

Sikadur®-31 DW

2-part epoxy adhesive with approval for drinking water contact

Product Description

Sikadur®-31 DW is a thixotropic, two part adhesive and repair mortar, based on epoxy resins and special fillers which has been specially formulated to meet the requirements for use in contact with drinking water.

Uses

As a structural adhesive for the following substrates:

- Concrete
- Hard natural stone
- Ceramics, Fibre Cement
- Mortar, Bricks
- Steel, Iron, Aluminium
- Wood
- Polyester, Epoxy
- Glass
- As the adhesive with drinking water approvals for the Sikadur®-Combiflex® SG System

As a structural adhesive for precast concrete segments including:

- Columns, beams etc.
- Kerbs and edging stones, copings etc.

Rapid curing concrete repairs:

- Corners and edges
- Hole and void filling
- Joint arrises

Joint filling and crack sealing:

- Rigid joint filling
- Crack filling and sealing (non moving)

Characteristics / Advantages

Sikadur®-31 DW provides the following advantages:

- Can be used in drinking water areas
- Easy to mix and apply
- Suitable for dry and damp concrete surfaces
- Very good adhesion to most of the construction materials
- Thixotropic: non-sag and suitable for vertical and overhead application
- Hardens without shrinkage
- Different coloured components (for mixing control)
- No primer needed
- High initial and ultimate strengths
- Good abrasion resistance

Construction



Tests

Approval / Standards	Austrian agency for health and nutrition safety: Report No. UZ 9239/02 drinking water certificate (23.07.02). WRAS, UK: Approval for use with Combiflex SG, Reference RW/M5425, (17. 04. 2008) Test report M 103983 / M 104028 DWI Approval for use with Combiflex SG jointing system, Reference DWI 56.4.94 (5.5.2011) O.T.E.C. Barcelona, Spain Document No. 07614, Reference No 0761415488 Testing according to EN 1504-4.
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Product Data

Form

Colours	Part A: white Part B: black Part A+B mixed: grey
Packaging	6 kg (A+B) Prebatched unit, pallets of 480 kg (80 x 6 kg).

Storage

Storage Conditions / Shelf-Life	24 months from date of production if stored properly in original unopened, sealed and undamaged packaging, in dry conditions at temperatures between +5°C and +30°C. Protect from direct sunshine.
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Technical Data

Chemical Base	Epoxy resin.
Density	2.00 kg/l (part A+B mixed) (at +20°C)
Sag Flow	On vertical surfaces it is non-sag up to 10 mm thickness. (According to EN 1799)
Layer Thickness	30 mm max. When using multiple units, one after the other. Do not mix the following unit until the previous one has been used in order to avoid a reduction in handling time.
Change of Volume	Shrinkage / Volume: Hardens without shrinkage.
Thermal Expansion Coefficient	Coefficient W: 2.36 x 10 ⁻⁵ per °C (Temp. range +23°C - +60°C) (According EN 1770)
Thermal Stability	Heat Deflection Temperature (HDT): HDT = +50°C (7 days / +23°C) (According to ISO 75)

Mechanical / Physical Properties

Compressive Strength	~ 78 N/mm ² (after 14 days at +23°C) (According to DIN EN 196)
Flexural Strength	37 N/mm ² (after 14 days at +23°C) (According to DIN EN 196)
Tensile Strength	23 N/mm ² (after 14 days at +23°C) (According to ISO 527)

Bond Strength (According to EN ISO 4624, EN 1542 and EN 12188)

Curing time	Temperature	Substrate	Bond strength
After 7 days	+23°C	Dry concrete	3 N/mm ²
After 7 days	+23°C	Moist concrete	2 N/mm ²
After 7 days	+23°C	Steel sandblasted	9 N/mm ²

E- Modulus	~6'500 N/mm ² (According to ISO 527)
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System Information

System Structure Please consult the Sikadur®-Combiflex® SG System product data sheet for all applications with this system.

Application Details

Substrate Quality Mortar and concrete must be older than 28 days (depends on minimal requirement of strengths).
Verify the substrate strength (concrete, masonry, natural stone).
The substrate surface (all types) must be clean, dry or mat damp (no standing water) and free from contaminants such as dirt, oil, grease, existing surface treatments and coatings etc..
Steel substrates must be de-rusted similar to Sa 2.5.
The substrate must be sound and all loose particles must be removed.

Substrate Preparation Concrete, mortar, stone, bricks:
Substrates must be sound, dry or mat damp (no standing water), clean and free from laitance, ice, standing water, grease, oils, old surface treatments or coatings and all loose or friable particles must be removed to achieve a laitance and contaminant free, open textured surface.
Steel:
Must be cleaned and prepared thoroughly to an acceptable quality i.e. by blast cleaning and vacuum. Avoid dew point conditions.

Application Conditions / Limitations

Substrate Temperature +10°C min. / +30°C max.

Ambient Temperature +10°C min. / +30°C max.

Material Temperature Sikadur®-31 DW must be at a temperatures of between +10°C and +30°C for application.

Substrate Moisture Content Substrate must be dry or mat damp (no standing water)
Brush the adhesive well into substrate.

Dew Point Beware of condensation!
Substrate temperature during application must be at least 3°C above dew point.

Application Instructions

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

Mixing Time



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 potlife.

Application Method / Tools

When using a thin layer adhesive, apply the mixed adhesive to the prepared surface with a spatula, trowel, notched trowel, (or with hands protected by gloves).

When applying as a repair mortar use some formwork.

When using for bonding metal profiles onto vertical surfaces ,support and press uniformly using props for at least 12 hours, depending on the thickness applied (not more than 5 mm) and the room temperature.

Once hardened check the adhesion by tapping with a hammer.

Cleaning of Tools

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

Hardened / cured material can only be mechanically removed.

Potlife	Potlife (200 g)	(According to EN ISO 9514)
	+23°C	~ 90 minutes

The potlife 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 potlife. To obtain longer workability at high temperatures, the mixed adhesive may be divided into portions. Another method is to chill parts A+B before mixing them (not below +5°C).

Notes on Application / 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.

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.

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.

Health and Safety Information For information and advice on the safe handling, storage and disposal of chemical products, users shall refer to the most recent Material Safety Data Sheet 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.

CE Labelling

CE		
0921		
Sika Schweiz AG Tueffenwies 16-22 CH - 8048 Zuerich 1001		
08		
0921-CPD-2054		
EN 1504-4		
Structural bonding product for bonded mortar or concrete for uses other than low performance requirements		
Bond/adhesion strength:		Pass (concrete failure)
Slant shear strength at: (steel)	50° 60° 70°	≥ 50 N/mm ² ≥ 60 N/mm ² ≥ 70 N/mm ²
Shear strength: (hardened- hardened concrete)		≥ 6 N/mm ²
Compressive strength		≥ 30 N/mm ²
Shrinkage / expansion:		≤ 0.1%
Workability:		100 min. at 23°C
Sensitivity to water		Pass
Modulus of elasticity:		≥ 2'000 N/mm ²
Coefficient of thermal expansion:		≤ 100 * 10 ⁻⁶
Glass transition temperature:		≥ 40°C
Reaction to fire		Euroclass E
Durability		Pass
Dangerous substances:	(comply with 5.4)	None

¹⁾ Last two digits of the year in which the marking was affixed

²⁾ Identification number of the notified body

³⁾ Number of the EC Certificate

⁴⁾ Number of European standard



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