BUILDING TRUST

PRODUCT DATA SHEET

Sikadur®-31 EF

2-COMPONENT THIXOTROPIC MULTIPURPOSE EPOXY ADHESIVE

PRODUCT DESCRIPTION

Sikadur®-31 EF is a moisture tolerant, thixotropic, structural 2-component multi-purpose adhesive, based on a combination of epoxy resins and special fillers, designed for use at temperatures between +10 °C and +30 °C.

USES

As a structural adhesive for:
- Concrete elements
- Hard natural stone
- Ceramics, fiber cement
- Mortar, Bricks, Masonry
- Steel, Iron
- Wood
- Polyester, Epoxy

As a repair material and adhesive:
- Corners and edges
- Holes and void filling
- Vertical and overhead use

Joint filling and crack sealing:
- Joint and crack arris / edge repair

CHARACTERISTICS / ADVANTAGES

Sikadur®-31 EF has the following advantages:
- Easy to mix and apply
- Good adhesion to most construction materials
- Thixotropic: non-sag in vertical and overhead applications
- Hardens without shrinkage
- Different coloured components (for mixing control)
- No primer needed
- Abrasion resistant
- Impermeable to liquids and water vapour
- Chemical resistant

APPROVALS / STANDARDS

Adhesive for structural bonding tested according to EN 1504-4, provided with the CE-mark

PRODUCT INFORMATION

Chemical Base	Epoxy resin	
Packaging	1.2 kg (A+B)	Pre-batched unit
	6 kg (A+B)	Pre-batched unit
Colour	Component A: light grey Component B: dark grey Components A+B mixed: concrete grey	
Shelf Life	12 months from date of production	
Storage Conditions	Store in original, unopened, sealed and undamaged packaging, in dry conditions at temperatures between +5 °C and +30 °C. Protect from direct sunlight.	

Density	1.95 + 0.1 kg/l (component A+B mixed) (at +23 °C)

TECHNICAL INFORMATION

Compressive Strength (ASTM D 695)

Curing time	Curing temperature		
	+10 °C	**+23 °C**	**+30 °C**
1 day	~15 N/mm²	~29 N/mm²	~34 N/mm²
3 days	~30 N/mm²	~39 N/mm²	~46 N/mm²
7 days	~38 N/mm²	~47 N/mm²	~51 N/mm²
14 days	~45 N/mm²	~53 N/mm²	~55 N/mm²

Modulus of Elasticity in Compression ~ 6 500 N/mm² (14 days at +23 °C) (ASTM D 965)

Flexural Strength (DIN ISO 178)

Curing time	Curing temperature		
	+10 °C	**+23 °C**	**+30 °C**
1 day	~6 N/mm²	~10 N/mm²	~20 N/mm²
3 days	~20 N/mm²	~21 N/mm²	~26 N/mm²
7 days	~25 N/mm²	~28 N/mm²	~29 N/mm²
14 days	~30 N/mm²	~32 N/mm²	~30 N/mm²

Flexural E-Modulus ~ 7 700 N/mm² (14 days at +23 °C) (EN ISO 178)

Tensile Strength (ISO 527)

Curing time	Curing temperature		
	+10 °C	**+23 °C**	**+30 °C**
1 day	~7 N/mm²	~10 N/mm²	~11 N/mm²
3 days	~18 N/mm²	~20 N/mm²	~24 N/mm²
7 days	~21 N/mm²	~22 N/mm²	~25 N/mm²
14 days	~24 N/mm²	~24 N/mm²	~29 N/mm²

Tensile Modulus of Elasticity ~ 6 900 N/mm² (14 days at +23 °C) (ISO 527)

Elongation at Break 0.3 + 0.1 % (7 days at +23 °C) (ISO 527)

Shrinkage Hardens without shrinkage

Tensile Adhesion Strength (EN ISO 4624, EN 1542, EN 12188)

Curing time	Substrate	Curing temperature	
		+10 °C	**+25 °C**
1 day	Concrete dry	>3 N/mm²*	–
1 day	Concrete moist	>3 N/mm²*	–
7 days	Steel	–	~18 N/mm²

*100 % concrete failure

Coefficient of Thermal Expansion 4.6×10^{-5} 1/K (Temp. range −20 °C to +40 °C) (EN 1770)

Heat Deflection Temperature (ASTM D 648)

Curing time	Curing temperature	HDT
7 days	+23 °C	+53 °C

APPLICATION INFORMATION

Mixing Ratio	Component A : Component B = 3 : 1 by weight or volume
Consumption	~ 1.7 kg/m² per mm of thickness
Layer Thickness	30 mm max in one application on horizontal surface.Multiple layers can be used to achieve required final thickness.Wait for each previous layer to harden before applying next layer.
Sag Flow	On vertical surfaces non-sag up to 10 mm thickness (EN 1799)
Product Temperature	Sikadur®-31 EF must be applied at temperatures between +10 °C and +30 °C.

Ambient Air Temperature	+10 °C min. / +30 °C max.
Dew Point	Beware of condensation. Substrate temperature during application must be at least 3 °C above dew point.
Substrate Temperature	+10 °C min. / +30 °C max.
Substrate Moisture Content	Substrate must be dry or mat damp (no standing water) Brush the adhesive into the substrate well
Pot Life	Potlife (200 g) adiabatic (EN ISO 9514)

Temperature	Potlife
+10 °C	~120 minutes
+23 °C	~80 minutes
+35 °C	~42 minutes
+40 °C	~30 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 components A+B before mixing them (not below +5 °C).

APPLICATION INSTRUCTIONS

SUBSTRATE QUALITY

- Mortar and concrete must be older than 28 days (depends on minimum strength requirements).
- Verify the substrate strength (concrete, masonry, natural stone).
- 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.
- 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, 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 blastcleaning and vacuum. Avoid dew point conditions.

MIXING

Pre-batched units:
- Mix components A+B together for at least 3 minutes with a mixing spindle attached to a slow speed electric drill (approx. 300 rpm) until the material becomes smooth in consistency and a uniform grey colour. Avoid aeration while mixing.
- 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 material, 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 Sika® Thinner C immediately after use. Hardened / cured material can only be removed mechanically.

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 load must be significantly lower than the failure load. Contact Sika technical service for specific information.

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.

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.

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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