



Sika® CarboDur® CFRP Plates

Technical Data Sheet

DESCRIPTION

Sika CarboDur CFRP plates are high performance corrosion resistant pultruded carbon fibre plates. When used in conjunction with the **SikaDur® 30** epoxy adhesive, they form the **Sika CarboDur CFRP Strengthening System**.

USES

To strengthen reinforced concrete, timber and masonry, structural elements for:

Loading increases

- * Increasing the load capacity of floor slabs and beams.
- * Increasing the load capacity of bridges to accommodate increase axle loads.
- * Installation of heavy machinery in industrial buildings.
- * Vibrating structures.
- * Changes of building utilisation.

Damage to structural components

- * Deterioration of construction materials.
- * Steel reinforcement corrosion.
- * Vehicle impact.
- * Fire.

Serviceability improvements

- * Reduced deflection.
- * Stress reduction in steel reinforcement.
- * Crack width reduction.
- * Reduces fatigue.

Change in structural system

- * Removal of walls or columns.
- * Removal of slab sections for openings.

Design or construction defects

- * Insufficient reinforcements.
- * Insufficient structural depth.

Technical Data (typical)

Colour:	Black		
Base:	Carbon fibre reinforced with an epoxy matrix.		
Fibre volumetric content:	>68%		
Density:	1.6 g/cm ³		
Temperature resistance:	>150°C		
Physical properties:			
Grade	E-Modulus	Ultimate tensile strength* (mean)	Elongation at break*
Sika CarboDur S	>165,000 N/mm ²	>2800 N/mm ²	>1.7%
Sika CarboDur M	>210,000 N/mm ²	>2400 N/mm ²	>1.2%
Sika CarboDur H	>300,000 N/mm ²	>1300 N/mm ²	>0.45%
* Mechanical value obtained from longitudinal direction of fibres.			
All above values are approximate			

ADVANTAGES

- * Non corrosive.
- * Excellent durability.
- * Lightweight.
- * Available in any length, no joints required.
- * Low overall thickness.
- * Easy to transport (rolls).
- * Bonding surface pre-prepared.
- * Plate intersections are simple.
- * Economical application – no heavy handling and installation equipment.
- * Outstanding fatigue resistance.
- * Can be coated without preparation.
- * Various widths and thicknesses available.
- * A combination of high strengths and modulus of elasticity available.
- * Good fire resistance.



Sika CarboDur GRADES/TYPES

Sika CarboDur S

E-Modulus 165,000 N/mm²

Type	Width mm	Thickness mm	Cross sectional area mm ²
Sika CarboDur S512	50	1.2	60
Sika CarboDur S612	60	1.2	72
Sika CarboDur S812	80	1.2	96
Sika CarboDur S1012	100	1.2	120
Sika CarboDur S1212	120	1.2	144
Sika CarboDur S1512	150	1.2	180
Sika CarboDur S614	60	1.4	84
Sika CarboDur S914	90	1.4	126
Sika CarboDur S1214	120	1.4	168

Sika CarboDur H

E-Modulus >300,000 N/mm²

Type	Width mm	Thickness mm	Cross sectional area mm ²
Sika CarboDur H514	50	1.4	70

Sika CarboDur M

E-Modulus >210,000 N/mm²

Type	Width mm	Thickness mm	Cross sectional area mm ²
Sika CarboDur M514	50	1.4	70
Sika CarboDur M614	60	1.4	84
Sika CarboDur M914	90	1.4	126
Sika CarboDur M1214	120	1.4	168

SURFACE PREPARATION

Concrete and masonry substrates must be sound, clean and free from laitance, ice and all surface contaminants. After preparation by grit blasting to expose coarse and fine aggregate surfaces should be vacuum cleaned. Concrete suitability should be checked using bond and substrate strength tests.

Repairs to the concrete substrate must be undertaken with structural repair materials such as **SikaCem® 133 Gunite** or **SikaDur 41** repair mortar (see separate data sheets).

Timber surfaces should be prepared by planing or sanding. Dust should be removed by vacuum cleaner.

Bond tests should be made to ensure substrate preparation is adequate.

Immediately prior to the application of **SikaDur 30**, solvent wipe bonding surface with **Sika Thinner C** to remove contaminants and carbon dust. Wait until surface is dry before applying adhesive.

APPLICATION

After application of **SikaDur 30** to the concrete and **Sika CFRP** plate (see **SikaDur 30** technical data sheet for mixing and application details), place the **Sika CFRP** plate onto the adhesive coated substrate. Use a roller to press the plate into the **SikaDur 30** to achieve a void free bond line thickness of between 2 - 3 mm. Remove surplus **SikaDur 30** from sides of plate while adhesive is uncured.

When the **SikaDur 30** has cured, test for voids by tapping surface of plate with metallic object.

For aesthetic purposes, the plate may be coated with **SikaGard® 62** or **SikaGard 550W Elastic**.

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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IMPORTANT CONSIDERATIONS

- ★ A suitable qualified person must be involved in the design of the strengthening works.
- ★ The application is inherently structural and great care should be taken in choosing suitably experienced specialist contractors.
- ★ Apply plate within open assembly time of **SikaDur 30**.
- ★ A full material specification should be obtained from **Sika Limited**.
- ★ Site quality control must be assured by an independent testing authority.
- ★ Care must be taken when cutting plates. Use suitable protective clothing, gloves, eye protection and respirator.

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

CLEANING

SikaDur 30 may be removed from the **Sika CarboDur** plates whilst adhesive is still soft, using a spatula. Remaining residue should then be removed using **Sika Thinner C**.

PACKAGING

Refer to latest price list.

STORAGE AND SHELF LIFE

Unlimited if stored in dry conditions and without exposure to direct sunlight.





SikaDur® 30

Epoxy Adhesive for Bonding Sika® CarboDur® CFRP Plates

Technical Data Sheet

DESCRIPTION

SikaDur 30 is a solvent free, two component epoxy resin based product formulated specifically for the external bonding of **Sika CarboDur** CFRP plates.

USES

- * Bonding of **Sika CarboDur** CFRP plates to concrete, timber and masonry substrates.

A component of the **Sika CarboDur Strengthening System**

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.
- * Good stress transfer between the structural member and CFRP plate.
- * Excellent water resistant properties providing outstanding resistance to creep.
- * Part of a complete and independently tested system for long term durability.
- * Comprehensively proven in field applications.
- * Full specification service available.
- * No VOC's (Volatile Organic Compounds).
- * Solvent free.
- * Excellent 'grab' allows plates to be bonded without temporary supports.

Technical Data (typical)

Resin type:	Bisphenol A resin with a polyamine based hardener and inert fillers.
Colour:	Base - White Hardener - Black Mixed - Mid Grey
Density:	Approx 1.8 kg/litre
Application Thickness:	Applicable overhead in layers up to 10mm thick
Application Temperatures:	
Min	+5°C
Max	+35°C
Compressive Strength:	Approx 90 N/mm ²
Tensile Strength:	Approx 30.0 N/mm ²
Tensile Slant Shear Strength:	Approx 18 N/mm ²
Maximum Service Temperature:	50°C
Curing Shrinkage:	Negligible
Co-efficient of Expansion:	9 x 10 ⁻⁵ per °C (-10°C to +40°C)
Moisture Resistance:	<0.5% uptake at 28 days
Glass Transition Temperature:	62°C
Flexural Modulus:	12,800 N/mm ²
Adhesive Strength:	>4 N/mm ² - concrete failure dependent on concrete strength and surface preparation

Pot Life:		Open Assembly Time:	
35°C	40 mins	35°C	30 mins
25°C	1 hour	25°C	1 hour 20 mins
15°C	1 hour 30 mins	15°C	1 hour 50 mins
5°C	2 hour	5°C	2 hours 30 mins

All above values are approximate

SURFACE PREPARATION

Concrete and masonry substrates must be sound, clean and free from laitance, ice and all surface contaminants. After preparation by grit blasting to expose coarse and fine aggregate surfaces should be vacuum cleaned. Concrete suitability should be checked using bond and substrate strength tests.

Repairs to the concrete substrate must be undertaken with structural repair materials such as **SikaCem® 133 Gunite** or **SikaDur 41** repair mortar (see separate data sheets).

Timber surfaces should be prepared by planing or sanding. Dust should be removed by vacuum cleaner.

Bond tests should be made to ensure substrate preparation is adequate.

Immediately prior to the application of **SikaDur 30**, solvent wipe prepared roughened surface with **Sika Thinner C** to remove contaminants and carbon dust. Wait until surface is dry before applying adhesive.

APPLICATION

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 for 3 minutes 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 30**).

Application should be made to the appropriately prepared surfaces by float or suitable spreader at the specified thickness. A specially profiled spreader blade should be used for application to the **Sika CarboDur** CFRP plate.

The mating surfaces must then be brought together within the open time of the material.

IMPORTANT CONSIDERATIONS

- * A suitable qualified person must be involved in the design of the strengthening works.
- * The application is inherently structural and great care should be taken in choosing suitably experienced specialist contractors.
- * A full material specification should be obtained from **Sika Limited**.
- * Site quality control must be assured by an independent testing authority.

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

CLEANING

Remove **SikaDur 30** 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

SikaDur 30	Thickness	kg/m ²
Sika CFRP plate Substrate	1.0 mm	1.8
	1 - 2mm	1.8 - 3.6 (depending on profile)

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

STORAGE AND SHELF LIFE

SikaDur 30 should be stored in dry warehouse conditions between +5°C and +25°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.

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SikaWrap® 100G

Glass Fibre Structural Strengthening Fabric

Technical Data Sheet

DESCRIPTION

SikaWrap 100G is a high performance woven glass fibre structural strengthening fabric designed for on site insitu strengthening of structural load bearing elements. When used in conjunction with compatible **SikaDur®** epoxy resins, the system can provide a wet application composite strengthening system.

USES

To strengthen reinforced concrete, timber and masonry, structural elements on structures such as bridges, parking structures, marine structures, chimneys, silos, tunnels and tanks, pipelines etc for:

Loading increases

- * Increasing the load capacity of floor slabs and beams
- * Increasing the load capacity of bridges to accommodate increase axle loads
- * Installation of heavy machinery in industrial buildings
- * Vibrating structures
- * Change of building utilisation
- * Blast resistance
- * Seismic

Damage to structural components

- * Deterioration of construction materials
- * Steel reinforcement corrosion
- * Vehicle impact
- * Fire

Serviceability improvements

- * Reduced deflection
- * Stress reduction in steel reinforcement
- * Crack width reduction
- * Reduces fatigue

Change in structural system

- * Removal of walls or columns
- * Removal of slab sections for openings

Design or construction defects

- * Insufficient reinforcement
- * Insufficient structural depth

Technical Data (typical)

FABRIC PROPERTIES:

Colour:	White
Base:	E-Glass fibre unidirectional fabric
Weight:	840 gms/m ²
Thickness:	0.27 mm
Tensile strength:	>2,250 N/mm ²
Tensile E-modulus:	>70,000 N/mm ²
Elongation at break:	4% 
Tensile strength per mm width:	610 N

All above values are approximate

ADVANTAGES

- * Non corrosive.
- * Excellent durability.
- * Lightweight.
- * Low overall thickness.
- * Easy to transport (rolls).
- * Shear and flexural enhancement
- * Strengthens any geometric shape
- * Economical application – no heavy handling and installation equipment.
- * Can be coated without preparation.
- * Low aesthetic impact.

SURFACE PREPARATION

Concrete and masonry substrates must be sound, clean and free from laitance, ice and all surface contaminants. After preparation by grit blasting to expose coarse and fine aggregate surfaces should be vacuum cleaned. Concrete suitability should be checked using bond and substrate strength tests.

Repairs to the concrete substrate must be undertaken with structural cementitious or epoxy repair materials. Selection of materials will be dependent upon size of repair or cavity. (See separate data sheets).

Timber surfaces should be prepared by planing or sanding. Dust should be removed by vacuum cleaner.

Bond tests should be made to ensure substrate preparation is adequate.

On corners, reprofile by grinding edges or building up with **SikaDur** epoxy mortars to provide a minimum radius of 25 mm.

APPLICATION

Wet:

Prior to placing the **SikaWrap 100G** fabric, the substrate should be primed using **SikaDur 300/306** epoxy resin.

Saturate the fabric with **SikaDur 300/306** (see separate data sheet) and while the primer is still wet, apply the **SikaWrap 100G** fabric to the substrate.

Smooth material onto substrate by hand or roller to remove voids and creases.

Finally apply a sealer coat of **SikaDur 300/306** to the fabric.

Once the system has cured, a **SikaGard**® pigmented coating may be applied to the composite skin for aesthetic or additional ultra violet or chemical resistance. Choice of coating will be dependant on performance requirements.

IMPORTANT CONSIDERATIONS

- * A suitable qualified person must be involved in the design of the strengthening works.
- * The application is inherently structural and great care should be taken in choosing suitably experienced specialist contractors.
- * A full specification should be obtained from **Sika Limited**.
- * Site quality control must be assured by an independent testing authority.
- * The **SikaWrap** fabric is coated to ensure maximum bond and durability with the **SikaDur** impregnating/resins. To maintain system compatibility, do not interchange system components.
- * The **SikaWrap** fabric can be cut to length using sharp commercial heavy duty scissors shears or razor knife.
- * Care must be taken when cutting fabric. Use suitable protective clothing, gloves, eye protection and respirator.

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

PACKAGING

Refer to latest price list.

STORAGE AND SHELF LIFE

Unlimited if stored in dry conditions and without exposure to direct sunlight.

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.

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SikaWrap® 103C

Carbon Fibre Structural Strengthening Fabric

Technical Data Sheet

DESCRIPTION

SikaWrap 103C is a high strength, high modulus woven carbon fibre structural strengthening fabric designed for on site insitu strengthening of structural load bearing elements. When used in conjunction with compatible **SikaDur**® epoxy resins, the system can provide a wet application composite strengthening system.

USES

To strengthen reinforced concrete, timber and masonry, structural elements on structures such as bridges, parking structures, marine structures, chimneys, silos, tunnels and tanks, pipelines etc for:

Loading increases

- * Increasing the load capacity of floor slabs and beams
- * Increasing the load capacity of bridges to accommodate increase axle loads
- * Installation of heavy machinery in industrial buildings
- * Vibrating structures
- * Change of building utilisation
- * Blast resistance
- * Seismic

Damage to structural components

- * Deterioration of construction materials
- * Steel reinforcement corrosion
- * Vehicle impact
- * Fire

Serviceability improvements

- * Reduced deflection
- * Stress reduction in steel reinforcement
- * Crack width reduction
- * Reduces fatigue

Change in structural system

- * Removal of walls or columns
- * Removal of slab sections for openings

Design or construction defects

- * Insufficient reinforcement
- * Insufficient structural depth

Technical Data (typical)

FABRIC PROPERTIES:

Colour:	Black
Base:	Carbon fibre unidirectional fabric
Weight:	560 gms/m ²
Thickness:	0.27 mm
Tensile strength:	>3,500 N/mm ²
Tensile E-modulus:	>230,000 N/mm ²
Elongation at break:	1.5% 
Tensile strength per mm width:	972 N

All above values are approximate

ADVANTAGES

- * Non corrosive.
- * Excellent durability.
- * Lightweight.
- * Low overall thickness.
- * Shear and flexural enhancement
- * Strengthens any geometric shape
- * Acid resistant
- * Economical application – no heavy handling and installation equipment.
- * Outstanding fatigue resistance.
- * Can be coated without preparation.
- * Low aesthetic impact.

SURFACE PREPARATION

Concrete and masonry substrates must be sound, clean and free from laitance, ice and all surface contaminants. After preparation by grit blasting to expose coarse and fine aggregate surfaces should be vacuum cleaned. Concrete suitability should be checked using bond and substrate strength tests.

Repairs to the concrete substrate must be undertaken with structural cementitious or epoxy repair materials. Selection of materials will be dependent upon size of repair or cavity. (See separate data sheets).

Timber surfaces should be prepared by planing or sanding. Dust should be removed by vacuum cleaner.

Bond tests should be made to ensure substrate preparation is adequate.

On corners, reprofile by grinding edges or building up with **SikaDur** epoxy mortars to provide a minimum radius of 25 mm.

APPLICATION

Wet:

Prior to placing the **SikaWrap 103C** fabric, the substrate should be primed using **SikaDur 300/306** epoxy resin.

Saturate the fabric with **SikaDur 300/306** (see separate data sheet) and while the primer is still wet, apply the **SikaWrap 103C** fabric to the substrate.

Smooth material onto substrate by hand or roller to remove voids and creases.

Finally apply a sealer coat of **SikaDur 300/306** to the fabric.

Once the system has cured, a **SikaGard**® pigmented coating may be applied to the composite skin for aesthetic or additional ultra violet or chemical resistance. Choice of coating will be dependant on performance requirements.

IMPORTANT CONSIDERATIONS

- * A suitable qualified person must be involved in the design of the strengthening works.
- * The application is inherently structural and great care should be taken in choosing suitably experienced specialist contractors.
- * A full specification should be obtained from **Sika Limited**.
- * Site quality control must be assured by an independent testing authority.
- * The **SikaWrap** fabric is coated to ensure maximum bond and durability with the **SikaDur** impregnating/resins. To maintain system compatibility, do not interchange system components.
- * The **SikaWrap** fabric can be cut to length using sharp commercial heavy duty scissors shears or razor knife.
- * Care must be taken when cutting fabric. Use suitable protective clothing, gloves, eye protection and respirator.

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

PACKAGING

Refer to latest price list.

STORAGE AND SHELF LIFE

Unlimited if stored in dry conditions and without exposure to direct sunlight.

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.

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SikaWrap® 230C

Carbon Fibre Structural Strengthening Fabric

Technical Data Sheet

DESCRIPTION

SikaWrap 230C is a high strength, high modulus woven carbon fibre structural strengthening fabric designed for on site insitu strengthening of structural load bearing elements. When used in conjunction with compatible **SikaDur®** epoxy resins, the system can provide a dry application composite strengthening system.

USES

To strengthen reinforced concrete, timber and masonry, structural elements on structures such as bridges, parking structures, marine structures, chimneys, silos, tunnels and tanks, pipelines etc for:

Loading increases

- * Increasing the load capacity of floor slabs and beams
- * Increasing the load capacity of bridges to accommodate increase axle loads
- * Installation of heavy machinery in industrial buildings
- * Vibrating structures
- * Change of building utilisation
- * Blast resistance
- * Seismic

Damage to structural components

- * Deterioration of construction materials
- * Steel reinforcement corrosion
- * Vehicle impact
- * Fire

Serviceability improvements

- * Reduced deflection
- * Stress reduction in steel reinforcement
- * Crack width reduction
- * Reduces fatigue

Change in structural system

- * Removal of walls or columns
- * Removal of slab sections for openings

Design or construction defects

- * Insufficient reinforcement
- * Insufficient structural depth

Technical Data (typical)

FABRIC PROPERTIES:

Colour:	Black
Base:	Carbon fibre unidirectional fabric
Weight:	230 gms/m ²
Thickness:	0.13 mm
Tensile strength:	>3,500 N/mm ²
Tensile E-modulus:	>230,000 N/mm ²
Elongation at break:	1.5%
Tensile strength per mm width:	455 N

All above values are approximate

ADVANTAGES

- * Non corrosive.
- * Excellent durability.
- * Lightweight.
- * Low overall thickness.
- * Shear and flexural enhancement
- * Strengthens any geometric shape
- * Acid resistant
- * Economical application – no heavy handling and installation equipment.
- * Outstanding fatigue resistance.
- * Can be coated without preparation.
- * Low aesthetic impact.

SURFACE PREPARATION

Concrete and masonry substrates must be sound, clean and free from laitance, ice and all surface contaminants. After preparation by grit blasting to expose coarse and fine aggregate surfaces should be vacuum cleaned. Concrete suitability should be checked using bond and substrate strength tests.

Repairs to the concrete substrate must be undertaken with structural cementitious or epoxy repair materials. Selection of materials will be dependent upon size of repair or cavity. (See separate data sheets).

Timber surfaces should be prepared by planing or sanding. Dust should be removed by vacuum cleaner.

Bond tests should be made to ensure substrate preparation is adequate.

On corners, reprofile by grinding edges or building up with **SikaDur** epoxy mortars to provide a minimum radius of 10 mm.

APPLICATION

Dry Method:

Prior to placing the **SikaWrap 230C** fabric, the substrate should be primed using **SikaDur 330** epoxy laminating resin.

Smooth **SikaWrap 230C** onto wet primed substrate by hand to remove voids and creases and use plastic or steel laminating roller to squeeze **SikaDur 330** through fabric and encapsulate fibres.

For additional layers, apply **SikaDur 330** to previous applied layer within 60 minutes and repeat laminating operation. Otherwise allow 12 hours before next layer.

Finally apply a sealer coat of **SikaDur 330** to the fabric ensuring complete opacity.

Once the system has cured, a **SikaGard**® pigmented coating may be applied to the composite skin for aesthetic or additional ultra violet or chemical resistance. Choice of coating will be dependant on performance requirements.

A cementitious coating can be applied over final sealer coat by blinding wet surface with dried quartz sand 0.7-1.2mm granulometry as a key for the coating.

IMPORTANT CONSIDERATIONS

- * A suitable qualified person must be involved in the design of the strengthening works.
- * The application is inherently structural and great care should be taken in choosing suitably experienced specialist contractors.
- * A full material specification should be obtained from **Sika Limited**.
- * Site quality control must be assured by an independent testing authority.
- * The **SikaWrap** fabric is coated to ensure maximum bond and durability with the **SikaDur** impregnating/resins. To maintain system compatibility, do not interchange system components.
- * The **SikaWrap** fabric can be cut to length using sharp commercial heavy duty scissors shears or razor knife.
- * Care must be taken when cutting fabric. Use suitable protective clothing, gloves, eye protection and respirator.

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

PACKAGING

Refer to latest price list.

STORAGE AND SHELF LIFE

Unlimited if stored in dry conditions and without exposure to direct sunlight.

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

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Please consult our Technical Sales Department for further information

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SikaWrap® 430G

Glass Fibre Structural Strengthening Fabric

Technical Data Sheet

DESCRIPTION

SikaWrap 430G is a woven glass fibre structural strengthening fabric designed for on site insitu strengthening of structural load bearing elements. When used in conjunction with compatible **SikaDur**® epoxy resins, the system can provide a dry application composite strengthening system.

USES

To strengthen reinforced concrete, timber and masonry, structural elements on structures such as bridges, parking structures, marine structures, chimneys, silos, tunnels and tanks, pipelines etc for:

Loading increases

- * Increasing the load capacity of floor slabs and beams
- * Increasing the load capacity of bridges to accommodate increase axle loads
- * Installation of heavy machinery in industrial buildings
- * Vibrating structures
- * Change of building utilisation
- * Blast resistance
- * Seismic

Damage to structural components

- * Deterioration of construction materials
- * Steel reinforcement corrosion
- * Vehicle impact
- * Fire

Serviceability improvements

- * Reduced deflection
- * Stress reduction in steel reinforcement
- * Crack width reduction
- * Reduces fatigue

Change in structural system

- * Removal of walls or columns
- * Removal of slab sections for openings

Design or construction defects

- * Insufficient reinforcement
- * Insufficient structural depth

Technical Data (typical)

FABRIC PROPERTIES:

Colour:	White
Base:	E-Glass fibre unidirectional fabric
Weight:	430 gms/m ²
Thickness:	0.17 mm
Tensile strength:	>2,250 N/mm ²
Tensile E-modulus:	>70,000 N/mm ²
Elongation at break:	3.1% 
Tensile strength per mm width:	380 N

All above values are approximate

ADVANTAGES

- * Non corrosive.
- * Excellent durability.
- * Lightweight.
- * Low overall thickness.
- * Shear and flexural enhancement
- * Strengthens any geometric shape
- * Economical application – no heavy handling and installation equipment.
- * Can be coated without preparation.
- * Low aesthetic impact.

SURFACE PREPARATION

Concrete and masonry substrates must be sound, clean and free from laitance, ice and all surface contaminants. After preparation by grit blasting to expose coarse and fine aggregate surfaces should be vacuum cleaned. Concrete suitability should be checked using bond and substrate strength tests.

Repairs to the concrete substrate must be undertaken with structural cementitious or epoxy repair materials. Selection of materials will be dependent upon size of repair or cavity. (See separate data sheets).

Timber surfaces should be prepared by planing or sanding. Dust should be removed by vacuum cleaner.

Bond tests should be made to ensure substrate preparation is adequate.

On corners, reprofile by grinding edges or building up with **SikaDur** epoxy mortars to provide a minimum radius of 25 mm.

APPLICATION

Dry:

Prior to placing the **SikaWrap 430G** fabric, the substrate should be primed using **SikaDur 330** epoxy laminating resin.

Smooth **SikaWrap 430G** onto substrate by hand to remove voids and creases and use plastic or steel laminating roller to squeeze **SikaDur 330** through fabric.

For additional layers, apply **SikaDur 330** to previous applied layer and repeat laminating operation.

Finally apply a sealer coat of **SikaDur 330** to the fabric.

Once the system has cured, a **SikaGard**® pigmented coating maybe applied to the composite skin for aesthetic or additional ultra violet or chemical resistance. Choice of coating will be dependant on performance requirements.

IMPORTANT CONSIDERATIONS

- * A suitable qualified person must be involved in the design of the strengthening works.
- * The application is inherently structural and great care should be taken in choosing suitably experienced specialist contractors.
- * A full material specification should be obtained from **Sika Limited**.
- * Site quality control must be assured by an independent testing authority.
- * The **SikaWrap** fabric is coated to ensure maximum bond and durability with the **SikaDur** impregnating/resins. To maintain system compatibility, do not interchange system components.
- * The **SikaWrap** fabric can be cut to length using sharp commercial heavy duty scissors shears or razor knife.
- * Care must be taken when cutting fabric. Use suitable protective clothing, gloves, eye protection and respirator.

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

PACKAGING

Refer to latest price list.

STORAGE AND SHELF LIFE

Unlimited if stored in dry conditions and without exposure to direct sunlight.

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.

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SikaDur® 330

Epoxy Laminating Resin for the SikaWrap® Structural Strengthening System

Technical Data Sheet

DESCRIPTION

SikaDur 330 is a solvent free, cold cure, two component epoxy resin based product formulated specifically for the bonding of the **SikaWrap** structural strengthening fabrics using the "dry" application system.

USES

- * Bonding of **SikaWrap** structural fabrics to concrete, timber and masonry substrates.
- * **SikaDur 330** is used as a seal coat and laminating resin for horizontal and vertical applications.

A component of the **SikaWrap** structural strengthening system.

ADVANTAGES

- * Part of a complete and independently tested system.
- * Formulation facilitates application in both vertical and overhead situations.
- * Excellent adhesion to correctly prepared substrates, even when damp.
- * Good stress transfer between the structural member and structural fabric.
- * Comprehensively proven in field applications.
- * Full specification service available.
- * No VOC's (Volatile Organic Compounds).
- * Solvent free.
- * High creep resistance under permanent load.
- * High temperature resistance.
- * High strength and modulus.
- * High abrasion and shock resistance.

Technical Data (typical)

Colour:	Grey (mixed)	
Density:	Approx 1.31 kg/l	
Application Temperatures:		
Min	+10°C	
Max	+35°C	
Maximum Service Temperature:	50°C	
Curing Shrinkage:	Negligible	
Heat Deflection Temperature:	Curing	HDT
	7 days, +10°C	+36°C
	7 days, +10°C plus 7 days, +23°C	+43°C
	7 days, +23°C	+47°C
	7 days, +35°C	+53°C
Flexural Modulus:	Approx 3,800 N/mm ²	
Tensile Strength:	Approx 30.0 N/mm ²	
Adhesive Strength:	>4 N/mm ² - concrete failure dependent on concrete strength and surface preparation	
Pot Life: (23°C RH 50%)	Approx 60 mins	
Open Time:	30 mins (@35°C)	

All above values are approximate

SURFACE PREPARATION

Concrete and masonry substrates must be sound, clean and free from laitance, ice and all surface contaminants. After preparation by abrasive blasting to expose coarse and fine aggregate and profile the substrate, surfaces should be vacuum cleaned. Concrete/masonry suitability should be checked using bond and substrate strength tests. Minimum age of concrete 21-28 days (mc<4%).

Repairs/pre-levelling of the concrete substrate must be undertaken with structural cementitious or epoxy repair materials. Selection of materials will be dependent upon size of repair or cavity. (See separate data sheets).

Timber surfaces should be prepared by planing or sanding. Dust should be removed by vacuum cleaner.

Bond tests should be made to ensure substrate preparation is adequate.

MIXING

The whole of part A (resin) should be mixed with the whole of part B (hardener) using a low speed drill (400-600 rpm) and suitable spiral or paddle mixer for 4 minutes until uniformly blended (DO NOT PART MIX PACKS).

APPLICATION

Substrate primer:

Apply the mixed **SikaDur 330** to the substrate by brush or roller

Fabric laminating:

Apply the mixed **SikaDur 330** to the previously laminated layer by brush or roller.

Fabric sealer:

Apply the mixed **SikaDur 330** to the final laminated layer ensuring complete opacity of the fabric.

For application of complete structural strengthening fabric system refer to separate technical data sheets.

IMPORTANT CONSIDERATIONS

- * A suitable qualified person must be involved in the design of the strengthening works.
- * The application is inherently structural and great care should be taken in choosing suitably experienced specialist contractors.
- * A full material specification should be obtained from **Sika Limited**.
- * Do not dilute material with solvent.

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

CLEANING

Remove **SikaDur 330** 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

Substrate primer: 1.0 - 1.5 kg/m²

Fabric laminating resin: 0.5 - 0.6 kg/m²

Fabric sealer: 0.2 - 0.3 kg/m²

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

STORAGE AND SHELF LIFE

SikaDur 330 should be stored in dry warehouse conditions between +5°C and +25°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.

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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/mm²):

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/mm²

Tensile strength: 21.8 N/mm²

Double overlap shear strength: 15.5 N/mm² (unprimed grit blasted steel surfaces)
12.5 N/mm² (grit blasted steel surface primed with **Icosit EG1**)

Squeezability (23°C): 55500 m²

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

SikaDur 31 PBA:	Thickness	Kg/m ²
	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.

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SikaDur[®] 31

Thixotropic Epoxy Adhesive

Technical Data Sheet

DESCRIPTION

SikaDur 31 is a two component solvent free, cold cure, thixotropic epoxy adhesive suitable for damp and dry substrates. Available in two grades - **Normal** and **Rapid**.

USES

- * Bonds all types of construction materials: concrete, brick, stoneware, polyester, epoxy, glass, steel, iron and timber.
- * Bonding bridge.
- * Levelling.
- * Blowhole/pore hole filling
- * Crack and surface sealer.
- * Bonding new to old concrete.
- * Crack injection 10 - 15 mm.

ADVANTAGES

- * Colour coded components to ensure correct mixing.
- * Excellent adhesion even in damp conditions.
- * Thixotropic consistency allows application in vertical and overhead situations.
- * Excellent water resistance.
- * **Rapid** grade for low temperature working.
- * Resistant to chemicals, solvents, oils.
- * Solvent free.
- * Suitable for contact with potable water (**Rapid** grade).
- * Good resistance to creep.

Technical Data (typical)

Colour: Grey (mixed)
Base - white
Hardener - black

Density: 1.55 kg/litre

Application temperatures: +0°C min - +20°C max (**Rapid**)
+5°C min - +30°C max (**Normal**)
(substrate and ambient)

Layer thickness 1.0 mm minimum
per application: 10 mm maximum

Compressive strength gain guide (N/mm²)

Grade	Normal			Rapid		
	1	5	10	1	5	10
Time (days)						
0°C	-	-	-	5	20	55
5°C	10	40	55	15	35	60
10°C	20	50	60	20	40	65
20°C	55	65	65	60	65	75
30°C	60	70	75	-	-	-

Flexural strength: 35 N/mm² @ 20°C

Tensile strength: 18 N/mm² @ 20°C

Modulus of Elasticity: 8.0 KN/mm² @ 20°C
(static)

Coefficient of Expansion: 50 x 10⁻⁶ per °C

Bond strength: Concrete: typically 2 - 3 N/mm²
(concrete failure)
Steel: typically 14 N/mm²
(epoxy failure)

Shrinkage: Negligible

Pot life:

Grade	Normal	Rapid
Time		
0°C	-	1¼ hrs
5°C	3½ hrs	1 hr
10°C	1½ hrs	30 mins
20°C	40 mins	10 mins
30°C	20 mins	-

Approved for potable water contact.
Details available on request.

All above values are approximate.

SURFACE PREPARATION

Concrete/Brickwork/Mortar Substrates:

Surfaces must be sound, clean, free from frost, oils, grease, standing water and all loosely adhering particles and other surface contaminants. Cement laitance must be removed

Mechanically prepare surfaces by suitable approved techniques such as needle gunning, scabbling, bush hammering, water/grit blasting etc
Concrete must be at least 3-6 weeks old.

Steel Substrate:

Prepare surfaces by removing old coatings, rust products, grease, oil etc by suitable mechanical equipment to a bright metal finish. Apply **SikaDur 31** within 4 hours or protect reinforcement with **Sika® Armatec 110 EpoCem®**.

MIXING

Stir component A prior to mixing (resin). The whole of component A (resin) should be mixed with the whole of component B (hardener) for a minimum of 2 minutes using a slow speed electric stirrer (300-600 rpm) and suitable spiral or paddle mixer until a uniform mix and colour is achieved.

APPLICATION

Apply directly to the prepared substrate by brush, trowel, spatular to the required layer thickness. Allow each layer to achieve initial set and for heat to dissipate from hardening process before application of further layers.

Smooth off final layer with a clean steel trowel. Avoid feather edges and where necessary form a recess of at least 2.0 mm around repair area.

IMPORTANT CONSIDERATIONS

- * At higher temperatures pot life will be shortened.
- * At lower temperatures the material will become more difficult to apply and take longer to harden.
- * Wear suitable protective clothing, gloves and eye protection.
- * Do not add solvent to the mix.
- * Always ensure good ventilation when using in a confined space.
- * **Thinner C** is flammable. NO NAKED FLAMES
- * Do not mix additional fillers.
- * When bonding @ 0°C ensure ice is not present on substrate and temperature will increase above this value within 24 hours.

CLEANING

All tools should be cleaned with **Thinner C** immediately after use. Hardened material must be removed mechanically.

PACKAGING

Refer to latest price list.

CONSUMPTION

1.55 kg/m² @ 1.0 mm thickness
7.75 kg/m² @ 5.0 mm thickness

Excluding allowances for loss wastage surface profile and porosity.

STORAGE AND SHELF LIFE

Minimum 12 months in sealed containers stored in dry warehouse conditions (+5°C - +30°C).

Handling Precautions

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SikaDur[®] 31SBA

Segmental Bridge Epoxy Adhesive

Technical Data Sheet

DESCRIPTION

SikaDur 31SBA is a two component, solvent free, cold cured thixotropic epoxy adhesive especially formulated for bonding prefabricated bridge segments.

ADVANTAGES

- * Available in 5 grades.
- * Temperature ranges 0°C - 60°C.
- * Easy to apply.
- * Hardening not affected by humidity.
- * Hardens without shrinkage.
- * High strength.
- * Excellent water resistance.
- * Non sag.
- * Colour coded components to ensure correct mixing.
- * Can be applied to damp substrates.
- * Lubricates surfaces and makes location of shear keys easier.
- * Solvent free.

Technical Data (typical)

Colour:	Grey (mixed) Base - white Hardener - black
Density:	1.7 - 2.1 kg/litre (depending on grade)
Application temperatures:	+0°C min - +60°C max (substrate and ambient) (depending on grade)
Layer thickness per application:	1.0 minimum 5.0 mm maximum
Thixotropy:	FIP 5.3. no sag flow at all temps
Squeezability:	FIP 5.4. meets the requirements.
Heat resistance:	FIP 5.10. meets the requirements.
Modulus of elasticity:	FIP 5.13. 8400 N/mm ² - 12100
Compressive strength:	FIP 5.12.. 60-85 N/mm ²
Shear strength:	FIP 5.15. 15 N/mm ²
Pot life:	FIP 5.1. 10 mins - 50 mins
Open time:	FIP 5.2. 30 mins - 90 mins

The above range of values are approximate and cover all the grades available. For more comprehensive technical information on each grade contact **Sika Ltd.**

SURFACE PREPARATION

Surfaces must be sound, clean, free from frost, oils, grease, standing water and all loosely adhering particles and other surface contaminants. Cement laitance must be removed to expose coarse and fine aggregate. Use grit/sand blasting.

MIXING

Stir component A prior to mixing (resin). The whole of component A (resin) should be mixed with the whole of component B (hardener) for a minimum of 2 minutes using a slow speed electric stirrer (300-600 rpm) and suitable spiral or paddle mixer until a uniform mix and colour is achieved.

APPLICATION

Apply directly to the prepared surfaces of the segments by trowel, spatular or gloved hand to the required layer thickness.

IMPORTANT CONSIDERATIONS

- * At higher temperatures pot life will be shortened.
- * At lower temperatures the material will become more difficult to apply and take longer to harden.
- * Wear suitable protective clothing, gloves and eye protection.
- * Do not add solvent to the mix.
- * **Thinner C** is flammable. NO NAKED FLAMES
- * Do not mix additional fillers and solvents.

CLEANING

All tools should be cleaned with **Thinner C** immediately after use. Hardened material must be removed mechanically.

PACKAGING

Refer to latest price list.

CONSUMPTION

1.7 - 2.1 kg/m² @ 1.0 mm thickness
(depending on grade)

3.4 - 4.2 kg/m² @ 2.0 mm thickness

Excluding allowances for loss wastage surface profile and porosity.

STORAGE AND SHELF LIFE

Minimum 12 months in sealed containers stored in dry warehouse conditions (+5°C - +25°C).



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

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Please consult our Technical Sales Department for further information

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SikaDur® 32

High Performance Epoxy Resin Bonding Agent

Technical Data Sheet

DESCRIPTION

SikaDur 32 is a two component, solvent free, cold cured epoxy bonding agent.

USES

Bonds all types of construction materials such as timber, brick, steel, iron, glass and stoneware.

- * Damp-proof membrane.
- * Bonding bridge.
- * Bearing pads to concrete.
- * Crack injection 5 - 10 mm.

ADVANTAGES

- * Colour coded components to ensure correct mixing.
- * Excellent adhesion even in damp conditions.
- * Easy to apply.
- * Unaffected by moisture.
- * Workable at low temperatures.
- * Solvent free.
- * Damp-proof membrane beneath **SikaTop® 77** or **SikaCem® 810** screed.

Technical Data (typical)

Colour: Grey (mixed)
Base - white
Hardener - black

Density: 1.4 kg/litre

Application temperatures: +5°C min - +30°C max
(substrate and ambient)

Application thickness: 0.5 mm minimum
1.0 mm maximum

MECHANICAL PROPERTIES

Compressive strength: 70 N/mm²

Flexural strength: 35 N/mm²

Tensile strength: 20 N/mm²

Bond strength: Concrete: typically 2.0 - 3.0 N/mm²
(concrete failure)
Steel: typically 18 N/mm²
(epoxy failure)

Shrinkage: Negligible

Pot life/open time:

Temperature	Pot life (min)	Open time (hrs)
0°C	-	-
5°C	120	>3
10°C	60	>3
20°C	25	3
30°C	15	1

All above values are approximate.

SURFACE PREPARATION

Concrete/Brickwork/Mortar Substrates

Surfaces must be sound, clean, free from frost, oils, grease, standing water and all loosely adhering particles and other surface contaminants.
Cement laitance must be removed

Mechanically prepare surfaces by suitable approved techniques such as needle gunning, scabbling, bush hammering, water/grit blasting etc
Concrete must be at least 3-6 weeks old.
Feather edging should be avoided. The edges should be square cut to at least the recommended minimum application thickness of the product.

Steel Substrate

Prepare surfaces by removing old coatings, rust products, grease, oil etc by suitable mechanical equipment to a bright metal finish. Apply **SikaDur 32** within 4 hours or protect reinforcement with **Sika® Armatec 110 EpoCem®**.

MIXING

Stir component A prior to mixing (resin). The whole of component A (resin) should be mixed with the whole of component B (hardener) for a minimum of 2 minutes using a slow speed electric stirrer (300-600 rpm) and suitable spiral or paddle mixer until a uniform mix and colour is achieved.

APPLICATION

Apply directly to the prepared substrate in a thin layer by brush or roller. Pour new concrete or apply mortar while material is tacky. If **SikaDur 32** dries before application reapply. When used as an impervious barrier apply a minimum of two coats.

IMPORTANT CONSIDERATIONS

- * At higher temperatures pot life will be shortened.
- * At lower temperatures the material will become more difficult to apply and take longer to harden.
- * Wear suitable protective clothing, gloves and eye protection.
- * Do not add solvent to the mix.
- * Always ensure good ventilation when using in a confined space.
- * **Thinner C** is flammable. NO NAKED FLAMES
- * Do not mix additional fillers and solvents.

CLEANING

All tools should be cleaned with **Thinner C** immediately after use. Hardened material must be removed mechanically.

PACKAGING

Refer to latest price list.

CONSUMPTION

0.7 kg/m² @ 0.5 mm thickness

Excluding allowances for loss wastage surface profile and porosity.

STORAGE AND SHELF LIFE

Minimum 12 months in sealed containers stored in dry warehouse conditions (+5°C - +25°C).



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.

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SikaDur® 41

Epoxy Based Repair Mortar

Technical Data Sheet

DESCRIPTION

SikaDur 41 is a three component solvent free epoxy repair mortar. It is based on a combination of epoxy resin and selected dried aggregates. Available in two grades - **Normal** and **Rapid**.

USES

- * As a repair and levelling compound on concrete, stone, mortar, render, steel iron and timber.
- * A repair mortar for bearing pads.
- * Structural bonding of wide joints.
- * Joint arrises.
- * Internal and external applications.

ADVANTAGES

- * Excellent mechanical properties.
- * Can be applied in damp conditions.
- * Normal and Rapid Grades available.
- * Excellent performance and durability.
- * Easy to mix and apply.
- * Excellent bond to most construction materials.
- * Good impact and abrasion resistance.
- * Good chemical resistance.
- * Very good water resistance.
- * Negligible shrinkage.
- * Cures in damp and wet conditions.
- * Non corrosive to steel.
- * Factory batched for quality control.
- * Vapour proof.
- * Solvent free.
- * Low odour.
- * User friendly.
- * Suitable for drinking water contact.

Technical Data (typical)

Colour: Grey (mixed)

Density: 2.0 kg/litre

Application temperatures: +10°C min - +30°C max (**Normal**)
+ 5°C min - +15°C max (**Rapid**)
(substrate and ambient)

Application thickness: 5.0 mm minimum
60 mm maximum

Compressive strength gain guide (N/mm²)

Grade	Normal			Rapid		
	1	5	10	1	5	10
5°C	-	55	65	30	60	70
20°C	70	75	80	75	80	80

Flexural strength: 25 - 35 N/mm² @ 20°C

Tensile strength: 10 - 15 N/mm² @ 20°C

Modulus of Elasticity: 9.0 KN/mm² @ 20°C
(static)

Coefficient of Expansion: 26 x 10⁻⁶ per °C

Bond strength: Concrete: typically 2 - 3 N/mm²
(concrete failure)
Steel: typically 10 - 15 N/mm²
(epoxy failure)

Shrinkage: Negligible

Pot life:

Grade	Normal	Rapid
Time	Mins	Mins
5°C	180	90
10°C	120	60
20°C	60	30
30°C	20	10

Approved for potable water contact.
Details available on request.

All above values are approximate.

SURFACE PREPARATION

Concrete/Brickwork/Mortar Substrates:

Surfaces must be sound, clean, free from frost, oils, grease, standing water and all loosely adhering particles and other surface contaminants. Cement laitance must be removed

Mechanically prepare surfaces by suitable approved techniques such as needle gunning, scabbling, bush hammering, water/grit blasting etc
Concrete must be at least 3-6 weeks old.
Feather edging should be avoided. The edges should be square cut to at least the recommended minimum application thickness of the product.

Steel Substrate:

Prepare surfaces by removing old coatings, rust products, grease, oil etc by suitable mechanical equipment to a bright metal finish. Apply **SikaDur 41** within 4 hours or protect reinforcement with **Sika® Armatec 110 EpoCem®**.

MIXING

Stir component A prior to mixing (resin). The whole of component A (resin) should be mixed with the whole of component B (hardener) for a minimum of 2 minutes using a slow speed electric stirrer (300-600 rpm) and suitable spiral or paddle mixer until a uniform mix and colour is achieved.
Then add component C (filler/aggregate) slowly and continue to mix until mixture is homogeneous.

SUBSTRATE PRIMING

Priming is not normally required. For maximum adhesion on damp concrete surfaces or in overhead or vertical situations, completely prime surfaces with **SikaDur 31** at a thickness of 1 mm. Apply **SikaDur 41** while the primer is tacky. Repeat for subsequent layers.

APPLICATION

Apply directly to the prepared substrate by brush, trowel, spatular or by gloved hand to the required layer thickness and tamp to ensure full compaction. Allow each layer to achieve initial set and for heat to dissipate from hardening process before application of further layers. Smooth off final layer with a clean steel trowel.

IMPORTANT CONSIDERATIONS

- * At higher temperatures pot life will be shortened.
- * At lower temperatures the material will become more difficult to apply and take longer to harden.
- * Wear suitable protective clothing, gloves and eye protection.
- * Do not add solvent to the mix.
- * Always ensure good ventilation when using in a confined space.
- * **Thinner C** is flammable. NO NAKED FLAMES
- * Do not mix additional fillers.

CLEANING

All tools should be cleaned with **Thinner C** immediately after use. Hardened material must be removed mechanically.

PACKAGING

Refer to latest price list.

CONSUMPTION

10.0 kg/m² @ 5.0 mm thickness
40.0 kg/m² @ 20 mm thickness

Excluding allowances for loss wastage surface profile and porosity.

STORAGE AND SHELF LIFE

Minimum 12 months in sealed containers stored in dry warehouse conditions (+5°C - +25°C).

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.

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SikaDur[®] 43

High Strength Epoxy Based Repair Mortar

Technical Data Sheet

DESCRIPTION

SikaDur 43 is a three component solvent free, high strength, epoxy repair mortar. It is based on a combination of epoxy resin and dried quartz aggregates.

USES

- * As a repair and levelling compound on concrete, stone, mortar, render, steel, iron and timber.
- * A repair mortar.
- * Joint arrises.
- * Internal and external applications.

ADVANTAGES

- * Excellent mechanical properties.
- * Can be applied in damp conditions.
- * Excellent performance and durability.
- * Easy to mix and apply.
- * Excellent bond to most construction materials.
- * Good impact and abrasion resistance.
- * Good chemical resistance.
- * Very good water resistance.
- * Negligible shrinkage.
- * Cures in damp and wet conditions.
- * Non corrosive to steel.
- * Factory batched for quality control.
- * Vapour proof.
- * Solvent free.
- * Low odour.
- * User friendly.

Technical Data (typical)

Colour:	Grey (mixed)
Density:	2.2 kg/litre
Application temperatures:	+10°C min - +30°C max (substrate and ambient)
Application thickness:	10 mm minimum 50 mm maximum

MECHANICAL PROPERTIES:

Compressive strength:	> 80 N/mm ²	@ 20°C
Tensile strength:	15 N/mm ²	@ 20°C
Bond strength:	Concrete:	typically 2 - 3 N/mm ² (concrete failure)
	Steel:	typically 10 - 15 N/mm ² (epoxy failure)
Shrinkage:	Negligible	

Pot life:

Time	Mins
10°C	50
20°C	40
30°C	15

All above values are approximate.

SURFACE PREPARATION

Concrete/Brickwork/Mortar Substrates:

Surfaces must be sound, clean, free from frost, oils, grease, standing water and all loosely adhering particles and other surface contaminants. Cement laitance must be removed

Mechanically prepare surfaces by suitable approved techniques such as needle gunning, scabbling, bush hammering, water/grit blasting etc
Concrete must be at least 3-6 weeks old.
Feather edging should be avoided. The edges should be square cut to at least the recommended minimum application thickness of the product.

Steel Substrate:

Prepare surfaces by removing old coatings, rust products, grease, oil etc by suitable mechanical equipment to a bright metal finish. Apply **SikaDur 43** within 4 hours or protect reinforcement with **Sika® Armatec 110 EpoCem®**.

MIXING

Stir component A prior to mixing (resin). The whole of component A (resin) should be mixed with the whole of component B (hardener) for a minimum of 2 minutes using a slow speed electric stirrer (300-600 rpm) and suitable spiral or paddle mixer until a uniform mix and colour is achieved.
Then add component C (filler/aggregate) slowly and continue to mix until mixture is homogeneous.

SUBSTRATE PRIMING

Priming is not normally required. For maximum adhesion on damp concrete surfaces or in overhead or vertical situations, completely prime surfaces with **SikaDur 31** at a thickness of 1 mm. Apply **SikaDur 43** while the primer is tacky. Repeat for subsequent layers.

APPLICATION

Apply directly to the prepared substrate by brush, trowel, spatular or by gloved hand to the required layer thickness and tamp to ensure full compaction. Allow each layer to achieve initial set and for heat to dissipate from hardening process before application of further layers. Smooth off final layer with a clean steel trowel.

IMPORTANT CONSIDERATIONS

- * At higher temperatures pot life will be shortened.
- * At lower temperatures the material will become more difficult to apply and take longer to harden.
- * Wear suitable protective clothing, gloves and eye protection.
- * Do not add solvent to the mix.
- * Always ensure good ventilation when using in a confined space.
- * **Thinner C** is flammable. NO NAKED FLAMES
- * Do not mix additional fillers.

CLEANING

All tools should be cleaned with **Thinner C** immediately after use. Hardened material must be removed mechanically.

PACKAGING

Refer to latest price list.

CONSUMPTION

13.2 kg/m² @ 6.0 mm thickness
44 kg/m² @ 20.0 mm thickness

Excluding allowances for loss wastage surface profile and porosity.

STORAGE AND SHELF LIFE

Minimum 12 months in sealed containers stored in dry warehouse conditions (+5°C - +25°C).



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.

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SikaDur[®] 43HB

Light Weight Epoxy Based Repair Mortar

Technical Data Sheet

DESCRIPTION

SikaDur 43HB is a three component solvent free lightweight epoxy based repair mortar. It is based on a combination of epoxy resin and specially formulated lightweight fillers.

USES

- * As a repair mortar on concrete, stone, mortar, render and timber.
- * Internal and external applications.

ADVANTAGES

- * Lightweight for vertical and overhead work.
- * Good mechanical properties.
- * High build layers.
- * Can be applied in damp conditions.
- * Good performance and durability.
- * Easy to mix and apply.
- * Excellent bond to most construction materials.
- * Good water resistance.
- * Negligible shrinkage.
- * Cures in damp and wet conditions.
- * Non corrosive to steel.
- * Factory batched for quality control.
- * Vapour proof.
- * Solvent free.
- * Low odour.
- * User friendly.
- * Suitable for contact with potable water.

Technical Data (typical)

Colour: Light grey (mixed)
Density: 0.67 kg/litre
Application temperatures: +5°C min - +25°C max (substrate and ambient)

Application thickness: 6.0 mm minimum
 75.0 mm maximum

Compressive strength gain guide (N/mm²)

Time (days)	1	8	10
5°C	26	35	35
20°C	35	38	38

Flexural strength: 17 N/mm² @ 20°C

Tensile strength: 8 N/mm² @ 20°C

Bond strength: Concrete: typically 3.0 N/mm² (concrete failure)
 (with primer)

Shrinkage: Negligible

Pot life:

Temp	Mins
5°C	90
10°C	60
20°C	45
30°C	15

Approved for potable water contact.
 Details available on request.

All above values are approximate.

SURFACE PREPARATION

Concrete/Brickwork/Mortar Substrates:

Surfaces must be sound, clean, free from frost, oils, grease, standing water and all loosely adhering particles and other surface contaminants. Cement laitance must be removed

Mechanically prepare surfaces by suitable approved techniques such as needle gunning, scabbling, bush hammering, water/grit blasting etc. Concrete must be at least 3-6 weeks old. Feather edging should be avoided. The edges should be square cut to at least the recommended minimum application thickness of the product.

Steel Substrate:

Prepare surfaces by removing old coatings, rust products, grease, oil etc by suitable mechanical equipment to a bright metal finish. Apply **SikaDur 43HB** within 4 hours or protect reinforcement with **Sika® Armatec 110 EpoCem®**.

MIXING

Stir component A prior to mixing (resin). The whole of component A (resin) should be mixed with the whole of component B (hardener) for a minimum of 2 minutes using a slow speed electric stirrer (300-600 rpm) and suitable spiral or paddle mixer until a uniform mix and colour is achieved.

Then add component C (filler/aggregate) slowly and continue to mix until mixture is homogeneous.

SUBSTRATE PRIMING

Priming is not normally required. For maximum adhesion on damp concrete surfaces or in overhead or vertical situations, completely prime surfaces with **SikaDur 31** at a thickness of 1 mm. Apply **SikaDur 43HB** while the primer is tacky. Repeat for subsequent layers.

APPLICATION

Apply directly to the prepared substrate by brush, trowel, spatular or by gloved hand to the required layer thickness and tamp to ensure full compaction. Allow each layer to achieve initial set and for heat to dissipate from hardening process before application of further layers.

Always prime between layers using **SikaDur 31**. Smooth off final layer with a clean steel trowel.

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.

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IMPORTANT CONSIDERATIONS

- * At higher temperatures pot life will be shortened.
- * At lower temperatures the material will become more difficult to apply and take longer to harden.
- * Wear suitable protective clothing, gloves and eye protection.
- * Do not add solvent to the mix.
- * Always ensure good ventilation when using in a confined space.
- * **Thinner C** is flammable. NO NAKED FLAMES
- * Do not mix additional fillers and solvents.

CLEANING

All tools should be cleaned with **Thinner C** immediately after use. Hardened material must be removed mechanically.

PACKAGING

Refer to latest price list.

CONSUMPTION

4.00 kg/m² @ 6.0 mm thickness

13.5 kg/m² @ 20 mm thickness

Excluding allowances for loss wastage surface profile and porosity.

STORAGE AND SHELF LIFE

Minimum 12 months in sealed containers stored in dry warehouse conditions (+5°C - +25°C).





SikaDur[®] 52

Epoxy Crack Injection Resin

Technical Data Sheet

DESCRIPTION

SikaDur 52 is a two component solvent free, low viscosity, epoxy resin specifically formulated for crack injection work.

USES

- * Fills and seals cavities and cracks in building and civil engineering structural components.
- * Preventing ingress of water.
- * Structural bonding.
- * Floor screed stabilisation/bonding.

ADVANTAGES

- * Excellent bond to damp or dry concrete, timber and masonry substrates.
- * Good mechanical properties.
- * Low viscosity.
- * Seals against moisture and oxygen.
- * Resists chemicals.
- * Suitable for positive and negative pressure injection and gravity feed.

Technical Data (typical)

Colour: Transparent (mixed)

Density: 1.08 kg/litre

Application temperatures: +5°C min - +30°C max (substrate and ambient)

Crack width range: 0.2 mm min
5.0 mm max
For greater crack widths use
SikaDur 32: 5 - 10 mm
SikaDur 31: 10 -15 mm

Viscosity: 1000 @ 10°C
(cP) 500 @ 20°C
250 @ 30°C

MECHANICAL PROPERTIES (@ 20°C 65% RH)

Compressive strength gain:
> 50 N/mm² 5°C 20 days
 10°C 10 days
 20°C 3 days
 30°C 2 days

Flexural strength: 50 N/mm²

Tensile strength: 25 N/mm²

Modulus of Elasticity: 1.0 KN/mm²
(static)

Coefficient of expansion: 89 x 10⁻⁶ per °C

Bond strength: Concrete: typically 3.0 N/mm²
(concrete failure)

Shrinkage: Negligible

Pot life and open assembly guide:

Temp	Mins
5°C	75
10°C	55
20°C	20
30°C	10

All above values are approximate.

SURFACE PREPARATION

Concrete/Brickwork Substrates:

Surfaces must be sound, clean, free from standing water and loosely adhering particles and other contaminants. Purge cracks with resin after capping until resin runs contaminant free.

MIXING

For single component dispensing equipment, sealant cartridge or gravity feed:

Stir component A prior to mixing (resin). The whole of component A (resin) should be mixed with the whole of component B (hardener) for a minimum of 2 minutes using a slow speed electric stirrer (300-600 rpm).

APPLICATION

Pressure Injection:

- * Select injection port locations, drill hole in substrate at location of crack and insert socket ports. Alternatively use surface adaptors bonded to surface over crack. As a guide ports should be located at a distance equal to the thickness of the injected member. Minimum injection port distance approximately 200 mm.
- * Cap/seal surface with **SikaDur 31 Rapid** thixotropic epoxy adhesive at a thickness of at least 2.0 mm and allow to cure. Surface preparation should be sufficient to bond cap/seal and withstand injection pressures. Grinding surface either side of crack may be necessary.
- * Inject the mixed **SikaDur 52** using single component injection dispensing equipment or the unmixed components of A and B using dual component dispensing equipment at a pressure and duration which will allow full penetration of the resin into the crack. Purge cracks with resin to clean crack.
- * After injection of **SikaDur 52** allow to harden and grind off **SikaDur 31 Rapid** cap/seal and injection ports.

Gravity feed (horizontal surfaces)

- * Use mechanical equipment to form a V-notch along the length of the crack. Pour mixed **SikaDur 52** into crack. Top up V-notch as required until notch remains full and **SikaDur 52** hardens. Alternatively use a bund along crack formed from a fillet of **Sikaflex® 11FC**.

IMPORTANT CONSIDERATIONS

- * Crack injection is a specialist technique. The success is dependent on the resin, pressure, spacing of ports and equipment used. Therefore it is recommended a specialist injection contractor is used.
- * At higher temperatures pot life will be shortened.
- * At lower temperatures the material will become more difficult to inject and take longer to harden.
- * Wear suitable protective clothing, gloves and eye protection.
- * Do not add solvent to the mix.
- * Establish cracks are static moving cracks and should be treated as movement joints.
- * **Thinner C** is flammable. NO NAKED FLAMES
- * Trials should be undertaken to establish suitability of resin, spacing of injection ports, injection equipment and injection pressure.
- * Take cores at locations of cracks to clarify penetration and method of injection.

CLEANING

All tools should be cleaned with **Thinner C** immediately after use. Hardened material must be removed mechanically.

PACKAGING

Refer to latest price list.

CONSUMPTION (kg/m²)

1 mm thick:	1.1 kg per m ² of crack
2 mm thick:	2.2 kg per m ² of crack
3 mm thick:	3.3 kg per m ² of crack
5 mm thick:	5.5 kg per m ² of crack

For example: 1 mm wide crack, 1 m length, 100 mm deep would require 0.11 kg **Sikadur 52**.

1 mm wide crack, 10 m length, 100 mm deep would require 1.1 kg **Sikadur 52**.

Excluding allowances for loss wastage surface profile and porosity.

STORAGE AND SHELF LIFE

Minimum 12 months in sealed containers stored in dry warehouse conditions (+5°C - +25°C).

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

SIKA LIMITED

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SikaDur[®] 53/53LV

Underwater Epoxy Crack Injection Resin

Technical Data Sheet

DESCRIPTION

SikaDur 53 is a two component epoxy resin uniquely formulated for underwater or wet crack injection work. Available in two grades. Standard **Sikadur 53** is of a pourable fine mortar consistency. **Sikadur 53 LV** is of lower viscosity and is more suited to the injection of finer cracks.

USES

- * For injection into wet cracks or cracks filled with water.
- * For the repair of water immersed concrete structures.
- * Fills and seals cavities and cracks in structural building and civil engineering structural components.
- * Preventing ingress of water.
- * Structural bonding.
- * Floor screed stabilisation/bonding.
- * Underground grouting work.

ADVANTAGES

- * Excellent bond to wet/underwater concrete and masonry.
- * Low water absorption.
- * Good mechanical properties.
- * Low viscosity.
- * Seals against moisture and oxygen.
- * Resists chemicals.
- * Suitable for gravity feed or pressure injection.

Technical Data (typical)

Colour:	SikaDur 53 Green	SikaDur 53LV Pink
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Density:	2.0 kg/litre	1.9 kg/litre
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Application temperatures:	+5°C min - +25°C max (substrate and ambient)	
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Crack width range:	0.5 mm min 40 m max	0.3 mm min 15 mm max
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Viscosity: (cP) @20°C	5800	2800
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MECHANICAL PROPERTIES (Applied and cured underwater @ 20°C)

Compressive strength gain:	
1 day	50 N/mm ²
2 days	60 N/mm ²
5 days	75 N/mm ²
14 days	85 N/mm ²

Flexural strength: 45 N/mm²

Tensile strength: 30 N/mm²

Modulus of Elasticity: (static)	4.0 KN/mm ²
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Bond strength:	Concrete: typically 3.0 N/mm ² (concrete failure)
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Shrinkage:	Negligible
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Pot life:

20°C	30 mins	20 mins
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All above values are approximate.

SURFACE PREPARATION

Concrete/Brickwork Substrates:

Surfaces must be sound, clean, free from standing water and loosely adhering particles and other contaminants. Purge cracks with resin after capping until resin runs contaminant free.

MIXING

For single component dispensing equipment, sealant cartridge or gravity feed:

Stir component A prior to mixing (resin). The whole of component A (resin) should be mixed with the whole of component B (hardener) for a minimum of 2 minutes using a slow speed electric stirrer (300-600 rpm).

Allow a waiting time of 15 minutes (@20°C) for both products prior to applying in order to allow the mixture to pre-react for optimal adhesion underwater.

APPLICATION

Pressure Injection:

* Select injection port locations, drill hole in substrate at location of crack and insert socket ports. Alternatively use surface adaptors bonded to surface over crack. As a guide ports should be located at a distance equal to the thickness of the injected member. Minimum injection port distance approximately 200 mm.

* Cap/seal surface with **SikaDur 31 Rapid** thixotropic epoxy adhesive at a thickness of at least 2.0 mm and allow to cure. Surface preparation should be sufficient to bond cap/seal and withstand injection pressures. Guiding surface either side of crack may be necessary.

* Inject the mixed **SikaDur 53/53LV** using single component injection dispensing equipment or the unmixed components of A and B using dual component dispensing equipment at a pressure and duration which will allow full penetration of the resin into the crack. Purge cracks with resin to clean crack.

* After injection of **SikaDur 53/53LV** allow to harden and grind off **SikaDur 31 Rapid** cap/seal and injection ports.

Gravity feed (horizontal surfaces)

* Use mechanical equipment to form a V-notch along the length of the crack. Pour mixed **SikaDur 53/53LV** into crack. Top up V-notch as required until notch remains full and **SikaDur 53/53LV** hardens. Alternatively use a bund along crack formed from a fillet of **Sikaflex® 11FC**.

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.

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- * Trials should be undertaken to establish suitability of resin, spacing of injection ports, injection equipment and injection pressure.
- * Take cores at locations of cracks to clarify penetration and method of injection.

CLEANING

All tools should be cleaned with **Thinner C** immediately after use. Hardened material must be removed mechanically.

PACKAGING

Refer to latest price list.

CONSUMPTION (kg/m²)

	Sikadur 53	Sikadur 53 LV
1 mm thickness	2.0	1.9
5 mm thickness	10.0	9.5
10 mm thickness	20.0	19.0

Excluding allowances for loss wastage surface profile and porosity.

STORAGE AND SHELF LIFE

Minimum 12 months in sealed containers stored in dry warehouse conditions (+5°C - +25°C).

