Construction

Sikadur®-31 PBA

Adhesive for bonding laminates

Product Description	Sikadur®-31 PBA is a solvent-free, thixotropic, structural two part adhesive, based on a combination of epoxy resins and special filler, designed for use at normal temperatures between +8°C and +40°C.
Uses	Adhesive for bonding structural reinforcement, particularly in structural strengthening works. Including: ■ Sika® CarboDur® Plates to concrete, brickwork and timber (for details see the Sika® CarboDur® Product Data Sheet ■ Steel plates to concrete (for details see the relevant Sika® Technical information)
Characteristics / Advantages	Sikadur®-31 PBA has the following advantages: ■ Easy to mix and apply ■ No primer needed ■ High creep resistance under permanent load ■ Very good adhesion to concrete, masonry, stonework, steel, cast iron, aluminium, timber and Sika® CarboDur® Plates ■ Hardening is not affected by high humidity ■ High strength adhesive ■ Thixotropic: non-sag in vertical and overhead applications ■ Solvent free ■ Hardens without shrinkage ■ Different coloured components (for mixing control) ■ High initial and ultimate mechanical properties ■ High abrasion and shock resistance ■ Impermeable to liquids and water vapour

Product Data

Form

Colours/ Appearance

Part A: white paste
Part B: black paste
Parts A+B mixed: light grey paste

Packaging

3 kg (A+B): Pre-batched unit

Part A:2.00 kg plastic container
Part B:1.00 kg plastic container

Storage

Storage Conditions / Shelf-Life

12 months from date of production if stored properly in original unopened, sealed and undamaged packaging in dry conditions at temperatures between +5°C and +40°C. Protect from direct sunlight.

Technical Data

Chemical Base

Epoxy resin.

Density

1.95 kg/l ± 0.1 kg/l (Parts A+B mixed) (at +27°C)

Sag Flow

(According to FIP 5.3 with measurement according to ASTM D2730)

On vertical surfaces it is non-sag up to 3-5 mm thickness at +35°C.

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.

Thermal Stability

Heat deflection temperature: (According to ASTM-D 648)

Curing time	Curing Temperature	HDT
7 days	+35°C	+52°C
7 days	+15°C	+46°C

Service Temperature

10°C to +45°C (when cured at > +23°C)

Mechanical / Physical Properties

Compressive Strength

(According to FIP 5.12 and IS 9162-1979)

Curing time	+15°C	+40°C
12 hours	-	~35 N/mm^2
1 day	~40N/mm^2	~60 N/mm^2
3 days	~60 N/mm^2	~70 N/mm^2
7 days	~70 N/mm^2	~75 N/mm^2

Shear Strength

Concrete failure (~ 15 N/mm^2) (According to ASTM C 882-91)

Curing time	Curing temperature (40°C)
1 day	~5 N/mm^2
3 days	~6 N/mm^2
7 days	~7.5 N/mm^2

Tensile Strength (According to ISO 527)

Curing time	Curing temperature (15°C)
1 day	~2.5 N/mm^2
3 days	~6.5 N/mm^2
7 days	~12.0 N/mm^2

Bond Strength On concrete: concrete failure (≥12 N/mm^2) (According to ASTM C 882-91,Slant shear cylinder test)

System Information

System Structure

Sika® CarboDur® System:
For Application Details of Sika® CarboDur® Plates with Sikadur®-31 PBA, see the Sika® CarboDur® Product Data Sheet.

Application Details

Substrate Quality See the Product Data Sheet of Sika® CarboDur® Plates.

Substrate Preparation See the Product Data Sheet of Sika® CarboDur® Plates.

Application Conditions / Limitations

Substrate Temperature +8°C min. / +40°C max.

Ambient Temperature +8°C min. / +40°C max.

Material Temperature Sikadur®-31 PBA must be applied at temperatures between +8°C and +40°C.

Substrate Moisture Content Max. 4%

When applied to mat damp concrete, 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 = 2: 1 (by weight)

When using bulk material the exact mixing ratio must be safeguarded by accurately weighing and dosing each component.

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.

Bulk packing, not pre-batched:
First, stir each part thoroughly. Add the parts in the correct proportions into a suitable mixing pail and stir correctly using an electric low speed mixer as above for pre-batched units.

Application Method / Tools See the Product Data Sheet of Sika® CarboDur® Plates.

Cleaning of Tools Clean all tools and application equipment with Sika® Colma Cleaner immediately after use. Hardened / cured material can only be mechanically removed.

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Potlife/ Open Time

100 gm mass (According to FIP 5.1)

Temperature	+15°C	+35°C
Potlife	~50	~30
Open time	~70	~40

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).

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.

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

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