per mm of thickness, if used as a continuous layer. 0.7 kg/m ² –1.0 kg/m ² is the quantity normally needed for bonding wet fresh concrete to hardened prepared concrete. For small anchors or fasteners (consumption in grams per hole):					
	Hole / Re-bar Dia-meter	50 mm Depth	80 mm Depth	100 mm Depth	120 mm Depth	150 mm Depth
	10 mm / 6 mm	3.8 g	6.0 g	7.5 g	9.0 g	11.3 g
	12 mm / 8 mm	4.7 g	7.5 g	9.4 g	11.3 g	14.1 g
	14 mm / 10 mm	5.7 g	9.0 g	11.3 g	13.6 g	17.0 g

Note: Consumption data is theoretical and does not allow for any additional material due to surface porosity, surface profile, variations in level, wastage or any other variations. Apply product to a test area to calculate the exact consumption for the specific substrate conditions and proposed application equipment.

Layer Thickness	Maximum	1 mm	
Sag Flow	Non-sag up to 1 mm thickness on vertical surfaces		(EN 1799)
Product Temperature	Maximum	+30 °C	
	Minimum	+10 °C	
Ambient Air Temperature	Maximum	+30 °C	
	Minimum	+10 °C	
Dew Point	Beware of condensation. Steel substrate temperature during application must be at least +3 °C above dew point.		
Substrate Temperature	Maximum	+30 °C	
	Minimum	+10 °C	
Pot Life	Temperature	Pot Life (200g)	(ISO 9514)
	+10 °C	~120 min	
	+23 °C	~45 min	
	+30 °C	~35 min	
The pot life 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 pot life. 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 (although not below +10 °C).			
Open Time	Temperature	Open Time	(EN 12189)
	+10 °C	~150 min	
	+23 °C	~90 min	
	+30 °C	~60 min	

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.

LIMITATIONS

- Sikadur® resins are formulated to have low creep under permanent loading. However, due to the creep behavior 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 % to 25 % of the failure load. A structural engineer must be consulted for load calculations for the specific application.

IMPORTANT

- Ensure product is protected from rain / moisture for at least 24 hours after application.
- Do not apply material if either substrate, ambient or product temperature is below +10 °C. Temperatures below this will have an adverse affect on curing and product performance.

ECOLOGY, HEALTH AND SAFETY

User must read the most recent corresponding Safety Data Sheets (SDS) before using any products. The SDS provides information and advice on the safe handling, storage and disposal of chemical products and contains physical, ecological, toxicological and other safety-related data.

APPLICATION INSTRUCTIONS

SUBSTRATE QUALITY

CONCRETE, MASONRY, MORTAR OR STONE

Concrete and mortar must be at least 28 days old. Substrates must be sound, clean, dry or matt damp with no standing water. Substrates must also be free from contamination such as ice, dirt, oil, grease, coatings, laitance, efflorescence, surface treatments and loose friable material.

STEEL

Surfaces must be sound, clean, dry and free of all contaminants such as dirt, oil, grease, coatings and loose

friable material.

WOOD

Surfaces must be sound, clean, dry and free of all contaminants such as dirt, oil, grease, coatings and loose friable material.

CERAMICS OR GLASS

Surfaces must be sound, clean, dry and free of all contaminants such as dirt, oil, grease, coatings and loose friable material.

IMPORTANT

Siliconised surfaces

The Product will not adhere to substrates with a siliconised surface.

SUBSTRATE PREPARATION

IMPORTANT

Reduced adhesion performance

Surface contamination such as dust and loose material, including that caused during substrate preparation can reduce the Product's performance.

CONCRETE, MASONRY, MORTAR OR STONE

Substrates must be prepared mechanically using suitable equipment to achieve an open-textured, gripping surface profile.

Suitable techniques for substrate preparation include the following:

- Abrasive blast cleaning
- Needle gunning
- Light scabbling
- Bush hammering
- Grinding

STEEL

Suitable techniques for substrate preparation include the following:

- Abrasive blast cleaning
- Rotating wire brush
- Grinding

The substrate has a bright metal finish with a surface profile to satisfy the necessary tensile adhesion strength requirement.

WOOD

Prepare the substrate by planing, sanding or using other suitable equipment.

CERAMICS OR GLASS

Prepare the substrate by sanding or using other suitable equipment.

MIXING

Maintaining workability and handling time.

When using multiple units during application, do not mix the following unit until the previous one has been used.

PRE-BATCHED UNITS

- Mix full units only.

- Prior to mixing all parts, mix Part A (resin) briefly using a mixing spindle attached to a slow speed electric mixer (maximum 300 rpm).
- Add Part A to Part B (hardener) ensuring all material has been removed and added to Part B.
- Mix Parts A+B continuously for at least 3 minutes until a uniformly coloured, smooth consistency mix has been achieved.
- Do not overmix.
- To ensure thorough mixing pour materials into a clean container and mix again for approximately 1 minute.
- Mixing time for Parts A+B = 4 minutes.

APPLICATION

Provide temporary support for heavy components positioned vertically or overhead.

BONDING APPLICATIONS

- On damp prepared concrete substrates, always apply by brush and work the Product well into the substrate.
- Apply the mixed Product to the prepared substrate by brush, roller, spray or trowel ensuring uniform and complete coverage.
- For optimum adhesion, apply the adhesive to both substrates that require bonding.
- For bonding wet fresh concrete to hardened prepared concrete, place the concrete whilst the resin layer is still tacky. Note: If the product becomes glossy and loses tackiness, apply another coat and proceed to place concrete.

ANCHORING APPLICATIONS

- For small anchors or fasteners, clean the hole thoroughly with a special round steel brush and with compressed air (minimum pressure 6 bar), starting from the bottom.
- Once the hole is completely clean and free of any loose particles or dust, pour the Product in the hole, avoiding entrapping air.
- Insert the anchor or fastener with a rotary motion within the adhesive open time. Note: Some of the adhesive must flow out of the hole.
- During the resin hardening time the anchor must not be moved or loaded.

SIKA® ICOSIT® KC SYSTEM APPLICATIONS

For information on the application of Sikadur®-32+ in conjunction with a Sika® Icosit® KC system, refer to the relevant product Method Statement or contact Sika Technical Services for advice.

CLEANING OF TOOLS

Clean all tools and application equipment with Sika® Thinner C 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.

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Product Data Sheet

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