

## PRODUCT DATA SHEET

## Sikadur®-31 DW

2-part epoxy structural adhesive with drinking water contact approval

**PRODUCT DESCRIPTION**

Sikadur®-31 DW is a 2-part epoxy based moisture tolerant, thixotropic, structural adhesive which bonds most construction materials. It has high mechanical strengths and can also be used for minor concrete repairs, joint filling and crack sealing. Temperature range +10 °C to +30 °C. Internal and external use. It has been specially formulated to meet the requirements for use in contact with drinking water.

**USES**

Sikadur®-31 DW may only be used by experienced professionals.

**Structural adhesive for bonding:**

- Concrete elements
- Hard natural stone
- Ceramics and Fibre Cement
- Mortar, Bricks, Masonry
- Steel, Iron, Aluminium
- Wood
- Polyester, Epoxy
- Glass
- Sikadur®-Combiflex® System for drinking water applications

**Repair and adhesive for:**

- Corners and edges
- Holes and void filling
- Metal profiles
- Bonding brick slips

**Joint filling and crack sealing:**

- Joint and crack repair / edge repair
- Sealing non-structural static cracks

**CHARACTERISTICS / ADVANTAGES**

- Can be used in drinking water areas.
- Easy to mix and apply.
- Very good adhesion to most construction materials.
- High mechanical strengths.
- Thixotropic: non-sag in vertical and overhead applications.
- Hardens without shrinkage.
- Different coloured components (for mixing control).
- No primer needed.
- High initial and ultimate mechanical strength.
- Good abrasion resistance.
- Impermeable to most liquids and water vapour.
- Good chemical resistance.

**APPROVALS / STANDARDS**

- CE Marking and Declaration of Performance to EN 1504-4: Structural bonding.
- Adhesive for Waterproofing System ÖNORM B 5014 Test 1, Sikadur®-31 DW, OFI Technologie & Innovation GmbH, Test Report No. 408.394.
- Migration Analysis RD 118/2003, Sikadur®-31 DW, O.T.E.C., Test Report No. 0761415488.
- Water Regulations Approval BS6920-1, Sikadur®-31 DW, WRAS, Approval No. 1708503.

## PRODUCT INFORMATION

<b>Product Declaration</b>	EN 1504-4: Structural bonding	
<b>Chemical Base</b>	Epoxy resin and selected fillers	
<b>Packaging</b>	Parts A+B: 6 kg	Pre-batched unit
		Pallets of 90 units
<b>Shelf Life</b>	24 months from date of production	
<b>Storage Conditions</b>	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 packaging.	
<b>Colour</b>	Part A	White
	Part B	Dark grey
	Part A+B mixed	Concrete grey
<b>Density</b>	Mixed resin: ~2,00 ±0,1 kg/l Density value at +20 °C	

## TECHNICAL INFORMATION

<b>Compressive Strength</b>	<b>Curing time</b>	<b>Curing temperature 23 °C</b>	(DIN EN 196)		
	14 days	~78 N/mm <sup>2</sup>			
<b>Flexural Strength</b>	<b>Curing time</b>	<b>Curing temperature 23 °C</b>	(DIN EN 196)		
	14 days	~37 N/mm <sup>2</sup>			
<b>Tensile Strength</b>	<b>Curing time</b>	<b>Curing temperature 23 °C</b>	(ISO 527)		
	14 days	~23 N/mm <sup>2</sup>			
<b>Tensile Modulus of Elasticity</b>	~6 500 N/mm <sup>2</sup>		(ISO 527)		
<b>Tensile adhesion strength</b>	<b>Curing time</b>	<b>Substrate</b>	<b>Curing temperature</b>	<b>Adhesion strength</b>	(EN ISO 4624, EN 1542, EN 12188)
	7 days	Concrete dry	+23 °C	≥ 4.5 N/mm <sup>2</sup> *	
	7 days	Concrete moist	+23 °C	≥ 4.5 N/mm <sup>2</sup> *	
	7 days	Steel sand-blasted	+23 °C	~ 9 N/mm <sup>2</sup>	
*100 % concrete failure					
<b>Shrinkage</b>	Hardens without shrinkage.				
<b>Coefficient of Thermal Expansion</b>	~2,36 × 10 <sup>-5</sup> (±0,2 × 10 <sup>-5</sup> ) 1/K (linear expansion between +23 °C and +60 °C)				(EN 1770)
<b>Heat deflection temperature</b>	<b>Curing time</b>	<b>Curing temperature</b>	<b>HDT</b>	(ISO 75)	
	7 days	+23 °C	+50 °C		

**Chemical Resistance**

Resistant to many chemicals. Contact Sika Technical Services for additional information.

**SYSTEM INFORMATION****System Structure**

Refer to the Sikadur®-Combiflex® System product data sheet for all applications with this system.

**APPLICATION INFORMATION****Mixing Ratio**

Part A : Part B = 3 : 1 by weight or volume

**Consumption**

~2.0 kg/m<sup>2</sup> 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**

30 mm max.  
 For non-structural adhesive or other applications, if layer thicknesses of >30 mm are required, apply in successive 30 mm layers, once the previous layer has hardened. The surface of the freshly applied intermediate layers should be scratched to form a key for subsequent layers. If layer application is to be longer than 2 days, the wet applied adhesive must be blinded to excess with quartz sand immediately after application.

**Sag Flow**

Non-sag up to 10 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	Pot-life*	Open time	(EN ISO 9514)
+23 °C	~105 minutes	—	
+30 °C	—	~45 minutes	

\*200 g  
 Pot-life begins when parts A+B 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 +5 °C).

**Waiting Time / Overcoating**

Sikadur®-31 DW may be overcoated with a Sika® compatible epoxy coating when adhesive has hardened

**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 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 structur-

al 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.

**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 / 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 adhesive.

#### 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 adhesive.

#### 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 adhesive.

### 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.

#### 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

#### Pre-batched units

Prior to mixing all parts, mix part A (resin) briefly using a mixing spindle attached to a slow speed electric drill (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.

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Over mixing must be avoided to minimise air entrainment. Mix full units only. Total mixing time for A+B = 4 minutes. Mix only the quantity which can be used within its pot-life.

### APPLICATION METHOD / TOOLS

#### Adhesive

Apply mixed adhesive to the prepared surfaces with a spatula, trowel, notched trowel or by gloved hand. For optimum adhesion, it is recommended to apply adhesive to both surfaces that require bonding. For heavy components positioned vertically or overhead, provide temporary support until Sikadur®-31 DW has fully hardened /cured. Hardening and curing will be dependent on ambient temperatures.

#### Repair

Apply mixed adhesive to the prepared surfaces with a spatula, trowel or by gloved hand. Use temporary formwork as required.

#### Joint filling and crack sealing

Apply mixed adhesive to the prepared surfaces with a spatula or trowel.

### CLEANING OF TOOLS

Clean all tools and application equipment with Sika® Thinner C immediately after use. Hardened 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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