

PRODUCT DATA SHEET

Sikadur[®]-32+

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

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

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

- Suitable for dry and damp concrete surfaces
- Easy to mix and apply
- Very good adhesion to most construction materials
- Hardens without shrinkage
- Differently coloured components for mixing control
- No primer needed, increases productivity and saves time
- Very good initial and final mechanical strength
- Impermeable to most liquids and water vapour
- Good resistance to specific chemicals

ENVIRONMENTAL INFORMATION

- Contributes towards satisfying Materials and Resources (MR) Credit: Environmental Product Declarations: Option 1 under LEED[®] v4.1 — 1 point
- Contributes towards satisfying Materials and Resources (MR) Credit: Material Ingredients: Option 2 under LEED[®] v4.1 — 1 point
- Environmental Product Declaration (EPD) in accordance with EN 15804. EPD independently verified by Institut für Bauen und Umwelt e.V. (IBU)

PRODUCT INFORMATION

| | | |
|----------------------|----------------------------------|------------------|
| Chemical Base | Epoxy resin | |
| Packaging | Pre-batched unit Part A + Part B | 1.0 kg container |
| | Pre-batched unit Part A + Part B | 4.5 kg container |
| | Part A (of 22.5 kg kit) | 7.5 kg container |
| | Part B (of 22.5 kg kit) | 15 kg container |
| 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 sealed packaging in dry conditions at temperatures between +5 °C and +30 °C. Always refer to the packaging. Refer to the current Safety Data Sheet for information on safe handling and storage. |
| Density | Mixed resin at +23 °C. <u>(1.5 ± 0.1) kg/l</u> |
| Product Declaration | EN 1504-4: Structural bonding EN 1504-6: Anchoring |

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 | - | |
| Modulus of Elasticity in Flexure | 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 | - | |
| Modulus of Elasticity in Tension | 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) |
| Shrinkage | < 0.1 % | | | | (EN 12617-1) |
| Creep | Durability/Creep under tensile loads | ≤ 0.6 mm at load of 50 kN after 3 months | | | (EN 1544) |
| Tensile Adhesion Strength | Pull-Out Resistance | ≤ 0.60 mm at load of 75 kN | | | (EN 1881) |
| | Pull-Out railway applications | No damage at 60 kN | | | (EN 13146-10) |
| | Fastening systems | 100 kN | | | |
| | Bond or adhesion strength | Pass | | | (EN 12636) |

| | Curing time | Substrate | Curing temperature | Adhesion strength | (EN 12188; EN 1542; EN ISO 4624) |
|---|---|---------------------------|---------------------------|--|----------------------------------|
| | 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 | |
| Thermal Compatibility | Durability | | Pass | (EN 13733) | |
| Coefficient of Thermal Expansion | (8.7 × 10 ⁻⁵ ± 0.1 × 10 ⁻⁵) 1/K linear expansion between +23 °C and +60 °C | | | | (EN 1770) |
| Reaction to Fire | Class C-s1,d0 Class B _{FL} -s1 | | (EN 13501-1) | | |
| Electrical Resistivity | 4.3 GΩ | | (EN 50122-2) | | |
| Resistance to moisture | Sensitivity to water | | Pass | (EN 12636) | |
| Glass Transition Temperature | +64 °C | | (EN 12614) | | |
| Heat Deflection Temperature | Curing time | Curing temperature | | HDT | (ASTM D648) |
| | 7 days | +23 °C | | +47 °C | |

APPLICATION INFORMATION

| Mixing Ratio | Part A : Part B | | 1 : 2 by weight or volume | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------------------------|--|-------------|---------------------------|--------------|--------------|------------------------|-------------|-------------|--------------|--------------|--------------|--------------|-------|-------|-------|-------|--------|--------------|-------|-------|-------|--------|--------|---------------|-------|-------|--------|--------|--------|
| Consumption | <p>1.5 kg/m² per mm of thickness, if used as a continuous layer. 0.7 kg/m² –1.0 kg/m² is the quantity normally needed for bonding wet fresh concrete to hardened prepared concrete. For small anchors or fasteners (consumption in grams per hole):</p> <table border="1"> <thead> <tr> <th>Hole / Re-bar Diameter</th> <th>50 mm depth</th> <th>80 mm depth</th> <th>100 mm depth</th> <th>120 mm depth</th> <th>150 mm depth</th> </tr> </thead> <tbody> <tr> <td>10 mm / 6 mm</td> <td>3.8 g</td> <td>6.0 g</td> <td>7.5 g</td> <td>9.0 g</td> <td>11.3 g</td> </tr> <tr> <td>12 mm / 8 mm</td> <td>4.7 g</td> <td>7.5 g</td> <td>9.4 g</td> <td>11.3 g</td> <td>14.1 g</td> </tr> <tr> <td>14 mm / 10 mm</td> <td>5.7 g</td> <td>9.0 g</td> <td>11.3 g</td> <td>13.6 g</td> <td>17.0 g</td> </tr> </tbody> </table> <p>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 the Product to a test area to calculate the exact consumption for the specific substrate conditions and proposed application equipment.</p> | | | | | Hole / Re-bar Diameter | 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 |
| Hole / Re-bar Diameter | 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 | | | | | | | | | | | | | | | | | | | | | | | | |
| 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 | | | | | | | | | | | | | | | | | | | | | | | | | | |

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|--|---|------------------------|------------|
| 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 (not below +5 °C). | | | |
| Open Time | Temperature | Open Time | (EN 12189) |
| | +10 °C | 150 min | |
| | +23 °C | 90 min | |
| | +30 °C | 60 min | |

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.

IMPORTANT

Damage due to excessive long-term load

Sikadur® resins are formulated to have low creep under long-term load. However, due to the creep behaviour of all polymer materials under load, the long-term structural design load must account for creep.

1. Ensure that the long-term structural design load is lower than 20% to 25% of the short-term failure load.
2. Consult a structural engineer for calculating the admissible load for the specific application.

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.

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 but free of standing water. Substrates must be free of contaminants 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 contaminants such as dirt, oil, grease, coatings and loose friable material.

WOOD

Surfaces must be sound, clean, dry and free of 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 due to surface contamination

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

1. Before applying the Product, thoroughly clean all substrate surfaces using vacuum or dust removal equipment.

CONCRETE, MASONRY, MORTAR OR STONE

Suitable techniques for substrate preparation include the following:

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

1. Prepare the substrate mechanically using a suitable technique.

The substrate has an open-textured, gripping surface profile.

STEEL

Suitable techniques for substrate preparation include the following:

- Abrasive blast cleaning
- Rotating wire brush
- Grinding

1. Prepare the substrate mechanically using a suitable technique.

The substrate has a bright metal finish (similar Sa 2.5

finish) with a surface profile to satisfy the necessary tensile adhesion strength requirement.

WOOD

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

CERAMICS OR GLASS

1. Prepare the substrate by sanding or using other suitable equipment.

MIXING

IMPORTANT

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

PRE-BATCHED UNITS

1. Mix part A (resin) briefly using a mixing spindle attached to a slow speed electric mixer (max. 300 rpm).
2. **IMPORTANT** Mix full units only. Add part A to part B.
3. Mix parts A+B continuously for at least 3 minutes until a uniformly coloured smooth consistency mix has been achieved
4. **IMPORTANT** Avoid entraining air into the mix by over-mixing. To ensure thorough mixing, transfer the mixture into a clean container and mix for 1 additional minute.

APPLICATION

IMPORTANT

Provide temporary support for heavy components positioned vertically of overhead

Full adhesion strength is not achieved before the Product has fully cured. Light objects may be bonded without using temporary support during curing. This is dependant on the weight of the object in relation to its size and texture of the surface in contact with the material. If the object is too heavy, it may slip or fall off.

Provide temporary support for heavy items until the Product has fully hardened.

BONDING APPLICATIONS

1. **IMPORTANT** On damp prepared concrete substrates, always apply by brush and work the Product well into the substrate. Apply the mixed the Product to the prepared substrate by brush, roller, spray or trowel ensuring uniform and complete coverage.
2. For optimum adhesion, apply the adhesive to both substrates that require bonding.
3. 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.

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Product Data Sheet

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ANCHORING APPLICATIONS

1. 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.
2. Once the hole is completely clean and free of any loose particles or dust, pour the Product in the hole, avoiding entrapping air.
3. 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.
4. 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 Service for advice.

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. It may be necessary to adapt the above disclaimer to specific local laws and regulations. Any changes to this disclaimer may only be implemented with permission of Sika® Corporate Legal in Baar.

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