

Sikadur[®]-31 DW Rapid

2-part epoxy adhesive with approval for drinking water contact

Product Description

Sikadur[®]-31 DW Rapid is a solvent-free, 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
- Mortar, Bricks
- Steel
- As adhesive for use with Sikadur[®] Combiflex SG
- 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 Rapid provides the following advantages:

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

Tests

Approval / Standards

Compliance with Regulation 31(4) a of the UK Water Supply (Water Quality) Regulations, when used as part of a system with Sikadur[®] SG Combiflex

Testing according to EN 1504-4

All Raw Materials are on European synoptic list for drinking water applications

Construction



Product Data

Form

Colours	Part A:	white
	Part B:	black
	Part A+B mixed:	grey

Packaging 6 kg (A+B) Prebatched unit, pallets of 540 kg (90 x 6 kg).

Storage

Storage Conditions / Shelf-Life 18 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.

Technical Data

Chemical Base Epoxy resin.

Density 1.95 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 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:
 2.11×10^{-5} per °C (Temp. range +23°C - +60°C) (According to EN 1770)

Thermal Stability Heat Deflection Temperature (HDT):
HDT = 49 °C (7 days at +20°C) (According to ASTM D695)
 $T_G = 50$ °C (7 Days at 20 °C) (According to EN 12614)

Mechanical / Physical Properties

Compressive Strength (According to ASTM D695)

Curing time	Curing Temperature	
	5 °C	20 °C
1 day	-	25 - 30 N/mm ²
3 days	20 - 25 N/mm ²	30 - 35 N/mm ²
7 days	35 - 40 N/mm ²	35 - 40 N/mm ²
14 days	40 - 45 N/mm ²	40 - 45 N/mm ²

Tensile Strength (According to ISO 527-2)

Curing time	Curing Temperature	
	5 °C	20 °C
1 day	6 - 10 N/mm ²	6 - 10 N/mm ²
3 days	13 - 19 N/mm ²	13 - 19 N/mm ²
7 days	16 - 22 N/mm ²	17 - 23 N/mm ²
14 days	18 - 24 N/mm ²	19 - 25 N/mm ²

Flexural Strength

(According to EN ISO 178)

Curing time	Curing Temperature	
	5 °C	20 °C
1 day	8 – 14 N/mm ²	8 – 14 N/mm ²
3 days	20 - 26 N/mm ²	22 - 28 N/mm ²
7 days	24 - 30 N/mm ²	26 - 32 N/mm ²
14 days	24 - 30 N/mm ²	29 - 35 N/mm ²

Bond Strength

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

Curing time	Temperature	Substrate	Bond strength
After 7 days	+5°C	Dry concrete	~4.0 N/mm ² *
After 7 days	+5°C	Moist concrete	~2.8 N/mm ² *
After 7 days	+5°C	Steel sandblasted	~13.8 N/mm ²

* concrete failure

E-Modulus

Compressive:

~ 5400 N/mm² (14 days at 5 °C)

(According to ASTM D695)

~ 6400 N/mm² (14 days at 20 °C)

(According to ASTM D695)

Elongation at Break

0.3 ± 0.1% (14 days at +5°C)

(According to ISO 527-2)

System Information**System Structure**Please consult the Sikadur[®]-Combiflex[®] 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

Substrate Temperature	+5°C min. / +20°C max.
Ambient Temperature	+5°C min. / +20°C max.
Material Temperature	Sikadur®-31 DW Rapid must be at a temperatures of between +5°C and +20°C for application.
Substrate Moisture Content	Substrate must be dry or mat damp (no standing water) Brush the adhesive well into the 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. 600 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	Consult Instructions for use for DWI applications. 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 (120 g) (According to EN ISO 9514) <table border="1"><thead><tr><th>Temperature</th><th>+5°C</th><th>+20°C</th></tr></thead><tbody><tr><td>Pot life</td><td>~ 90 minutes</td><td>~ 40 minutes</td></tr><tr><td>Open Time</td><td>-</td><td>~ 50 minutes</td></tr></tbody></table> <p>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).</p> Open time: 50 min at 20 °C (According to EN 12189)	Temperature	+5°C	+20°C	Pot life	~ 90 minutes	~ 40 minutes	Open Time	-	~ 50 minutes
Temperature	+5°C	+20°C								
Pot life	~ 90 minutes	~ 40 minutes								
Open Time	-	~ 50 minutes								

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.

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