Industry

Sikaflex®

A users guide to deck caulking, sealing and bonding

- Bonds and seals in one
- Designed for the marine environment
- Resistant to weathering and salt water
- Non corrosive
- Can be sanded and overpainted
- One component, - simple and easy to use
- EU wheelmark approved for marine use

Sika®

Sikaflex® Marine Product Range

Deck caulking

Typical Retail Price = £12.99 per 310ml inc VAT

Sikaflex® - 290 DC
For timber decks that are completely watertight and weather resistant, Sika has developed Sikaflex®-290 DC. Extremely easy to use, this one-part polyurethane deck caulking compound is semi fluid for consistent joint filling. It can be sanded flush with the deck when cured to give a beautifully neat, clean finish.

Sealing

Typical Retail Price = £8.99 per 310ml inc VAT

Sikaflex® - 291
Resistant to weathering, seawater and ultra-violet radiation, Sikaflex®-291 is the perfect all-rounder: an all-purpose flexible marine sealant that bonds extremely well to all the standard materials used in boat construction. Its outstanding elasticity ensures a durable, long-lasting seal.

Bonding

Typical Retail Price = £17.95 per 310ml inc VAT

Sikaflex® - 292
Joints that are subject to extreme dynamic stresses require a high-strength elastic adhesive with good gap-filling capabilities. Sikaflex®-292, with its excellent shock-absorbing and vibration-damping properties, has been specially developed to meet these requirements in the punishing marine environment.

Bonding of plastic glazing panels

Typical Retail Price = £20.95 per 310ml inc VAT

Sikaflex® - 295 UV
This is an application that calls for a UV-resistant adhesive with a high degree of elasticity. Sikaflex®-295 UV combines the necessary elasticity with exactly the right consistency to maintain the required bond line thickness, thus ensuring that thermal movements in plastic glazing panels are absorbed progressively, without undue build-up of stresses.

Bonding and sealing of mineral glass

Typical Retail Price = £24.49 per 600ml inc VAT

Sikaflex® - 296
Direct glazing of mineral glass requires a purpose designed adhesive with the right combination of application properties and performance characteristics. Sikaflex®-296 is a fast curing high performance elastic polyurethane that is suitable for all types of mineral glass. It's high UV resistance also makes it suitable for backfilling and sealing operations.

Bedding and bonding of panels and sheets

Typical Retail Price = £15.49 per 600ml inc VAT

Sikaflex® - 298
Sikaflex®-298 is a viscous, full-bodied adhesive that has been specially formulated for the waterproof, flexible bonding of timber strip decking, deck planking, plastic deck coverings and prefabricated timber deck panels. It is easy to work with, and gives professional results every time. The permanently elastic adhesive layer has a cushioning effect absorbing shocks and minimizing the transmission of impact sound.

Note: Typical Retail Price = guide to current price for single items from retail outlets

Working with Teak

Teak has been used for hundreds of years as a decking material for ships and boats because of its anti-rot properties. Teak is a beautiful material in its unfinished state and, when caulked with Sikaflex®, provides an elegant solution for the anti-slip properties required from a wet deck.

Teak, however, is not a uniform material; oil, and resin-content, as well as porosity, vary greatly and the water content changes depending on storage conditions, duration, temperature and humidity.

General Conditions

Proper working conditions are essential for a successful result.

- Optimal results are obtained under constant or falling temperature conditions of between +5°C and +25°C.
- Exposure to direct sunlight and rain during the operation and especially during bonding and caulking needs to be avoided under all circumstances.
- Exposure to the elements during and following each step of the application procedure needs to be prevented for at least 8 hours.
- Good ventilation in a well-organised working area are important factors for success.

The Quality of the Wood

- Teak planks should show vertical, standing year rings.
- The core humidity content of the wood should ideally not exceed 12%. Too high a level could result in excessive shrinkage leading to failure.

Ideally, the humidity content of the timber should correspond to the equivalent humidity expected in service.

Teak Decks

It is imperative that the width of the seams be directly related to the width of the teak planks and to the depth of the seam; guidelines are listed below. Should the joint dimensions not conform with our recommendations, please contact Sika.

plank width (mm)	(in)	seam width (mm)	(in)	seam depth (mm)	(in)
35	1⅜	4	5/32	4 to 5	5/32 – 3/16
45	1¾	4 to 5	5/32 – 3/16	6	¼
50	2	5 to 6	3/16 – ¼	6	¼
75	3	8	5/16	7	9/32
100	4	10	13/32	8	5/16
125	5	12	15/32	10	13/32

Note

Prefabricated teak decks often consist of a multilayer construction, e.g. they can be made of wood onto which a fine layer of teak is bonded. The base wood might consist of various wood qualities; the pores in the "wood" are different in structure and size, therefore when caulking (page 5), the compound is not always in a position to expel the air pockets from the pores. As a result small bubbles within the joint may surface during caulking. To avoid the development of these "air" bubbles, we recommend tooling the joints using a smooth, slightly flexible spatula at an angle of 45°, expelling air from the pores and allowing a perfect joint to develop during cure.

Instructions for Bonding Teak Decks

Preparation of Sub - deck

Glass fibre Reinforced Plastic (GRP) Decks

Heavily soiled surfaces should be cleaned off first with a pure solvent (Sika® Remover-208) to remove the worst of the soiling.

Lightly abrade contact area with a very fine sanding pad. Remove dust with a vacuum cleaner.

Clean the substrate with Sika® Cleaner-205, using a clean, lint-free rag or paper towel. Change frequently!

Drying time: minimum 10 minutes, maximum 2 hours

Apply a thin, continuous coat of Sika® Primer-206 G+P or Sika® Primer-215, using a clean brush or felt applicator.

Drying time: minimum 30 minutes, maximum 24 hours

Timber Decks

Abrade contact area on hull with sanding pad (80/100 grit) and remove dust with a vacuum cleaner.

Apply a thin, continuous coat of Sika® Primer-290 DC, using a clean brush or felt applicator.

Drying time: minimum 60 minutes, maximum 24 hours

Aluminium and Steel Decks

If the deck is already coated with a primer but adhesion cannot be assured or the primer is soluble in Colma Cleaner, the primer must be removed by gritblasting.

If adhesion can be assured, the surface should be cleaned with an appropriate aqueous cleaner and subsequently washed.

Apply a continuous coat of two-component Sika Icosit® EG 1 to the surface using a clean brush or roller at a consumption of 200 g/m2.

Drying time:

10°C 48 h–14 days
20°C 24 h–14 days
30°C 14 h–14 days

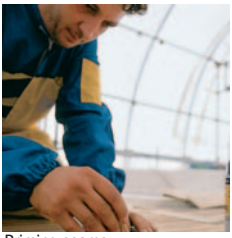
Deck Bonding

Sikaflex® 298

Spread at 2mm thickness

Bed in planks and apply weights

Deck Caulking



Priming seams

Bond breaker tape

Caulking

Application of Sikaflex®-298 Adhesive/ Bedding Compound

Apply Sikaflex®-298 to the previously prepared surface and spread over the area to be covered, using a spreader with 5 mm x 5 mm square notches at a quantity of 1200ml/m². The exact quantity, however, depends on the regularity of the surface; care should be taken that a continuous film of Sikaflex®-298 is applied to avoid the potential risk of water penetration through the teak deck.

The bond face of the teak planks is de-oiled and primed as for deck caulking (see page 5). The teak planks must be positioned accurately within 20 minutes of applying the adhesive and pressed firmly into place. It is therefore recommended that only a limited surface area be applied that can be covered with teak within the time available.

To fix and ensure the planks are embedded without voids, clamps, weights or screws (removable once the adhesive has set) must be used to secure the panel while the adhesive sets. Alternatively, the vacuum press method may be used.
After approx. 24 hours the panels can carry their full service load and the temporary fastenings can be removed.

Traces of uncured Sika adhesives or sealants may be removed with Sika® Remover-208. On no account should other cleaning agents or Sika® Cleaner-205 be used for this purpose.

Important: Please refer to the current Sika Technical Data Sheets and Safety Data Sheets obtainable through Sika or their distributor.

Sikaflex® - 298 will accommodate minor variations in deck levels. If prelevelling is required, contact Sika

Instructions for Caulking Teak Decks

Before caulking the deck, ensure the seam width and depth meets the guidelines listed on page 3.

Preparation of Seams

When recaulking older decks, existing caulking should be removed and the seams routed out to the required dimensions.

In order to achieve long-term adhesion of Sikaflex®-290 DC to the sides of the seams, meticulous preparation is required. All foreign material must be removed and the seams must be clean and dry prior to the application of the primer. Best results are obtained using a high-powered industrial vacuum cleaner. Pneumatic equipment should not be used unless equipped with an oil separator as teak readily absorbs oil. De-oiling of the sides is recommended and is performed using a lint-free cloth wetted with acetone or MEK (Methyl Ethyl Ketone). The cloth must be replaced at regular intervals to avoid re-soiling of the surfaces. Allow 10 minutes to flash off.

Priming

Priming the planks is a vital step. Failure to observe the priming procedure might be detrimental to the quality of the seal and impair the longevity of the deck.

Apply a thin, continuous coat of Sika® Primer-290 DC to the seam edges. Sika® Primer-290 DC can be brush applied in one coat to the seam sides. Ensure that no areas are missed. Sika® Primer-290 DC is a film former: The coating should therefore look glossy, giving a “wet-look” even when dry. Working temperature 5–35°C, relative humidity: 75% max.

Drying time: Protect the primed area against dust and rain, and leave the primer to dry for at least one hour before starting the deck caulking operation. The maximum allowable time between priming and caulking is no more than 24 hours. If this period is exceeded, repriming is required.

Application of the Bond Breaker Tape

Sikaflex®-290 DC caulking compound is designed to absorb the lateral movements of the teak planks as they expand and contract with changes in the weather, the environment or variations in the humidity level of the teak. To ensure proper performance of the Sikaflex®, it is imperative that adhesion to the bottom of the seam section be avoided at all cost. To ensure this, a strip of release tape is applied to the bottom of the seam after the primer has dried.

Application of Sikaflex® - 290DC

Before any work commences ensure the temperature of the wood does not exceed 25°C. In addition, the operating temperature during application should be constant or falling within the range of +5°C and +25°C.

Apply Sikaflex®-290 DC ensuring air is prevented from entering the seam by placing the tip of the nozzle against the bottom and keeping the gun at an angle of 60°–90°. Always use a hand gun or a piston-driven airgun. Continue to pull the nozzle along the seam so that the joint is filled behind the nozzle always ensuring a constant motion is maintained.

After application of Sikaflex®-290 DC and before skinning occurs, tool the excess material from the surface of the deck using a slightly flexible spatula at 45°. This ensures complete filling of the seam.

Protect the caulked joints from rain and direct sunlight for a period of at least 8 hours. Do not use excess material from the spatula for filling seams.

Sikaflex®-290 DC is ready for sanding after 7 days.

Important: Please refer to the current Sika Technical Data Sheets and Safety Data Sheets obtainable through Sika or their distributor.

The Sanding Process

Following 7 days curing the deck is ready for sanding. Prior to that, however, excess cured Sikaflex®-290 DC should be removed with a sharp chisel or knife. This procedure will avoid excess pull on the edges of the seams during the subsequent sanding operation. For effective sanding results use an industrial sander. It is recommended to begin with a medium (80) progressing to a 120 grit or finer. Suitable sanders are beltsanders, flat plate sanders or elastically suspended sanders. Sanding should be along the direction of the seams.

The Finishing Touch

Although we do not recommend a finish to the exterior teak deck, some boat owners prefer to apply a lacquer finish to the deck after sanding. Generally great care should be taken as finishes contain solvents or plasticisers which can adversely affect the cured Sikaflex®-290 DC or the drying of the lacquer. The following criteria should always be taken into consideration:

Never apply the lacquer finish to uncured Sikaflex®-290 DC. Waiting time of at least one month before application of the finish is recommended.

The compatibility of the lacquer should be evaluated on a small sample area of the teak deck before application.

Rigid lacquers have a negative effect on the elasticity of the joint and may crack or cause loss of adhesion of the Sikaflex®-290 DC from the teak planks.

Maintenance

It is important to wet and rinse the deck regularly with fresh water in order to prevent drying out. In warm climates this procedure should be carried out on a daily basis. The occasional use of a mild detergent (natural liquid soap) diluted in water should be kept to a minimum. Bleach and aggressive chemical cleaners should not be used.

Instructions for
Bedding and Sealing of Fittings and Hardware

Description of Application

All kinds of deck fittings and hardware need to be securely fixed and totally watertight. Some of these fittings are also subjected, on occasion, to very high forces and torsional stresses.

Poorly sealed joints can eventually result in serious damage such as metal corrosion, osmosis and water leaks causing damage to interior furnishings and fittings.

Bedding and Sealing Fittings Subject to High Mechanical Stresses

Deck fittings such as chain plates, winches and guide rollers have to absorb very high dynamic stresses. A high-performance product, such as Sikaflex®-292, should be used in conjunction with additional mechanical fixation for this purpose.

Bedding and Sealing Fittings Subject to Minimal Mechanical Stresses

Deck fittings such as ventilators, cover strips, etc. need to be sealed against entry of water, but they are not subject to high tensile stresses. Such fittings can be effectively bedded and sealed with Sikaflex®-291.

Important Note:

It is vital to ensure that the adhesive is not simply squeezed out again when the fixing screws are pulled up tight. To prevent this happening, shims approx. 1 mm thick should be threaded over the screws on the underside of the fitting to act as spacers. The screw holes themselves should also be filled with sealant prior to fixing.

Spacing the fitting off the deck by 2–3 mm also facilitates its removal at a later date, when a cutting wire or knife blade can be inserted between the base of the fitting and the deck.

Application of Sikaflex®-291/292 Adhesive

Sikaflex®-291or 292 should be applied to the deck and the fixing screw holes in a bead of the required thickness. The fitting is then pressed into position.

The fixing screws should be tightened sufficiently to pull the fitting down on the spacers, but no more. Use a plastic spatula to remove excess sealant squeezed out around the edges. After 24 hours tighten the screws.

208

Traces of uncured Sika adhesives or sealants may be removed with Sika® Remover-208. On no account should other cleaning agents or Sika® Cleaner-205 be used for this purpose.

Important: Please refer to the current Sika Technical Data Sheets and Safety Data Sheets obtainable through Sika or their distributor..

Preparation of Substrate

Timber Decks

Abrade contact area on hull with sanding pad (80/100 grit) and remove dust with a vacuum cleaner.

290 DC

Apply a thin continuous coat of Sika® Primer-290 DC, using a clean brush or felt applicator

Drying time: minimum 60 minutes, maximum 24 hours

Aluminium Decks (Painted)

205

Clean the substrate with Sika® Cleaner-205, using a clean, lint-free rag or paper towel. Change frequently!

Drying time: minimum 10 minutes, maximum 2 hours

Bronze, Brass and Stainless Steel Fittings

205

Clean the substrate with Sika® Cleaner-205, using a clean, lint-free rag or paper towel. Change frequently!

Drying time: minimum 10 minutes, maximum 2 hours

210 T

Apply a thin, continuous coat of Sika® Primer-210 T, using a clean brush or felt applicator.

Drying time: minimum 30 minutes,maximum 24 hours

Aluminium Fittings

Lightly abrade contact area with a very fine sanding pad (Scotch-Brite M 600).

205

Clean the substrate with Sika® Cleaner-205, using a clean, lint-free rag or paper towel. Change rag frequently!

Drying time: minimum 10 minutes, maximum 2 hours

210 T

Apply a thin, continuous coat of Sika® Primer-210 T, using a clean brush or felt applicator.

Drying time: minimum 30 minutes, maximum 24 hours

For the preparation of other substrates, please refer to the Sika Primer Chart.

Sikaflex® Marine One Component Polyurethane Adhesives and Sealants

Product	Sikaflex®-290 DC	Sikaflex®-291	Sikaflex®-292	Sikaflex®-295 UV	Sikaflex®-296	Sikaflex®-298
Use	Deck caulking compound for sealing joints in timber deck planking	Adhesive sealant for general purpose sealing and bonding	Strong elastic adhesive for structural bonding	Fast-curing direct-glazing adhesive for organic (plastic) glass and UV resistant sealing	High strength direct glazing adhesive for mineral glass.	Laminating adhesive for bonding decks panels and sheets
Consistency	Semi fluid to flow into joints	Non sag gunnable paste	Stiff paste for high grab	Non sag gunnable paste	Stiff gunnable paste non sag	Fluid for spreading with notched trowel
Tack free time 23°C, 50% R.H.	60 minutes approx.	60 minutes approx.	40 minutes approx.	50 minutes approx.	45 minutes approx.	60 minutes approx.
Rate of cure	3 mm per 24 hrs.	3 mm per 24 hrs.	4 mm per 24 hrs.	3 mm per 24 hrs.	> 3.5mm per 24 hrs.	3 mm per 24 hrs.
Elongation at break (DIN 53504)	> 250%	> 400%	>300%	> 500%	> 450%	> 600%
Tensile strength (DIN 53504) typical	1,3 N/mm²	1,8 N/mm²	4 N/mm²	3 N/mm²	> 6,5 N/mm²	1 N/mm²
Application temperature range	+5°C to +25°C	+10°C to +35°C	+10°C to +35°C	+10°C to +35°C	+10°C to +35°C	+10°C to +35°C
Service temperature range	– 40°C to +90°C	– 40°C to +90°C 120°C (short exposure)	– 40°C to +90°C 120°C (short exposure)	– 40°C to +90°C 140°C (short exposure)	– 40°C to +90°C 120°C (short exposure)	– 50°C to +80°C 100°C (short exposure)
Typical usage (meters or square meters per pack)	12m/310ml cartridge 5mm x 5mm seam	15.5m/310ml cartridge 10mm x 2mm joint	15.5m/310ml cartridge 10mm x 2mm joint	10.3m/310ml cartridge 10mm x 3mm joint	15m/600ml sachet 10mm x 4mm joint	0.5m²/600ml sachet
Colours	Black	Black, white, brown	White	Black	Black	Brown

Primers and cleaners

Product	Main Uses	Pack Sizes	Coverage	Drying Time	Colour
Sika® Cleaner - 205	Cleaner/activator for non-porous surfaces	30ml, 250ml 1 litre	40mls/m²	10mins - 2hrs	clear
Sika® Primer - 206 G+P	Primer for glass GRP and metals	30ml, 250ml	150mls/m²	30mins - 24hrs	black
Sika® Remover - 208	For removal of uncured Sikaflex®	1 litre	N/A	N/A	clear
Sika® Primer - 210T	Primer for metals and some plastics	250ml	150mls/m²	30mins - 24hrs	clear
Sika® Primer - 290 DC	Primer for wood	30ml, 250ml 1 litre	2mls/metre of 5mm x 5mm seam	60mins - 24hrs	clear

Further information

Details of all applications and products including glazing can be accessed at www.sika.com/cmi-marine-index.htm. Marine Handbooks and technical data are available from our specialist distributors or by contacting Sika®.

Sika® Stockist

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Stockists

Please contact one of our specialist marine distributors (listed below) to locate your nearest Sikaflex stockists.

Marine Industrial Sealants
Tel: 01692 406822
email: sales@marine-consumables.co.uk

Mark Dowland Marine
www.burdengroup.com

Scott Bader
Tel: 01752 672000

Blakes Paints
Tel: 01489 864440

RD Taylor
Tel: 0141 427 5103

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