



# SikaDur® 31 PBA

## Epoxy Adhesive for Structural Bonding of External Plate Reinforcement

### Technical Data Sheet

#### DESCRIPTION

**SikaDur 31 PBA** is a solvent free, two component epoxy resin based product formulated specifically for the external bonding of structural plate reinforcement to concrete and cast iron substrates. Additional corrosion protection to mild steel plates is provided by **Icosit® EG1**. **SikaDur 31 PBA** is supplied in normal and low temperature grades.

#### USES

Bonding of strengthening plates to concrete, timber and masonry substrates.

#### ADVANTAGES

- \* Colour coded components to ensure correct mixing.
- \* Thixotropic nature facilitates application in both vertical and overhead situations.
- \* Excellent adhesion to correctly prepared substrates, even when damp.
- \* Controlled open time and strength gain by choice of appropriate grade.
- \* Good stress transfer between the structural member and externally bonded reinforcement.
- \* Excellent water resistant properties providing outstanding resistance to creep.
- \* Independently tested to CEN recommendations.
- \* Part of a complete and independently tested system for long term durability.
- \* Comprehensively proven in field applications. Full compliance with Department of Transport requirements.
- \* Full specification service available.

#### Technical Data (typical)

**Resin type:** Bishphenol A resin with a polyamine based hardener and inert fillers

**Colour:** Base - White  
Hardener - Black  
Mixed - Mid Grey

**Build Properties:** Applicable overhead in layers up to 10 mm thick

#### Compressive strength gain (N/mm<sup>2</sup>):

PBA Grade	Normal			Low Temperature		
	1d	7d	14d	1d	7d	14d
20°C	40	70	75	70	75	78
10°C	30	65	68	35	70	72
5°C	-	50	55	40	55	60

**Curing shrinkage:** Negligible

**Moisture resistance:** <0.5% uptake at 28 days

**Heat distortion temperature:** 43°C  
(BS2782: Method 121)

**Flexural modulus:** 8600 N/mm<sup>2</sup>

**Tensile strength:** 21.8 N/mm<sup>2</sup>

**Double overlap shear strength:** 15.5 N/mm<sup>2</sup> (unprimed grit blasted steel surfaces)  
12.5 N/mm<sup>2</sup> (grit blasted steel surface primed with **Icosit EG1**)

**Squeezability (23°C):** 55500 m<sup>2</sup>

#### Pot life:

Grade	Normal	Low Temperature
25°C	30 minutes	-
15°C	1 hour 15 mins	30 minutes
5°C	3 hours 35 mins	1 hour

#### Open assembly time:

Grade	Normal	Low Temperature
25°C	5 hours	3 hours
15°C	6.5 hours	4.5 hours
5°C	8.5 hours	6 hours

All above values are approximate.

## SURFACE PREPARATION

Concrete substrates must be sound, clean and free from laitance, ice and all surface contaminants and, after preparation by grit blasting, should be vacuum cleaned. Concrete suitability should be checked using bond and substrate strength tests.

The mild steel plates, steelwork and any cast iron substrates must be cleaned, degreased, gritblasted and protected with **Icosit® EG1** (see separate data sheet). Note the specified cure times for the **Icosit EG1**.

Repairs to the concrete substrate associated with external plate reinforcement must be undertaken with structural repair materials, **SikaCem® 133 Gunite** or **SikaDur Repair Systems** (see separate data sheets) as appropriate.

## APPLICATION

The adhesive is applied at the specified thickness to each of the mating surfaces which must then be brought together within the open time of the material and firmly held in position until the adhesive has cured.

The application is inherently structural and great care should be taken in choosing suitably experienced specialist contractors. The whole of Part A (white resin) should be mixed with the whole of Part B (black hardener) using a low speed drill (500 rpm) and suitable spiral or paddle mixer until an even grey colour is achieved. A spatula should be used to check that there are no streaks near bottom edges of the container. (DO NOT PART MIX PACKS OF **SikaDur 31 PBA**).

Application should be made to the appropriately prepared surfaces by float or serrated spreader at the specified thickness.

## IMPORTANT CONSIDERATIONS

- \* A suitably qualified person must be involved in the design of the strengthening works.
- \* A full material specification should be obtained from **Sika Limited**.
- \* A suitably experienced specialist contractor must undertake the work.
- \* Site quality control must be assured by an independent testing agency.
- \* Only **Icosit EG1** may be used for corrosion protection of the mild steel plates.
- \* Minimum application temperature is 5°C.

**Note:** DETAILED ADVICE ON THE ABOVE SHOULD ALWAYS BE OBTAINED FROM **SIKA LIMITED**.

## CLEANING

Remove **SikaDur 31 PBA** from tools, equipment, etc. with **Sika® Thinner C** whilst the product is still soft. Hardened material can only be removed mechanically.

## PACKAGING

Refer to latest price list.

## CONSUMPTION

<b>SikaDur 31 PBA:</b>	Thickness	Kg/m <sup>2</sup>
	1 mm	1.5 (on steel)
	2 mm	3.0 (on concrete)

The above are typical figures. Allowances should be made for substrate irregularity and wastage.

## STORAGE AND SHELF LIFE

**SikaDur 31 PBA** should be stored in dry warehouse conditions between 10°C and 30°C in original containers. Shelf life under these circumstances is a minimum of one year.

### Handling Precautions

Sika products are generally harmless provided that certain precautions normally taken when handling chemicals are observed. The materials must not, for instance, be allowed to come in contact with foodstuffs or food utensils and measures should also be taken to prevent the uncured materials from coming in contact with the skin, since people with particularly sensitive skin may be affected. The use of protective clothing, goggles, barrier creams and rubber gloves is required. The skin should be thoroughly cleaned at the end of each working period either by washing with soap and warm water or by using a resin-removing cream - the use of powerful solvents is to be avoided. Disposable paper towels - not cloth towels - should be used to dry the skin. Adequate ventilation of the working area is recommended. In case of accidental eye or mouth contact, flush with water - consult a doctor immediately. Health and Safety information on Sika Products is available and we strongly advise that this is read prior to their use. Sika products are for professional use and should be stored in sealed containers away from the reach of children.

### Important Note

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 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 proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users should always refer to the most recent issue of the Technical Data Sheet for the product concerned, copies of which will be supplied on request.

Please consult our Technical Sales Department for further information

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