SIKA MARINE SYSTEMS
PROVEN SOLUTIONS FOR COMFORT AND SAFETY
THE FASTEST, STRONGEST AND MOST FLEXIBLE MORTARS

Sika provides direct glazing, teak decking, exterior and interior sealing and bonding, as well as acoustic flooring systems in the manufacturing and repairing of leisure boats, commercial vessels and offshore platforms. Our elastic bonding and sealing solutions are designed with the harsh marine environment in mind: resistance to water, sun, cleaning chemicals and fatigue.

Sika offers a range of flooring products, each of which have a levelling and smoothing aspect, as well as varying degrees of noise and vibration reduction properties. All this, coupled with fire performance, assures that the requirements of both ship owners and regulatory bodies are met.
<table>
<thead>
<tr>
<th>CONTENT</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sikafloor® Marine Systems - Product and system selection guide</td>
<td>05</td>
</tr>
<tr>
<td>Sikafloor® Marine Systems - Deck covering</td>
<td>07-09</td>
</tr>
<tr>
<td>Sikafloor® Marine Systems - Floating floors</td>
<td>11-13</td>
</tr>
<tr>
<td>Sikafloor® Marine Systems - Vibration/Visco-elastic/Green technology</td>
<td>15-21</td>
</tr>
<tr>
<td>Sikafloor® Marine Primer</td>
<td>23</td>
</tr>
<tr>
<td>Sikafloor® Marine Systems - Decorative floors</td>
<td>25-31</td>
</tr>
<tr>
<td>Sika Marine - Sealing and bonding technology/Products</td>
<td>33-47</td>
</tr>
<tr>
<td>Sika Marine - Application guide</td>
<td>50-75</td>
</tr>
<tr>
<td>Recommendations for Sika Marine range</td>
<td>76</td>
</tr>
<tr>
<td>Product data and abbreviations</td>
<td>77</td>
</tr>
<tr>
<td>Glossary of terms</td>
<td>78-79</td>
</tr>
</tbody>
</table>
PROVEN SOLUTIONS FOR COMFORT AND SAFETY

- Carpet bonding
- Direct glazing
- Decorative floors
- Sandwich panel bonding
- Bulkhead sealing
- A-60 floating floors
- Levelling compounds
- Visco-elastic system

MARINE ABC

- IMO - International Maritime Organisation
- SOLAS - Safety and life at sea
- Sound Regulation MSC 337 (91) - code of noise levels on board ships
- Fire test procedure code (FTP Code 2010)
- Classification Societies rules
Sika® Marine SELF LEVELING COMPOUNDS
To be able to give the applied carpets, vinyl, tiles etc. a perfect smooth look it is important that the underlayment has a smooth surface. This can be ensured by using the one-component, pumpable technology of self leveling mortars from Sika. In addition to build other Sikafloor® systems, the Sikafloor® Marine self leveling products can be applied on top of existing hard foundations such as concretes and steel.

Sika® Marine LEVELING AND FAST CURING COMPOUNDS
Sika® Marine leveling compounds are based on a one-component pumpable technology from Sika. The solutions provide cost effective benefits for the shipyard and installation team in logistics, handling and time of installation. Sikafloor® Marine self leveling and fast curing compounds can easily be mixed using only a handheld mixer or a pump. The leveling compounds can be trowelled and are as well suitable for slopes.

Sika® Marine FLOATING FLOORS
Sika® Marine floating floor systems consist of a mineral wool layer on which either a non-combustible one-component fast curing compound or steel or alu plates are applied. These build-ups give maximum sound reduction and provide a high degree of comfort for the crew onboard the vessel. The Sikafloor® Marine floating floors are all a part of an A-60 fire rated solution with building height of only 45 mm.

Sika® Marine VISCO-ELASTIC FLOORS
Sika® Marine visco-elastic floors are a build-up with a visco-elastic layer and a constrained layer applied on top. The constrained layer consists of a non-combustible one-component compound of Sikafloor® Marine or it can be steel or alu tiles. The Sikafloor® Marine visco-elastic product is a special two-component polyurethane or mortar, with only one purpose – to dampen the vibrations in the structure.
MARINE Sikafloor® Marine Primary Deck Covering

- One-component
- Non-combustible
- Pumpable
- Levelling compound

DURABLE, RELIABLE AND APPROVED SYSTEMS

Our Sikafloor® Marine range offers ship refurbishment solutions for levelling, acoustic noise reduction and damping which allows new installations to be walked on in as little as 2 hours. Durable, lightweight and fire-rated, our systems fulfill IMO regulations as well as those of other major authorities and classification societies.

Ship builders are looking for quicker and more consistent building techniques and reduced costs, while designers want improved and innovative appearance, lower weight and better performance.

As a supplier and partner to the marine industry, Sika provides a range of state-of-the-art technology solutions to assist ship builders in meeting these challenges. Typically decks must be leveled to take out the unevenness of the ship’s structure and prepare it for the finished floor. Sikafloor® Marine self leveling primary deck coverings will level a ship deck to prepare it for the final floor surface. To be able to give the applied carpets, vinyl, tiles, etc. a perfect smooth look, it is important that the underlayment has a smooth surface.

Use Sikafloor® Marine self leveling primary deck coverings where the building height as well as the weight of the total underlayment can be limited.

Sikafloor® Marine leveling compounds are based on one component pumpable technology from Sika. The pumpable solution provides cost effective benefits for the shipyard and installation team in logistics, handling and installation time.

The one-component leveling solution for the steel or aluminium decks give the applicator a timesaving way to level the decks without sacrificing quality. Sikafloor® Marine products have IMO & US Coastguard certification.

>60% application time savings with Sikafloor® Marine visco systems

Up to 60 dB airborne noise reduction with Sikafloor® Marine floating floors

>15,000 boats per year bonded with Sika
Sikafloor® Marine Systems
One-component, self leveling primary deck covering

Sikafloor® Marine-100
Self leveling mortar
- Light weight 1 component self leveling mortar
- Density app. 0.9 kg/L
- Applicable up to 10 mm
- Walkable after 12 hours
- Water for mixing 5.9 to 6.4L pr. 14 kg bag
- Application area: All dry, internal areas
- Material consumption 0.9 kg/mm²/m²
- 3 mm layer as underlay for carpet
- 6 mm layer as underlay for vinyl

Sikafloor® Marine-107
Self leveling mortar
- Ultra light weight 1-component self leveling mortar
- Density app. 0.7 kg/L
- Applicable up to 10 mm
- Walkable after 12 hours
- Water for mixing 6.5 to 6.8L pr. 12 kg bag
- Application area: Inside cabins, light traffic, internal areas
- Material consumption 0.7 kg/mm²/m²

Sikafloor® Marine-120
Self leveling mortar
- Light weight 1 component self leveling mortar
- Density app. 0.9 Kg/L
- Applicable up to 30 mm
- Walkable after 12 hours
- Water for mixing 5.9 to 6.5L pr. 16 kg bag
- Application area: All dry and wet, internal areas, except for galley
- Material consumption 0.9 kg/mm²/m²
- 3 mm layer as underlay for carpet
- 6 mm layer as underlay for vinyl
- SFM 530 possible as top layer
Sikafloor® Marine Systems
One-component, self leveling primary deck covering

Sikafloor® Marine-118 FC
Fast curing self leveling mortar

- High weight 1-component fast curing self leveling mortar
- Density app. 1.8 kg/L
- Applicable up to 25 mm
- Walkable after app 2 hours
- Water for mixing 5.3 to 6.0L pr. 25 kg bag
- Application area: All dry and wet, heavy traffic, internal areas
- This product can be spike rolled
- For all top layers
- Material consumption 1.8 kg/mm/m²

Sikafloor® Marine-190
Self leveling mortar

- Heavy duty 1-component self leveling mortar
- Density app. 1.8 g/cm³
- Applicable up to 10 mm (scratch coat from 0 mm)
- Walkable after 3 hours, depending on temp and ventilation
- Application area: All wet and dry internal areas, heavy duty areas
- Respect the mixing time
- Can be spike rolled

Self leveling mortars mechanical properties:

<table>
<thead>
<tr>
<th></th>
<th>Comp strenghts</th>
<th>Flexural strenghts</th>
<th>Modulus of elasticity</th>
</tr>
</thead>
<tbody>
<tr>
<td>SFM 107</td>
<td>7 MPa</td>
<td>2,8 MPa</td>
<td>1,88 GPa</td>
</tr>
<tr>
<td>SFM 100</td>
<td>7 MPa</td>
<td>4,2 MPa</td>
<td>2 GPa</td>
</tr>
<tr>
<td>SFM 120</td>
<td>9 MPa</td>
<td>3,4 MPa</td>
<td>2,5 GPa</td>
</tr>
<tr>
<td>SFM 190</td>
<td>33 MPa</td>
<td>5 MPa</td>
<td>17 GPa</td>
</tr>
<tr>
<td>SFM 118 FC</td>
<td>35 MPa</td>
<td>7,7 Mpa</td>
<td>12,3 GPa</td>
</tr>
</tbody>
</table>
Sikafloor® Marine Systems

One-component, trowelable primary deck covering

Sikafloor® Marine-18
Trowel out mortar

- Heavy weight 1-component trowel out mortar
- Used as constrained layer
- Non combustible
- Density app. 1.8 kg/L
- Applicable up to 25 mm
- Walkable after 24 hours
- Water for mixing 2.7 to 3.3L pr. 25 kg bag
- Application area: All wet and dry internal areas
- Material consumption 1.8 kg/mm/m²

Sikafloor® Marine KG-202N
Trowel out mortar

- Medium weight 1-component trowel out mortar
- Non combustible
- Density app. 0.9 kg/L
- Applicable up to 100 mm
- Walkable after 10 hours
- Water for mixing 4.2 to 5.1L pr. 17 kg bag
- Application area: All dry and wet internal areas
- Can be used for ramps
- Material consumption 1.3 kg/mm/m²

Sikafloor® Marine KG-404N
Trowel out mortar

- Medium weight 1-component trowel out mortar
- Non combustible
- Density app. 1.3 kg/L
- Applicable up to 100 mm
- Walkable after 10 hours
- Water for mixing 4.6 to 5.4L pr. 20 kg bag
- Application area: All dry and wet internal areas
- Can be used for ramps
- Material consumption 1.3 kg/mm/m²
Being onboard a commercial vessel or cruise ship means being exposed to noise 24 hours a day. Loud noise is coming from sources such as main engine, bow thrusters, HVAC-system and other electrical installations. If nothing is being done to reduce the problem, crew members can quickly start to get sick and feel dizzy and they will soon be a danger to themselves, the rest of the crew as well as the vessel.

Therefore, international authorities throughout the years have set the standards very high when it comes to comfort onboard all commercial and passenger vessels. It is crucial for the crew to have an environment where they can work and, more importantly, where they can rest without being exposed to dangerous noise and vibrations.

**Product Description**

Sikafloor® Marine Litosilo systems are floating floor systems. The systems consist of mineral wool fireproof insulation and Sikafloor Marine Litosilo mortar to reduce airborne and impact noise. The systems also provide an A-60 solution with a building height as low as 45 mm. Sikafloor Marine Litosilo systems can be combined with Sika Visco-Elastic systems to reduce both low frequency structure borne noise and higher frequency air borne noise for comfort class accommodation noise levels and A-60 fire protection.

**MARINE Sikafloor® Marine Litosilo Systems**

**A-60 Airborne and impact noise reduction/Floating systems**
Sikafloor® Marine Systems

Floating floors/Air borne and impact sound reduction solutions

Floating floor types

- 2 layers of steel with adhesive between applied on insulation
- Floors with polymer modified cementitious mortar (1-component)
Sikafloor® Marine Systems
Floating floors/Air borne and impact sound reduction solutions

Sikafloor® Marine Litosilo N
Trowel out floating floor

- Medium weight 1-component trowel out mortar
- Non combustible
- A-60 approved from 45 mm
- Density app. 1.3 kg/L
- Applicable up to 100 mm
- Walkable after 10 hours
- Water for mixing 4.6 to 5.4 L pr. 20 kg bag
- Application area: All dry and wet internal areas
- Can be used for ramps
- Material consumption 1.3 kg/mm/m²

Sikafloor® Marine Litosilo X
Trowel out floating floor

- Medium weight 1-component trowel out mortar
- Non combustible
- Density app. 1.3 kg/L
- Applicable up to 100 mm
- A-60 approved from 45 mm
- Walkable after 3 hours
- Water for mixing 4.0 to 4.6 L pr. 20 kg bag
- Application area: All dry and wet internal areas
- Can be used for ramps
- Material consumption 1.3 kg/mm/m²

Sikafloor® Marine Litosilo Steel
Trowel out floating floor

- A-60 approved from 55.5 mm
- Levels out the deck
- High noise reduction performance
- Can be applied in one day
Sikafloor® Marine Systems

Floating floors/Air borne and impact sound reduction solutions

Sika system comparison

Acoustic values

<table>
<thead>
<tr>
<th>System</th>
<th>Weight</th>
<th>Insulation</th>
<th>$R_w$</th>
<th>$L_{eq}$</th>
<th>STC</th>
<th>IIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Litosilo N</td>
<td>39,5 kg/m²</td>
<td>SeaRox 436</td>
<td>50mm</td>
<td>56 Db</td>
<td>61 Db</td>
<td>N/A</td>
</tr>
<tr>
<td>Litosilo X</td>
<td>36,5 kg/m²</td>
<td>USeaProtect 90</td>
<td>50mm</td>
<td>60 Db</td>
<td>61 Db</td>
<td>60 dB</td>
</tr>
<tr>
<td>Litosilo X</td>
<td>36,5 kg/m²</td>
<td>USeaProtect 100</td>
<td>40mm</td>
<td>61 Db</td>
<td>59 Db</td>
<td>61 Db</td>
</tr>
<tr>
<td>Litosilo X</td>
<td>39,5 kg/m²</td>
<td>SeaRox 436</td>
<td>50mm</td>
<td>59 Db</td>
<td>60 Db</td>
<td>60 dB</td>
</tr>
<tr>
<td>Litosilo X</td>
<td>40,0 kg/m²</td>
<td>SeaRox 440</td>
<td>50mm</td>
<td>56 Db</td>
<td>65 Db</td>
<td>57 dB</td>
</tr>
<tr>
<td>Litosilo Steel</td>
<td>46,3 kg/m²</td>
<td>SeaRox 436</td>
<td>50mm</td>
<td>60 Db</td>
<td>53 Db</td>
<td>61 db</td>
</tr>
<tr>
<td>Litosilo Steel</td>
<td>46,3 kg/m²</td>
<td>SeaRox 436</td>
<td>50mm</td>
<td>60 Db</td>
<td>53 Db</td>
<td>61 db</td>
</tr>
</tbody>
</table>

Values are taken from official test reports.
Noise sources like main engines, thrusters, pumps, generators, HVAC, loud music and foot traffic create not only airborne noise but also a lot of vibrations in the whole structure. Without treatment, vibration causes structure bone noise in the form of rattling and humming. This type of noise makes it difficult for communication and proper rest while on board the ship.

It is crucial for the crew to have an environment where they can work and, more importantly, where they can rest without being exposed to dangerous noise and vibrations.

Sikafloor® Marine visco elastic systems are built up with a flexible layer applied to the deck with a constrained layer installed on top.

The flexible visco-elastic layer is the Sikafloor® Marine PU Red which is a two component polyurethane or Sikafloor Marine VEM a visco-elastic polymer modified mortar. The constrained layer is either a water based cement mortar compound of Sikafloor Marine 18, Sikafloor® Marine 118 Fast Cure (FC), or steel tiles. Sikafloor® Marine visco-elastic have the flexibility and the mass needed to dampen the vibrations of vessels, especially in the lower frequency range produced by engines, thrusters and other noise sources.

Sikafloor® Marine products have IMO & US Coastguard certification.
Sikafloor® Marine Systems
Vibration damping/Visco-elastic systems

Sikafloor® Marine PK-90 Alu
Visco-elastic

- PU-Red + Alu plates
- Tie coat on deck is a must to be rolled on
- Tie coat on back side of small Alu plates is a must, pre-applied
- Low building height solution
- Sensitive to deck straightness
- Weight from 6 to 10 kg/m²
- Consumption PU-Red: 1.3 kg/mm²/m²
- Material consumption Alu plates 19 pcs/m²

Sikafloor® Marine PK-90 N
Visco-elastic

- PU-Red + SFM 18
- Primer less application
- Trowel out solution
- Can be used in A-60 combinations
- Leveling and visco in one go
- Not sensitive to deck straightness
- Weight from 20 to 47 kg/m²
- Consumption PU-Red: 1.3 kg/mm²/m²
- Consumption SFM 18: 1.8 kg/mm²/m²

Sikafloor® Marine PK-90 Steel
Visco-elastic

- PU-Red + Steel plates
- Primer less application
- Low building height solution
- Sensitive to deck straightness
- Weight from 12 to 23 kg/m²
- Consumption PU-Red: 1.3 kg/mm²/m²
- Material consumption steel plates 19 pcs/m²
Sikafloor® Marine Systems
Combination floors

**Combination of visco-elastic system + floating floor**

- We get structure borne noise reduction from the visco-elastic system
- We get air borne and impact noise reduction from the floating floor
- We have both with A-60 and not A-60
- How does it look?

**A-60 combinations with PK-90 N**

- Litosilo N 20mm SeaRox
- Litosilo X 20mm SeaRox
- Litosilo Steel 50mm SeaRox

**Combinations with PK-90 Steel**

- Litosilo N 20mm SeaRox
- Litosilo X 20mm SeaRox
- Litosilo Steel 50mm SeaRox
Sikafloor® Marine Systems
Visco-elastic/Green technology

Green technology

VEM 18/118 FC
- Green technology
- 1-component, mortar water based
- Isocyanate free
- The first well documented mortar visco
- VEM consumption app. 2 kg/m²
- No dangerous goods
- No problematic waste
- The only visco-elastic in a bag
- Less CO₂ because of less loads to be transported, less fuel consumption in the ship’s life time

Visco-elastic floor thickness 16,5 mm
Weight approx. 29,0 kg/m²

Steel deck

SFM 118 FC, 15mm (27Kg/m²)
SFM VEM 1,5mm (2kg/m²)

Steel tiles min 1,5mm Min 10,6 Kg/m²
VEF min. 1-2 mm. 1,3 Kg/m²

Visco floor min. thickness 2,5 mm
Weight approx. 11,9 kg/m²

SFM 118 FC, 15mm (27Kg/m²)
SFM VEM 1,5mm (2kg/m²)
Sikafloor® Marine Systems
Visco-elastic

Sikafloor® Marine VEM
Visco-elastic mortar

- Medium weight 1-component trowel out mortar
- Visco-elastic powder adhesive
- Primary deck covering
- Primer C is a must
- Density app. 1.3 kg/L
- Applicable up to 2 mm
- Walkable after 24 hours
- Water for mixing 5.3 to 5.8L pr. 16 kg bag
- Application area: All wet and dry internal areas
- Material consumption 1.3 kg/mm²/m²
Sikafloor® Marine VEM 18
Structure borne noise

- VEM + SFM 18
- Primer C is needed
- Trowel out solution
- Leveling and visco in one go
- Not sensitive to deck straightness
- Weight from 12 to 23 kg/m² (depending on SFM 18 thickness)
- Material consumption VEM: 1.3 kg/mm²/m²
- Consumption SFM 18: 1.8 kg/mm²/m²

Sikafloor® Marine VEM 118 FC
Structure borne noise

- VEM + SFM 118 FC
- Primer C is needed
- Self leveling fast curing solution
- Leveling and visco in one go
- Not sensitive to deck straightness
- Weight from 20 to 47 kg/m²
- Material consumption VEM: 1.3 kg/mm²/m²
- Consumption SFM 18: 1.8 kg/mm²/m²
Sikafloor® Marine Systems
Visco-elastic

Sikafloor® Marine PU-Red
Visco-elastic mortar

- Medium weight 2-component visco-elastic material
- Primary deck covering
- Primerless application
- Density app. 1.3 kg/L
- Applicable up to 2 mm
- Walkable after 12 hours
- Mixing: Mix comp. A+B
- Application area: All wet and dry internal areas
- Material consumption 1.3 kg/mm/m²
- Steel consumption 19 pcs/m²

PU versus cement technology

- The unique flexible, polymer modified VEM visco-elastic mortar system offers a one component water based solution with no hazardous chemicals or dangerous goods handling
- VEM systems have the flexibility and the mass needed to dampen the vibrations of the vessel especially in the lower frequency range produced by engines, thrusters and other noise sources
- VEM solutions are very competitive and environmental friendly
Sikafloor® Marine Systems
Elastic/Thermolight N

Sikafloor® Marine Elastic
Waterproofing membrane

- Waterproofing membrane
- Density app. 1.4 kg/L
- Applicable up to 2 mm
- In case of application by roll always cross roll
- In case of porous underlay, always use first a diluted Primer C, otherwise pin holes will appear
- Material consumption 1.4 kg/mm²/m²
- As water seal in wet rooms, below ceramic tiles
- As water seal on floating floors

Sikafloor® Marine Thermolight N
Ultra light weight leveling compound

- Ultra light weight leveling compound
- Density (SFM 120 + EP Balls) 0.58 g/cm³
- Density top layer 0.90 g/cm³
- Top layer is self levelling (SFM 120)
- Always use two layers of Primer C, between insulation and top layer
- Primer layer 1 Primer C diluted with 20 % water
- Primer layer 2 Primer C
- Material consumption insulation layer 16 kg SFM 120 + 48L light filler covers 1.6m² in 4 mm

SIKAFLOR® MARINE SYSTEMS
- BUILDING TRUST
MARINE
Sikafloor® Marine Primer C
Sikafloor® Marine Systems
Leveling products/Primer

Sikafloor® Marine Primer C
One primer for all cement based leveling products

- Water based (SBR)
- Adhesion promoter
- Steel decks
- Brush / Broom cleaned
- Between layers (2 coats 1 deluted and one pure)
- In case of Zinc rich shop primers or Alu deck, always use a tie-coat
- Please make sure it 100 % dry (transparent) before next layer
- Do not apply on loose rust
- Min. Deck temp 5° C
- In case of application on absorbent underlay use two primer layers, to prevent bubbles
- Primer 1, Primer C, diluted with 20 % water
- Primer 2, Primer C, not diluted

Application
- Showing a blue milk color
- Ready for use - transparent and dry (approx. 30 min. after application depending on temperature and ventilation)
Sika Marine Systems has gained a world-wide experience in the field of deck coverings on commercial vessels, yachts, and cruise ships. Our decking systems are proven to be the best in class due to factors such as ease of installation, low weight, improvements in acoustics and superior aesthetics.

Sika is launching a new range of specially designed IMO certified interior and exterior decorative flooring systems. With Sikafloor® Marine Deco Comfort there are no limits for the creative mind, the system is available in almost every colour, and can be combined with aesthetical additives and different colours can easily be mixed-and-matched together.
# Sikafloor® Marine Deco Systems

Sikafloor® Marine Decorative Floors

## Interior/Exterior

### Sikafloor® Marine Decorative Range

<table>
<thead>
<tr>
<th>AREA</th>
<th>APPLICATION</th>
<th>DESCRIPTION/AREAS</th>
<th>SYSTEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interior</td>
<td><strong>UTILITY EPOXY</strong></td>
<td>WORKING AND WET AREAS&lt;br&gt;− LAUNDRY&lt;br&gt;− GALLEY&lt;br&gt;− WET CORRIDORS&lt;br&gt;− SAUNA,MACHINERY&lt;br&gt;− RAMPS, CORRIDORS</td>
<td>Sikafloor® Marine Deco Epoxy&lt;br&gt;− Broadcasted&lt;br&gt;− Smooth</td>
</tr>
<tr>
<td></td>
<td><strong>DECORATIVE EPOXY</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>− PUBLIC AREAS&lt;br&gt;− CORRIDORS&lt;br&gt;− CABINS&lt;br&gt;− SUN PROTECTED AREAS&lt;br&gt;− CASINO/HOSPITAL/GYM</td>
<td>Sikafloor® Marine Deco Comfort</td>
</tr>
<tr>
<td></td>
<td><strong>DECORATIVE PU</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exterior</td>
<td><strong>TEAK IMITATION PU</strong></td>
<td>− CORRIDORS&lt;br&gt;− POOL AREAS&lt;br&gt;− SOLARIUM&lt;br&gt;− BALCONIES&lt;br&gt;− OPEN/ PROTECTED AREAS</td>
<td>Sikafloor® Marine Deco Teak</td>
</tr>
<tr>
<td></td>
<td><strong>TRUE COLORS</strong></td>
<td>− CORRIDORS&lt;br&gt;− POOL AREAS&lt;br&gt;− SOLARIUM&lt;br&gt;− BALCONIES&lt;br&gt;− OPEN AND PROTECTED AREAS&lt;br&gt;− SPORTS FLOORS&lt;br&gt;− HELIPADS / HEAVY DUTY</td>
<td>Sikafloor® Marine Deco Hard</td>
</tr>
</tbody>
</table>
Sikafloor® Marine Deco Systems
Interior and exterior flooring systems

Sikafloor® Marine Deco Comfort is a unique, comfortable, very elastic and highly decorative polyurethane resin floor. The floor system offers excellent grip in both dry and wet conditions.

The smooth and seamless design makes it an ideal alternative to sheet vinyl finishes. Sikafloor® Marine Deco Comfort system consists of multiple primers, levelling materials, base and topcoats which are all accompanied with the necessary IMO certification.

The Sikafloor® Marine Deco Comfort is resistant to the most common oils, greases, juices, salts and solvents. Due to its flexibility, Sikafloor® Marine Deco Comfort systems do not break, crack or splinter and are easy to clean and require low maintenance.

- Self-smoothing
- Very low VOC emission
- Flexible with good crack bridging capability
- Foot warm
- Permanently elastic
- Good mechanical resistance
- Easy to apply
- IMO certified
- Easy to maintain

Layer | Product
--- | ---
1. Substrate | Steel deck
2. Substrate | Levelling compound
3. Primer | Sikafloor®-161 /-156
4. Base coat: | Sikafloor® Marine-530/-570 /-590
5. Top coat: | Sikafloor® Marine-504/-505

Sikafloor® Marine Deco Teak systems have already proven to be amongst the best in class products due to their ease of installation, low weight, better acoustical performance, excellent aesthetics and comfort. Sikafloor® Marine Deco Teak can be applied as a prefabricated solution which opens the door widely for playful designs and the implementation of logo’s in the synthetic deck.

- Ease of workability
- Very low VOC emission
- Solvent free
- Low density
- Permanently elastic
- Good crack bridging properties
- Seamless
- Easy to clean and maintain
- Very long service life
- Multiple deck colours
- Multiple caulking colours

Kitchen and wetrooms
Sanitary units
Galleys and cafeterias
Hospital areas
Sikafloor® Marine Deco Systems
Interior and exterior flooring systems - PREFAB

Sikafloor® Marine Deco Teak
Prefab application

- Ease of workability
- Very low VOC emission
- Solvent free
- Low density
- Permanently elastic
- Good crack bridging properties
- Seamless
- Easy to clean and maintain
- Very long service life
- Multiple deck colours
- Multiple caulking colours

For "non-IMO" 579 or 599
Sikafloor® Marine Deco Systems
Interior and exterior flooring systems

Sikafloor® Marine-530
Interior

- 2-component, very low VOC, polyurethane, high aesthetical flooring system for interior use
- Soft, elastic and comfortable
- IMO certification
- Can be used as caulking material for SFM Deco Teak – Black only
- Primer - Sikafloor® Marine Primer C
- Leveling - Sikafloor® Marine leveling mortars
- Sikafloor® Marine 161/156 or similar epoxy primer
- Deco layer - Sikafloor® Marine-530/-570 decorative Floor
- Topcoat - Sikafloor® 505 /504

Sikafloor® Marine-570/-590
Exterior

- 2-component, very low VOC, polyurethane, aesthetical flooring system
- Tough, semi-elastic, with mechanical resistance
- IMO certification
- Primer - Sika® Cor ZP Primer
- Leveling - Sika® Transfloor-352 ST / SL / VSL / 530 + Fillers
- Deco layer - Sikafloor® Marine-570 / 579 / 590 / 599
- Caulking - Sikafloor® Marine-590 or 530 black

Deco teak application stages

Phase 1 - Substrate preparation
Phase 2 - Priming
Phase 3 - Deck leveling layer and sanding
Phase 4 - Decorative coloured layer
Phase 5 - Cutting the caulking joints & caulking application
Phase 6 - Pre-sanding
Phase 7 - Final sanding
Phase 8 - Sealing (yes and no)
Phase 9 - Maintenance regime

Layer <2 mm Sikafloor® Marine-530/-570

Levelling layer with STF-352 SL* / VSL/530+fillers
Sika® Cor ZP Primer
Welding seam

* mm (ideally)*
Sikafloor® Marine Deco Systems

Exterior systems - Teak

Sikafloor® Marine-570
Color design for passenger ships

Sikafloor® Marine-590
Color design for super yachts

Colors may vary slightly.
Sikafloor® Marine Deco Systems
Epoxy

**Sikafloor® Marine Deco Epoxy**
Lay up epoxy quartz

- Primer - Sikafloor® Marine Primer C
- Leveling - Sikafloor® Marine leveling mortars
- Primer - Sikafloor® Marine 161/156 or similar epoxy primer
- Body layer - Sikafloor® Marine 264 + Filler
- Seal coat - Sikafloor® Marine 609
- Topcoat - Sikafloor® Marine 504 (optional)

**Sikafloor® Marine Deco Epoxy**
Lay up epoxy smooth and flaked

- Primer - Sikafloor® Marine Primer C
- Leveling - Sikafloor® Marine leveling mortars
- Primer - Sikafloor® Marine 161/156 or similar epoxy primer
- Body layer - Sikafloor® Marine 264 + Filler
- Sika Color Flake
- Topcoat - Sikafloor® Marine 504

**Sikafloor® Marine Deco Epoxy**
Lay up epoxy broadcast

- Primer - SikaCor® ZP Primer
- First coat - Sikafloor® Marine 264
- Sika Color Flakes
- First coat - Sikafloor® Marine 264
Sikafloor® Marine Deco Systems

RAL-codes

Unlimited colour

<table>
<thead>
<tr>
<th>RAL</th>
<th>RAL</th>
<th>RAL</th>
<th>RAL</th>
<th>RAL</th>
<th>RAL</th>
<th>RAL</th>
<th>RAL</th>
<th>RAL</th>
<th>RAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1012</td>
<td>1002</td>
<td>1012</td>
<td>1020</td>
<td>1020</td>
<td>1002</td>
<td>1012</td>
<td>1030</td>
<td>1020</td>
<td>1002</td>
</tr>
<tr>
<td>3002</td>
<td>3002</td>
<td>3002</td>
<td>3002</td>
<td>3002</td>
<td>3002</td>
<td>3002</td>
<td>3002</td>
<td>3002</td>
<td>3002</td>
</tr>
<tr>
<td>4002</td>
<td>4002</td>
<td>4002</td>
<td>4002</td>
<td>4002</td>
<td>4002</td>
<td>4002</td>
<td>4002</td>
<td>4002</td>
<td>4002</td>
</tr>
<tr>
<td>5002</td>
<td>5002</td>
<td>5002</td>
<td>5002</td>
<td>5002</td>
<td>5002</td>
<td>5002</td>
<td>5002</td>
<td>5002</td>
<td>5002</td>
</tr>
<tr>
<td>6002</td>
<td>6002</td>
<td>6002</td>
<td>6002</td>
<td>6002</td>
<td>6002</td>
<td>6002</td>
<td>6002</td>
<td>6002</td>
<td>6002</td>
</tr>
<tr>
<td>7002</td>
<td>7002</td>
<td>7002</td>
<td>7002</td>
<td>7002</td>
<td>7002</td>
<td>7002</td>
<td>7002</td>
<td>7002</td>
<td>7002</td>
</tr>
<tr>
<td>8002</td>
<td>8002</td>
<td>8002</td>
<td>8002</td>
<td>8002</td>
<td>8002</td>
<td>8002</td>
<td>8002</td>
<td>8002</td>
<td>8002</td>
</tr>
</tbody>
</table>

Sikafloor® Marine Deco epoxy & polyurethane

Unlimited colour possibilities!

Sika Teak decking application guide

Teak deck covering

Please find a separate application guide regarding teak decking.

Leveling, bonding and caulking of teak decks:
- Surface preparation
- Deck leveling
- Deck bonding and bedding
- Deck caulking
- Prefabricated teak decks
- Maintenance of teak decks
- Teak deck repair
- Alternatives to teak
- Bonding of timber elements
MARINE
Sealing and bonding technology

Discover our Sikaflex range that accompanies you aboard the boat in various applications. Widely used in the construction of many ships, from yacht to liner, from trawler to supertanker, the Sika Marine range ensures multiple maintenance and maintenance operations throughout their working lives.

Sikaflex adhesives and sealants make it possible to make flexible, perfectly waterproof and resistant assemblies between a large numbers of materials. They can be used with confidence above and below the waterline and are for the most part approved by the certifying bodies and authorized to carry the “Wheelmark”.
Sikaflex®
1K-Polyurethan sealing and bonding

Sikaflex®-290 DC PRO
The professional deck caulking sealant

The Sikaflex®-290 DC PRO is a specifically designed sealing compound for teak decks, and can take care of all your boat caulking needs. Sikaflex®-290 DC PRO’s innovative formula is also suitable for particularly exposed joints, such as shipbuilding gaskets. Specifically designed for the caulking of teak decks, Sikaflex®-290 DC PRO provides anti-slip properties to bridges, even when wet.

- Excellent Ageing and weathering resistance
- Easy to sand Durable joints
- Excellent resistant to sea water
- Soft

<table>
<thead>
<tr>
<th>Art. nr.</th>
<th>Color</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>509183</td>
<td>Black</td>
<td>300 ml cartridge</td>
</tr>
<tr>
<td>508965</td>
<td>Black</td>
<td>600 ml bag</td>
</tr>
</tbody>
</table>

Sikaflex®-291i
Multi-purpose adhesive

Sikaflex®-291i is a practical, easy-to-use multi-purpose adhesive with less waste. Sikaflex®-291i is the perfect solution for common repairs and the regular maintenance of boats. Its applications include creating flexible seals resistant to strong vibrations, the installation of fittings (fans, hatches, etc.), and various adhesive applications (lamination, strakes, rods, elements of interior arrangement, etc.).

- Ideal for sealing
- Resistant to vibrations
- Good resistance to sea water
- Good adhesion to a majority of fittings
- Can be sanded and painted

<table>
<thead>
<tr>
<th>Art. nr.</th>
<th>Color</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>487371</td>
<td>White</td>
<td>70 ml cartridge</td>
</tr>
<tr>
<td>487382</td>
<td>Black</td>
<td>70 ml cartridge</td>
</tr>
</tbody>
</table>

Sikaflex®-292i
High-strength fastening adhesive for structural assembly

Sikaflex®-292i is a high-strength fastening adhesive perfectly suited for structural joints subjected to high dynamic stresses (hulls, fastenings of deck fittings on the hull, etc.), high mechanical stresses (shocks, tearing), and climate (bad weather, salt). Sikaflex®-292i ensures a high strength fastening without degrading the support.

- Resistant to high dynamic stresses
- Compensates for the irregularities of the supports
- Good adhesion on a wide range of supports
- Can be applied to thick joints (filing of interstices)
- Can be painted

<table>
<thead>
<tr>
<th>Art.nr.</th>
<th>Color</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>409807</td>
<td>White</td>
<td>300 ml cartridge</td>
</tr>
</tbody>
</table>
Sikaflex®
1K-Polyurethan sealing and bonding

Sikaflex®-295 UV
High-performance bonding and glazing sealant

Sikaflex®-295 UV is a bonding and glazing sealant specifically developed for the marine industry. It is designed for application on organic glass such as PC or PMMA. Sikaflex®-295 UV has excellent UV resistance, facilitating the production of particularly exposed joints. Sika recommends the use of Sikaflex®-295 UV for bonding and sealing windows and portholes.

- Excellent resistance to weathering, UV rays and aging
- Does not spin
- Fast curing time
- Ideal for organic glazing

<table>
<thead>
<tr>
<th>Art. nr.</th>
<th>Color</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>777</td>
<td>Black</td>
<td>300 ml cartridge</td>
</tr>
<tr>
<td>91673</td>
<td>Black</td>
<td>600 ml bag (not in stock)</td>
</tr>
</tbody>
</table>

Sikaflex®-296
Adhesive for mineral glass

Sikaflex®-296 is a one-component polyurethane accelerator specifically designed for bonding mineral glass.

- One-component
- Excellent processing characteristics
- Fast curing time
- Excellent ageing resistance
- Solvent and PVC free
- Can be applied without a primer

<table>
<thead>
<tr>
<th>Art. nr.</th>
<th>Color</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>75235</td>
<td>Black</td>
<td>20x600 ml bag</td>
</tr>
</tbody>
</table>

Sikaflex®-298 FC
Adhesive for full-surface bonding

Sikaflex®-298 FC is a one-component polyurethane adhesive based on the latest polyurethane i-Cure technology. It is specifically designed for full-surface bonding for synthetic resin linings, and is also suitable for sealing teak planks on bridges. This product is not intended for caulking teak decks.

- Dampens noise and vibration
- Suitable for large working areas
- Long open time
- Flexible
- Solvent-free
- Soft - floats easily

<table>
<thead>
<tr>
<th>Art. nr.</th>
<th>Color</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>85444</td>
<td>Black</td>
<td>20x600 ml bag</td>
</tr>
<tr>
<td>85285</td>
<td>Black</td>
<td>10 l bucket</td>
</tr>
</tbody>
</table>
Sikaflex®
1K-Polyurethan sealing and bonding

Sikaflex®-591
Multifunctional sealants

Sikaflex®-591 is a multifunctional sealant based on Sika’s Silane Terminated Polymer (STP) technology. It is suitable for elastic, vibration-resistant joint seals. With its excellent resistance against the harsh maritime weathering conditions Sikaflex®-591 can be used for a wide range of applications for a wide variety of interior and exterior sealing applications. Sikaflex®-591 bonds well to substrates commonly used in the marine industry.

- Highly elastic
- Excellent weathering stability
- Compatible with non-ferrous metals
- Free of isocyanate, solvents, PVC, phthalates and tin catalysts
- Very good processing and tooling characteristics
- Bonds well to a wide variety of marine substrates

<table>
<thead>
<tr>
<th>Art. nr.</th>
<th>Color</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>S45505</td>
<td>White</td>
<td>300 ml cartridge</td>
</tr>
<tr>
<td>S46458</td>
<td>Black</td>
<td></td>
</tr>
<tr>
<td>551060</td>
<td>Wood</td>
<td></td>
</tr>
<tr>
<td>551061</td>
<td>Light Grey</td>
<td></td>
</tr>
</tbody>
</table>
**Sikasil®**

**Industri silicone**

---

**Sika Firesil® Marine N**

Fire resistant silicone sealant

General purpose sealant for applications requesting fire resistance according to DIN 4102 B1 and as sealing of gaps, cable ducts, grommets etc. where compliance with IMO 653 (16) is required.

- Versatile, suitable for use in movement and non-movement joints, in construction and industrial applications
- Excellent temperature insulation
- Suitable for interior and exterior applications
- One-part formulation
- Elastic
- Resists ageing and weathering
- High fire resistance
- Bonds well to a wide variety of substrates

<table>
<thead>
<tr>
<th>Art. nr.</th>
<th>Color</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>77291</td>
<td>Light Grey</td>
<td>300 ml cartridge</td>
</tr>
</tbody>
</table>

---

**Sikasil® SG-20**

High-performance neutral silicone sealant

Sikasil® SG-20 is a high-performance glazing sealant specifically developed for bonding and glazing. It can be applied on organic glass such as PC or PMMA. Sikasil® has excellent UV resistance, facilitating the production of particularly exposed joints.

- Excellent resistance to weather, UV-rays and ageing
- Odorless
- Neutral polymerization
- Can be applied without primer
- Recommended for organic glazing

<table>
<thead>
<tr>
<th>Art. nr.</th>
<th>Color</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>535466</td>
<td>Black</td>
<td>25x300 ml cartridge</td>
</tr>
<tr>
<td>107627</td>
<td>Black</td>
<td>20x600 ml bag</td>
</tr>
</tbody>
</table>

---

**Sikasil® WS-605 S**

High-performance weatherproofing sealant

Sikasil® WS-605 S is a durable, neutral-curing silicone sealant with a high movement capability and excellent adhesion to a wide range of substrates.

- Outstanding UV and weathering resistance
- Does not stain areas adjacent to the joint
- Adheres well to glass, metals, coated / painted metals, plastics and wood

<table>
<thead>
<tr>
<th>Art. nr.</th>
<th>Color</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>107624</td>
<td>Black</td>
<td>25x300 ml cartridge</td>
</tr>
<tr>
<td>107625</td>
<td>Black</td>
<td>20x600 ml bag</td>
</tr>
</tbody>
</table>
SikaSense®
Waterbased marine adhesives

SikaSense®-4490
Universal product for main floor

The high-performance universal dispersion adhesive impresses with very high initial adhesion, long insertion time and fast adhesion. Suitable for all flexible coverings, for textile coverings with PVC-, PU backing, filler-free backing, linoleum coverings, synthetic rubber coverings and impact sound insulation underlay on absorbent and non-absorbent substrates in interior areas.

- Excellent resistance to weather, UV rays and ageing
- Universal product for main floor coverings
- Low consumption
- High coverage
- Very high initial adhesion

SikaSense®-4491
For LVT coverings as planks and tiles

The low-emission, high-performance dispersion adhesive impresses with high surface performance, long insertion time and rapid adhesive development. Suitable for LVT coverings as planks and tiles on levelled substrates in interior areas.

- Very high initial adhesion
- High surface performance
- Working time of 2 hours
- Easy laying of samples
- Rollable
- Instant load use
- Ideal for high-quality design coverings

SikaSense®-4492
For rational fixing of textile, CV floor covering and SL tiles

The very low emission and solvent free dispersion impresses through its short waiting time, long bonding and rapid development of adhesion strength. Suitable for the rational fixing of textile floor coverings, CV floor coverings and SL tiles on all suitable water-resistant subsoils in the interior.

- High initial adhesion
- Strong stringiness
- No primer necessary
- Easy to spread
- Good removability with detergent suds
# Product selection guide

## SIKA MARINE – THE PROFESSIONAL’S CHOICE

### PRODUCT SELECTION GUIDE

### KEY TO SYMBOLS

- 🥇 Best Solution
- 🏆 Good Solution
- 🏆 Possible Solution

### BONDING APPLICATIONS

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>General bonding</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
</tr>
<tr>
<td>Flybridge, deck to hull bonding</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
</tr>
<tr>
<td>Rub rail bonding</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
</tr>
<tr>
<td>Bonding of coverings</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
</tr>
</tbody>
</table>

### TEAK DECKING

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Teak bedding</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
</tr>
<tr>
<td>Teak deck bonding</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
</tr>
<tr>
<td>Teak deck caulking</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
</tr>
</tbody>
</table>

### DIRECT GLAZING

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mineral</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
</tr>
<tr>
<td>Organic</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
</tr>
</tbody>
</table>

### SEALING APPLICATIONS

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Interior finish sealing</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
</tr>
<tr>
<td>Exterior sealing</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
</tr>
<tr>
<td>Overpaintable sealing</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
</tr>
<tr>
<td>Fire-retardant sealing</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
</tr>
<tr>
<td>Sanitary sealing</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
</tr>
<tr>
<td>Sealing for non-ferrous metals</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
<td>🥇 🏆 🥇</td>
</tr>
</tbody>
</table>
**Sika® Primer-290 DC**

*Primer for bonding and sealing timber decking strips*

Sika® Primer-290 DC is a transparent, pale yellow, low viscosity liquid that cures by reaction with atmospheric moisture. It is used to prime timber decking strips prior to caulking with Sikaflex®-290 DC or bonding with Sikaflex®-298.

Sika® Primer-290 DC is manufactured in accordance with ISO 9001 / 14001 quality assurance system and the responsible care program.

Sika® Primer-290 DC is formulated for use on the following substrates:

- Teak
- Mahogany
- Oregon pine
- Cork
- GRP based on polyester

**Sika® MultiPrimer Marine**

*Muti-purpose solvent primer*

Sika® MultiPrimer Marine is a liquid primer specific designed to improve the adhesion of Sikaflex® products to various substrates such as wood (teak, mahogany, Oregon pine and cork), metals (aluminum, galvanized steel sheets), GRP and other plastics, and primed substrates. It is also a suitable primer of SikaSil® adhesives and sealants on porous and non-porous substrates.

- Easy to apply
- Increases adhesion of Sikaflex® and SikaSil® on various substrates
- Long open time
- Thermoplastic behavior
- Low odor
- Allows homogenization of surface preparation on varying substrates

Sika® MultiPrimer Marine offers reliability, high bonding strength, durability and convenient workability. The material can be used in conjunction with the following Sika Marine sealants and adhesives: Sikaflex-291i/-292i/-295 UV/-298 FC/-290i DC and Sikaflex 591.

**Sika® Primer-206 G+P**

*Pigmented, solvent-based primer for various substrates*

Sika® Primer-206 G+P is a solvent-based black primer which reacts with moisture and forms a thin layer. This layer acts as a link between substrates and adhesives. Sika® Primer-206 G+P is specifically formulated for the treatment of bond faces prior to application of Sika’s 1-component Polyurethanes.
Primer

Sika® Primer-207
Pigmented, solvent-based primer for various substrates

Sika® Primer-207 is a solvent-based black primer, which reacts with moisture and forms a thin layer. This layer acts as a link between substrates and adhesives. Sika® Primer-207 is specifically formulated for the treatment of bond faces prior to application of Sika’s 1-component Polyurethanes.

Sika® Primer-207 is used to improve adhesion on a very broad range of different substrates such as float glass, ceramic-coated glass, plastics, pre-coatings, painted surfaces, E-coats and metals.

<table>
<thead>
<tr>
<th>Art. nr.</th>
<th>Color</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>417300</td>
<td>Black</td>
<td>24x30 ml</td>
</tr>
<tr>
<td>417301</td>
<td>Black</td>
<td>8x100 ml</td>
</tr>
<tr>
<td>417302</td>
<td>Black</td>
<td>6x250 ml</td>
</tr>
</tbody>
</table>

Sika® Primer-209 D
Polyurethane-based black primer

Sika® Primer-209 D is a black, moisture-curing low viscosity primer specifically formulated for the treatment of painted surfaces or plastics prior to the application of Sikaflex® direct-glazing adhesive.

<table>
<thead>
<tr>
<th>Art. nr.</th>
<th>Color</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>113818</td>
<td>Black</td>
<td>6x250 ml</td>
</tr>
</tbody>
</table>

SikaCor® ZP Primer
Primer for aluminium and steel decks

SikaCor® ZP Primer is a two-part PUR primer. It has a short flash-off time and broad application temperature range. SikaCor® ZP Primer is manufactured in accordance with ISO 9001 and ISO 14001 Quality Assurance Systems.

- Broad adhesion range
- Improves corrosion resistance
- Broad application temperature range

<table>
<thead>
<tr>
<th>Art. nr.</th>
<th>Color</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>34879</td>
<td>Red/Grey</td>
<td>A comp: 276 kg</td>
</tr>
<tr>
<td>505510</td>
<td>Light Yellow</td>
<td>B comp: 2.4 kg</td>
</tr>
</tbody>
</table>
Sika® Aktivator-100
Adhesion promoter for various substrates

Sika® Aktivator-100 is an activating agent to improve adhesion. It is specifically formulated for the treatment of bond faces prior to application of various Sika polyurethane adhesives.

Sika® Aktivator-205
Pre-treatment agent for non porous substrates

Sika® Aktivator-205 is an alcohol solution containing a bond-activating substance designed for the activation of surfaces prior to bonding and sealing with Sika® products. Sika® Aktivator-205 is manufactured in accordance with ISO 9001 / 14001 quality assurance system and with the responsible care program.
**Sika® Remover-208**

Sika® Remover-208 is used to remove traces of Sikaflex® products as well as for cleaning painted substrates. Sika® Remover-208 is manufactured in accordance with ISO 9001 / 14001, quality assurance system and with the responsible care program.

Sika® Remover-208 can be used to remove uncured excess Sikaflex® adhesive or sealant from application tools or soiled surfaces. Sika® Remover-208 can also be used for pre-cleaning strongly contaminated non-porous substrates. Sika® Remover-208 can be used to clean painted surfaces prior to bonding. Use Sika® Remover-208 according to the Sika Pre-treatment Chart.

<table>
<thead>
<tr>
<th>Art. nr.</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>117569</td>
<td>4x1000 ml</td>
</tr>
</tbody>
</table>

**Sika® Cleaner P**

Cleaning agent for non porous substrates

Sika® Cleaner P is a low-viscosity, solvent-based cleaning agent for non porous substrates. Sika® Cleaner P is manufactured in accordance with ISO 9001 quality assurance system and the responsible care program.

Sika® Cleaner P can be used to remove foreign matter and contaminants, such as grease, oil, dust and dirt from the surface of, for example, plastics, polyester powder-coated metals and PVDF-coated metals prior to the application of sealants and adhesives. Sika® Cleaner P is also suitable for cleaning glass and metal surfaces. It should only be used on non-porous substrates.

<table>
<thead>
<tr>
<th>Art. nr.</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>505057</td>
<td>12x800 ml</td>
</tr>
</tbody>
</table>

**Sika® Handclean**

Cleaning cloths

Apart from normal dirt and soils, Sika® Handclean will remove heavy-grease, lubricants, adhesives, oils, tar, inks, wax and many other difficult to remove soils such as coal dust, graphite and grass stains, etc

- Cloths impregnated with a high performance, liquid and cleaning formula
- Time saving: Cleaning direct at workplace
- Fast cleaning of machines, tools and accessories

<table>
<thead>
<tr>
<th>Art. nr.</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>174089</td>
<td>70 cloths</td>
</tr>
</tbody>
</table>
Teak deck maintenance

Sika® Teak Oil Neutral
Protective oil for teak boat deck

Sika® Teak Oil Neutral is used to protect the teak decks of sailboats and yachts. It protects the wood, makes it resistant and restores its natural look. Sika® Teak Oil Neutral is a longterm protection against sea water, freshwater, UV and other climatic factors.

- Based on vegetal oils
- Easy and quick application
- Compatible with Sikaflex® Marine product range
- Provides high UV protection

Sika® Teak C+B
Biodegradable 2-in-1 cleaning product

Sika® Teak C+B cleans the teak decks by removing traces of dirt and pollution. It improves the appearance of the teak and prepares the surface for the application of Sika® Teak oil.

- 2-in-1 product
- Quick and easy to use
- Ecological
- Does not mark the surface

SEE OUR TEAK APPLICATION GUIDE FOR MORE INFORMATION.
Cleaner

Sika® Tooling agent N, 1 liter

Sika® Tooling Agent N is a water-based, solvent-free tooling agent for Sikaflex® products.

- Neutral
- Non aggressive to skin
- Does not attack paints (even water-based)
- No washing-out or etching of fresh applied sealants or adhesives

<table>
<thead>
<tr>
<th>Art. nr.</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>4612</td>
<td>4x1000 ml</td>
</tr>
</tbody>
</table>

Sika® Cleaner PCA

Sika® Cleaner PCA is a smart cleaning pad based on melamine foam. It is used for removal of contamination or cleaning of windshields and other surfaces. Additionally it can be used to apply Sika® Primer. Sika® Cleaner PCA is designed for the removal of contamination on ceramic frits or glass. It can also be used for the removal of label residues and other kinds of pollution. Sika® Cleaner PCA is well suited to apply Sika® Primers used in the Auto Glass Replacement business.

<table>
<thead>
<tr>
<th>Art. nr.</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>492763</td>
<td>168 pads</td>
</tr>
</tbody>
</table>
Sika® PowerCure system

PowerCure dispenser

The PowerCure Dispenser provides the precision of the pump and dosing systems found on vehicle manufacturers’ production lines. The use of a single, brushless motor mechanically couples extrusion, dosing and dynamic mixing and allows users to control extrusion speed on the go and without compromise.

Mixer for PowerCure system

Dynamic & Efficient: The mixer was designed to fit into the size of an ordinary application nozzle. The specially shaped V-cut supports the application of the adhesive at a convenient angle to the glass and cuts material consumption by up to 8%.
### Application guns

<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
<th>Art. nr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sika Powerflow</td>
<td></td>
<td>181594</td>
</tr>
<tr>
<td>Trent compressed air application gun</td>
<td></td>
<td>105105</td>
</tr>
<tr>
<td>Powercure Dispenser</td>
<td></td>
<td>483561</td>
</tr>
<tr>
<td>Milwaukee application gun</td>
<td>- for 300 ml cartridge</td>
<td>425589</td>
</tr>
<tr>
<td>Milwaukee application gun</td>
<td>- for 600 ml bag</td>
<td>425591</td>
</tr>
<tr>
<td>Battery Milwaukee C18 PCG</td>
<td></td>
<td>436972</td>
</tr>
<tr>
<td>Product Code</td>
<td>Description</td>
<td>Art. nr.</td>
</tr>
<tr>
<td>---------------</td>
<td>------------------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>DP 200-70</td>
<td></td>
<td>50113</td>
</tr>
<tr>
<td>DM 200-10</td>
<td></td>
<td>50114</td>
</tr>
<tr>
<td>DP 400-85-04</td>
<td></td>
<td>410565</td>
</tr>
<tr>
<td>DP 400-100-10</td>
<td></td>
<td>163546</td>
</tr>
</tbody>
</table>

Sealing the edge of a chrome hand-rail

Applying Sikaflex®-292i
Since the middle of the 17th century, when the industrial revolution began, the process of manufacture has changed dramatically, in methods and materials. At the time, it was state-of-the-art to assemble boats and ships using traditional methods like wood jointing, nailing and screwing. Riveting and welding followed in later years, but today, we are aware of the limitations of these old methods compared to what is currently available.

New lightweight materials as well as sandwich structures need smooth, stress concentration free assembly. Today, time, weight, cost, design freedom and reliability are all greatly enhanced by using chemical bonding, sealing and damping products.
DESIGN OF ADHESIVE LAYER GEOMETRY

The elastic adhesive can only fully develop its positive properties (movement compensation, peeling and impact resistance) if the adhesive layer geometry is correct.

Above all, this means keeping to a minimum layer thickness that must be individually suited to the bond. A layer thickness of 2-3 mm has proved best for most applications. Thicker layers may be required where considerable movement is expected.

 Depths over 20 mm should be avoided with standard Sikaflex® grades because the adhesive would take too long to harden.

### PRIMER AND CLEANER CONSUMPTION

<table>
<thead>
<tr>
<th>JOINT WIDTH</th>
<th>NO. OF METRES PER 300 ML CARTRIDGE</th>
<th>NO. OF METRES PER 100 ML TUBE</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEPTH / LAYER THICKNESS OF BOND (MM)</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>1</td>
<td>62.00</td>
<td>31.00</td>
</tr>
<tr>
<td>2</td>
<td>31.00</td>
<td>15.50</td>
</tr>
<tr>
<td>3</td>
<td>20.60</td>
<td>10.30</td>
</tr>
<tr>
<td>4</td>
<td>15.50</td>
<td>7.75</td>
</tr>
<tr>
<td>5</td>
<td>12.40</td>
<td>6.20</td>
</tr>
<tr>
<td>6</td>
<td>10.30</td>
<td>5.16</td>
</tr>
<tr>
<td>7</td>
<td>8.85</td>
<td>4.40</td>
</tr>
<tr>
<td>8</td>
<td>7.75</td>
<td>3.90</td>
</tr>
<tr>
<td>9</td>
<td>6.90</td>
<td>3.50</td>
</tr>
<tr>
<td>10</td>
<td>6.20</td>
<td>3.10</td>
</tr>
</tbody>
</table>

Make sure that:
- The primed areas coincide with the bonding areas
- The right primer for the material surface is used
- The primer is completely dry and cured before bonding i.e. watch the evaporation time
- Primers are shaken if necessary

### ADHESIVE PRIMER CONSUMPTION

- **Sika® Aktivator / Sika® Aktivator-205**: 25-30 (m² / m) / 0.04°
- **Sika® Primer-206 G+P**: 17-22 (m² / m) / 0.1-0.15
- **Sika® Primer-209 D**: 12-15 (m² / m) / 0.15-0.2
- **Sika® MultiPrimer Marine**: 12-15 (m² / m) / 0.15-0.2
Conversions and calculations

**WEIGHT**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 ounce =</td>
<td>28.3495 g</td>
</tr>
<tr>
<td>1 pound =</td>
<td>0.45359 kg</td>
</tr>
<tr>
<td>1 hundredweight =</td>
<td>50.8023 kg</td>
</tr>
</tbody>
</table>

**AREA**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 inch² =</td>
<td>6.4516 mm²</td>
</tr>
<tr>
<td>1 foot² =</td>
<td>0.0929 m²</td>
</tr>
<tr>
<td>1 yard² =</td>
<td>0.8361 m²</td>
</tr>
<tr>
<td>1 acre =</td>
<td>4046.86 m²</td>
</tr>
<tr>
<td>1 mile² =</td>
<td>2.59 km²</td>
</tr>
</tbody>
</table>

**VOLUME**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 pint (UK) =</td>
<td>0.5683 l</td>
</tr>
<tr>
<td>1 pint (USA) =</td>
<td>0.4732 l</td>
</tr>
<tr>
<td>1 gallon (UK) =</td>
<td>4.5461 l</td>
</tr>
<tr>
<td>1 gallon (USA) =</td>
<td>3.7854 l</td>
</tr>
</tbody>
</table>

**LENGTH**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 inch =</td>
<td>25.4 mm</td>
</tr>
<tr>
<td>1 foot =</td>
<td>0.3048 m</td>
</tr>
<tr>
<td>1 yard =</td>
<td>0.9144 m</td>
</tr>
<tr>
<td>1 furlong =</td>
<td>201.17 m</td>
</tr>
<tr>
<td>1 mile =</td>
<td>1.6093 km</td>
</tr>
</tbody>
</table>

**PRESSURE**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 bar =</td>
<td>0.1 MPa</td>
</tr>
<tr>
<td>1 Pascal =</td>
<td>1 N / m²</td>
</tr>
<tr>
<td>1 kgf / cm² =</td>
<td>0.09807 MPa</td>
</tr>
<tr>
<td>1 psi =</td>
<td>6894.76 Pa</td>
</tr>
</tbody>
</table>

**SI PREFIXES**

<table>
<thead>
<tr>
<th>NAME</th>
<th>SYMBOL</th>
<th>FACTOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>giga</td>
<td>G</td>
<td>10⁹</td>
</tr>
<tr>
<td>mega</td>
<td>M</td>
<td>10⁶</td>
</tr>
<tr>
<td>kilo</td>
<td>k</td>
<td>10³</td>
</tr>
<tr>
<td>hecto</td>
<td>h</td>
<td>10²</td>
</tr>
<tr>
<td>deca</td>
<td>da</td>
<td>10¹</td>
</tr>
<tr>
<td>deci</td>
<td>d</td>
<td>10⁻¹</td>
</tr>
<tr>
<td>centi</td>
<td>c</td>
<td>10⁻²</td>
</tr>
<tr>
<td>milli</td>
<td>m</td>
<td>10⁻³</td>
</tr>
<tr>
<td>micro</td>
<td>μ</td>
<td>10⁻⁶</td>
</tr>
<tr>
<td>nano</td>
<td>n</td>
<td>10⁻⁹</td>
</tr>
</tbody>
</table>

---

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 Sika Product Datasheet for the product concerned, copies of which will be supplied on request.

---

**FORUMULAE**

**TO ESTIMATE THE NUMBER OF LITRES REQUIRED**

Normal bead application;
Quantity in litres = bead width (mm) x bead thickness (mm) x joint length (metres) / 1000
(Dimensions are for wet adhesive in rectangular cross section)

Large area bonding and laminating;
Quantity in litres = width (metres) x length (metres) x wet film adhesive thickness (mm).

**TO DETERMINE THE VOLUME OF A SEMI-CIRCULAR BEAD**

Quantity in litres = 3.142 x diameter (mm) x diameter (mm) x length (metres) / 8000

**TO DETERMINE THE VOLUME OF A TRIANGULAR BEAD**

Quantity in litres = width (mm) x height (mm) x length (metres) / 2000

**TO CONVERT KILOGRAMS TO LITRES**

Quantity in litres = weight in kilograms / density (grams / ml or kg / l)

**TO CONVERT BETWEEN TEMPERATURE SCALES**

Fahrenheit = (degrees celsius (°C) x 9) / 5 + 32
Celsius = (degrees fahrenheit (°F) x 5) / 9 + 32

---

**TEMPERATURE SCALES**

<table>
<thead>
<tr>
<th>°C</th>
<th>°F</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>212</td>
</tr>
<tr>
<td>80</td>
<td>176</td>
</tr>
<tr>
<td>60</td>
<td>140</td>
</tr>
<tr>
<td>40</td>
<td>104</td>
</tr>
<tr>
<td>35</td>
<td>95</td>
</tr>
<tr>
<td>30</td>
<td>86</td>
</tr>
<tr>
<td>25</td>
<td>77</td>
</tr>
<tr>
<td>20</td>
<td>68</td>
</tr>
<tr>
<td>15</td>
<td>59</td>
</tr>
<tr>
<td>10</td>
<td>50</td>
</tr>
<tr>
<td>5</td>
<td>41</td>
</tr>
<tr>
<td>0</td>
<td>32</td>
</tr>
</tbody>
</table>

---

SIKA MARINE SYSTEMS
Bedding and sealing fittings and hardware

GENERAL DESCRIPTION

All kinds of deck fittings and hardware need to be securely fixed and totally watertight. Some of these fittings can be subject to very high forces, such as tensile, torsion and shear stresses. Poorly sealed joints can suffer serious damage such as metal corrosion, osmosis and water leaks which can cause damage to interior furnishings and fittings.

Bedding and sealing of fittings subject to high mechanical stresses

Deck fittings such as chain plates, winches and guide rollers must absorb very high dynamic stresses.

For this purpose a high-performance product, such as Sikaflex®, should be used in conjunction with additional mechanical fixings.

Bedding and sealing of fittings subject to minimal mechanical stresses

Deck fittings, such as ventilators and cover strips, need to be waterproofed, but are not subject to high tensile or torsion stresses.

These fittings can be effectively bedded and sealed with Sikaflex®-295.
**BEDDING AND SEALING FITTINGS AND HARDWARE**

**SUBSTRATE PREPARATION**

**TIMBER DECKS**
- Abrade the contact area on the deck with a sanding pad (80 / 100 grit)
- Remove the dust with a vacuum cleaner
- Apply a thin, continuous coat of Sika® MultiPrimer Marine using a clean brush or a roller felt applicator.
- Drying time: Sika® MultiPrimer Marine 30 minutes (min) to 24 hours (max)

**PAINTED DECKS**
- Pre-treat the substrate with Sika® Aktivator-100, using a clean, lint-free rag or a paper towel.
- Flash-off: 10 minutes (min) to 2 hours (max)

**BRONZE, BRASS OR STAINLESS STEEL FITTINGS**
- Slightly abrade the contact area with a very fine sanding paper or abrasive pad
- Pre-treat the substrate with Sika® Aktivator-100, using a clean, lint-free rag or a paper towel.
- Change the rag frequently!
- Flash-off: 10 minutes (min) to 2 hours (max)
- Apply a thin, continuous coat of Sika® MultiPrimer Marine, using a clean brush or a felt applicator
- Drying time: 30 minutes (min) to 24 hours (max)

**APPLICATION OF Sikaflex®-291i, -292i OR -295 UV ADHESIVES**
- Mask the surrounding area before priming and sealing
- These adhesives should be applied to the deck and to the screw fixing holes in a bead of the required thickness. The fitting should then be pressed into position
- The fixing screws should be tightened slightly to leave about 1 mm of adhesive under the fitting
- Use a plastic spatula to remove excess sealant squeezed out around the edges and remove the masking tape
- After 24 hours tighten the screws

**IMPORTANT:**
For the preparation of other substrates, please refer to the Sika Pre-Treatment Charts for Marine Applications.

For coloured metals please use only Sikaflex®-295 UV or Sikaflex®-591.
GENERAL DESCRIPTION

Rub rails and fenders are designed to protect the hull of a vessel against damage. These act as a bumper to absorb impacts and scrapes, and the more elastic these are, the more effectively they perform this function.

The elastic behaviour varies according to the type of material used, so the shockabsorbing performance of the rub rail can be significantly improved by the use of an elastic adhesive joint. This provides maximum protection to the hull.

Rub rails of timber, PVC or polyurethane can be securely bonded to marine hulls using Sikaflex®-292i. The resulting elastic joint helps to absorb most of the shear and tensile stresses to which they are subjected when a vessel is docking or casting off.

If rub rails are secured with screws, a similar effect can be obtained by back-filling the rail profile with Sikaflex®-291i; a highly elastic polyurethane sealant. As well as absorbing torsional stresses, this technology also seals the screw holes and prevents water or dirt from getting behind the rub rail.

IMPORTANT:
If the rub rail has a different chemical composition and is not fixed using a mechanical fixing method, please seek advice from your local Sika company.
**BONDING RUB RAILS TO THE HULL**

**SUBSTRATE PREPARATION**

**GRP HULLS**
- Heavily soiled surfaces should first be cleaned off with a pure solvent, like Sika® Remover-208, to remove the worst of the soiling
- Lightly abrade the contact area with a very fine sanding pad
- Remove the dust with a vacuum cleaner
- Pre-treat the substrate with Sika® Aktivator-100, using a clean, lint-free rag or a paper towel. Change the rag frequently!
- Flash-off: 10 minutes (min) to 2 hours (max)
- Apply a thin, continuous coat of Sika® MultiPrimer Marine, using a clean brush or a felt applicator
- Drying time: 30 minutes (min) to 24 hours (max)

**FINISHED PAINTED HULLS OF ALUMINUM OR STEEL, COATED WITH A TWO-PART LACQUER**
- Pre-treat the substrate with Sika® Aktivator-100, using a clean, lint-free rag or a paper towel. Change the rag frequently!
- Flash-off: 10 minutes (min) to 2 hours (max)

**TIMBER RUB RAILS**
- Abrade the contact area of the hull with a sanding pad (80 / 100 grit)
- Remove the dust with a vacuum cleaner
- Apply a thin, continuous coat of Sika® MultiPrimer Marine using a clean brush or a felt applicator
- Drying times: Sika® MultiPrimer Marine 30 minutes (min) to 24 hours (max)

**MOULDED PVC OR POLYURETHANE RUB RAILS**
- The bond face of the rub rails must be free from mould release agents or other chemical contaminants. All traces of such substances must be removed before proceeding with Sika® Remover-208
- Abrade the bond face of the rub rail with coarse sand paper (60 / 80 grit) to key the surface
- Pre-treat the substrate with Sika® Aktivator-205 using a lint-free rag or paper towel. Change rag frequently
- Flash-off min. 10 min to max 2h.
- Apply a thin continuous coat of Sika® MultiPrimer Marine using a clean brush or felt applicator
- Drying time: 30 minutes (min) to 24 hours (max)

**APPLICATION OF Sikaflex®-292i OR Sikaflex®-291i**
- Apply a masking tape on the substrate
- Apply Sikaflex®-292i (or Sikaflex®-291i if rub rails are to be held using additional mechanical fixings) to the bond area using an appropriate triangular bead
- Assemble the components within 20 minutes of applying the adhesive
- Press the rub rail into place, either directly onto the face of the hull
- Use clamps, etc., to hold the rub rail in position while the adhesive sets. If the rub rail is to be secured with mechanical fixings, any holes should also be filled with adhesive
- Remove excessive adhesive and the masking tape
- Uncured Sika adhesives or sealants can be removed with Sika® Remover-208
- Clamps and other fastening aids can be removed after 24 hours. Full service strength is attained after approximately 7 days

---

Assembly of a rub rail

Sealing the edge of a chrome hand-rail
GENERAL DESCRIPTION

The interiors of many boats are based on a variety of traditional and modern materials including mirrored glass. These panels can be used functionally as working surfaces (galley worktops, etc.) or cosmetically. Either way, elastic bonding provides an easy, durable method of fixing without visible and unsightly mechanical fixings.

As the variety of materials used for panels, surfaces and supporting substrates is so vast, please consult the local Technical Service of Sika Industry or proceed to preliminary trials.
BONDING DECORATIVE PANELS AND TABLES

SURFACE PREPARATION
- Lightly abrade the bonding area with a very fine abrasive pad
- Apply a thin continuous coat of Sika® MultiPrimer Marine using a clean brush or felt applicator
- Sika® MultiPrimer Marine 30 minutes (min) to 24 hours (max)

APPLICATION OF Sikaflex® ADHESIVE TO VERTICAL PANELS
- Prepare the substrate according to the Pre-Treatment Chart for Marine Application
- Place spacers in position (thickness 2 mm, approximately 50 Shore A hardness). These can be pressed into the adhesive once applied
- Apply appropriate beads of Sikaflex®-292i in an 8 mm x 10 mm triangular profile
- Assemble the components within 20 minutes of applying the adhesive
- Apply pressure with fastening aids to compress the adhesive to the height of the spacers
- Wait at least 24 hours before walking on the bonded plates
- Uncured Sika adhesives or sealants can be removed with Sika® Remover-208

APPLICATION OF Sikaflex® ADHESIVE TO HORIZONTAL PANELS
- Slightly abrade the surface with a abrasive pad very fine
- Pre-treat the surface with Sika® Aktivator-205 wing a lint-free rag or paper towel. Change the rag frequently!
- Flash-off time min. 10 min to max. 2 h
- Apply adhesive to the previously prepared surface and spread over the area to be covered, using a spreader with 4 mm triangular notches. The bed thickness may vary depending on the thickness of any gaps that needs to be filled (normally 1–2 mm)
- If vapour-tight substrates are used, spray a fine mist of water (1 g / m²) onto the Sikaflex®-298 surface for faster curing
- The deck panel must be positioned accurately within the tack free time of the adhesive and pressed firmly into place to avoid air-entrainment
- Clamps, weights or screws (removable once the adhesive has set) can be used to secure the panel while the adhesive sets. After about 24 hours the panels can carry their full service load and the temporary fastenings can be removed

IMPORTANT:
Always refer to the current Sika Product Datasheets and Safety Datasheets obtainable through your local Sika company
GENERAL DESCRIPTION

These lightweight panels are usually constructed of wood sandwiches with internal polyurethane foam or honeycomb core. They are particularly suited as partitions for cabins and technical rooms as they are of lighter weight than wood filled panels and have good soundproofing properties.

Due to the low density core, lightweight panels cannot be mechanically fixed to the hull structures in the same way as traditional plywood panels.

However, bonding with Sikaflex®-292i is an ideal replacement fixing method that also possesses the flexibility to respond to the movements and stresses of the assembly.

The uniform stress distribution prevents damages which may be result of stress concentration (example screw).

This process is also endorsed by the manufacturers of the lightweight panels.
BONDING LIGHTWEIGHT INTERNAL PARTITIONS

SUBSTRATE PREPARATION
Please refer to the Sika Pre-Treatment Chart for Marine Applications.

APPLICATION OF Sikaflex®-292i ADHESIVE

- Dry fit the panels to ensure an accurate fit and correct dimensioning. Prepare the surface accordingly.
- Place the spacers in position (thickness typically 3 mm, approximately 50 Shore A hardness).
- Apply Sikaflex®-292i to the appropriate bond face using an appropriate bead.
- Assemble the components within 20 minutes of applying the adhesive.
- Uncured Sika adhesives or sealants may be removed with Sika® Remover-208.
- Panels can be held in place during cure by clamps or support brackets.
- Clamps and other fastening aids can be removed after 24 hours.

Lightweight panels being fitted to an open hull

Sikaflex®-292i applied to a lightweight panel prior to fitting

High-quality lightweight panels finished in traditional high-gloss wood veneer and bonded using Sikaflex®-292i
MATERIALS AND TECHNOLOGIES

The main property of elastic bonding adhesives is that they are capable to support high mechanical stresses. This single detail gives rise to concerns regarding the finished vessel in service, where, despite the improved assembly benefits, there can still be localised stress issues and a greater possibility of joint fracture due to impact or crushing forces.

Following extensive research, Sika has found that by introducing a degree of flexibility, these problems are greatly improved.

The Sikaflex® elastic adhesives for structural bonding are:

- Sikaflex®-292i
- Sikaflex®-296
- Sikaflex®-295 UV

Sikaflex®-292i is used to bond flybridges and keels as each of these can be subject to far greater local forces than other main components. The greater flexibility in these cases means that there will be greater ‘give’ in the first instance. The members would be more likely to be pulled off the vessel whole, without ripping pieces from the hull or superstructure. This also means that there is every chance that the components can be refitted without needing to be replaced.

Sikaflex®-295 UV and -296 are each used for glazing, as windows are increasingly used as structural members. Sikaflex®-295 UV is used for organic glazing and backfilling and Sikaflex®-296 is used for mineral glazing. In both cases the greater flexibility is to prevent forces being transmitted to the glazing that would otherwise damage it.

The following examples show the capability of the Sikaflex® Marine adhesives. However the custom tailored characteristics gives naval engineers and constructors the possibility of economic and sustainable new realisations. Sika will be happy to support you in the development and testing of new applications.
## MANUFACTURING

<table>
<thead>
<tr>
<th></th>
<th>MECHANICAL FIXING</th>
<th>LAMINATING TAPING</th>
<th>ELASTIC BONDING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time consumption</td>
<td>●</td>
<td>●</td>
<td>○</td>
</tr>
<tr>
<td>Material cost</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Process complexity</td>
<td>○ / ●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Health / safety / environment</td>
<td>○ / ●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Tolerance gapping</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Assembling different (lightweight) materials</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

## FINAL PERFORMANCE

<table>
<thead>
<tr>
<th></th>
<th>MECHANICAL FIXING</th>
<th>LAMINATING TAPING</th>
<th>ELASTIC BONDING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Durability / fatigue resistance</td>
<td>○</td>
<td>○</td>
<td>●</td>
</tr>
<tr>
<td>Durability / corrosion resistance</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Weight reduction</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Comfort (acoustics)</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

- ● Very good
- ○ Good
- ○ Neutral
- ● Poor
- ○ Very poor
DESCRIPTION

Traditional glazing methods have evolved as they had due to the limitations in the performance of the glass. A sturdy window frame was required to hold the glass in place and to protect it from forces that would shatter it. Also, the size of a window was limited for similar reasons and a broken window in heavy weather could compromise the safety of the vessel.

In addition marine regulations define the areas on the ship where bonding of windows is allowed and where additional mechanical fixations are necessary. It is therefore of interest to contact a Classification Society in case of vessels which are submitted to IMO and SOLAS or other national rules.

Modern glazing can be realised with mineral and organic glasses. The manufacturing techniques allow windows of superlative performance to be produced in almost any shape, size and curvature to give designers the possibility of modern realisation of ships.

The traditional role of glazing as protection against the elements whilst allowing light and vision to pass through, has been extended to include the extra benefit of structural member.

Direct glazing, using peripherally applied structural adhesive systems, has become the primary method of installing windows due to the extensive list of benefits:

- Better protection against the elements than framed windows.
- Significantly improved design and styling capabilities for the marine architect by elimination of trim, frame and screws.
- Enlarged window area permits a more imaginative styling.
- Lower weight reduces running costs and improves speed.
- Fewer materials required reduce the cost of the build with lower component cost and quicker assembly times.
- Improved torsion stiffness of the boat.
- Reduction of the natural frequencies and vibrations, leading to an improved ride comfort.
- Improved aerodynamics reducing wind noise in operation.
- Better bridging of tolerances which has the advantages of quicker assembly and reduced adjustment costs.
- Greatly reduced production times leading to quicker delivery and lower labour costs.
- Fewer glass breakages both during construction and in operation.
- Easy repair at any place due to Sika’s global presence.
**DESIGN DIRECTIVES**

Direct glazing represents a straightforward process whereby the glass is bonded directly to the body of the vessel. This must comply with all industry standards as laid down by the governing bodies, such as the classification societies, in each respective country. Specific details are described as appropriate for mineral and organic glazing later in this manual, but the general criteria are described following.

**UV PROTECTION**

The bond line material must be protected from direct UV radiation as this causes deterioration of the chemical composition leading to failure. This is normally carried out by including a light impermeable mask as part of the design of the window. This can appear in the form of:

- Ceramic coating (peripheral) for mineral glass
- UV impervious paint or ink for organic glass
- External trim

The black silk screened ceramic border around the edge of the window is often feathered towards the centre of the window using various dot densities, resulting in an attractive shading effect. Adhesives can also be protected using external trim that is large enough to keep out the ultraviolet light and is also attractively designed such to enhance the appearance of the finish.

See page 39 for organic glass and page 42 for mineral glass for dimensioning the adhesive layer.

**FITTING DIMENSIONS**

Not only does the window have to fit correctly into the allotted aperture during assembly, but it must also take into account the changes that occur to the superstructure and the window under operating conditions.

**BOND LINE WIDTH**

The overlapping area between the frame and the glazing, known as the bond line width, should be large enough to allow sufficient adhesive to bear the weight of the glazing, as well as the suction load and head pressure to which the environment exposes it. A dimensioning guide is provided adjacent to the different procedures for mineral and organic windows.

**BOND LINE THICKNESS**

After it has set, the adhesive remains flexible. However, if too thinly applied, the adhesive may shear due to the changes in dimension caused by differences in thermal coefficient of expansion between the glazing and the superstructure and also the natural flexing between the glazing and the window frame in the varying sea conditions. Sika’s dimensioning guide provided adjacent to the appropriate procedures determines the depth of spacers required to be placed within the adhesive to keep the distance equal to or greater than the minimum depth required to ensure the reliability and longevity of the adhesive and the bond.
GAP BACKFILLING
Around the edge of the glazing, there should be a gap sufficient to prevent contact between the glazing and the window frame for all temperatures and under all mechanical strains. A dimensioning guide is provided adjacent to the appropriate procedures.

SURFACE PREPARATION
The adhesion properties between the glazing and the window mounting material must be verified by Sika’s Technical Department to ensure that the correct materials, solutions and methods are used and followed. Procedure for organic and for mineral glass are described on the following pages. Improperly prepared surfaces could result in failure of the bond and may put the safety of the vessel in jeopardy.

The high quality of Sika products is guaranteed and whereas Sika cannot vouch for the quality or compatibility of other manufacturer’s products, only Sika primers, cleaners and adhesion promoters should be used with Sika adhesives and sealants.

PRIMERS AND CLEANERS
Flash off times for cleaners and primers must be strictly observed.

PRODUCT SELECTION FOR BOTH MINERAL AND ORGANIC WINDOWS
Selection of the correct surface preparation system is of utmost importance; as is the selection of the correct adhesive. These both depend on the type of window to be installed. The following table shows which adhesive should be used:

<table>
<thead>
<tr>
<th>Bonding System</th>
<th>Cleaner</th>
<th>Primer</th>
<th>Adhesive</th>
<th>Sealant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laminated mineral glass</td>
<td>Sika® Aktivator-100</td>
<td>Sika® Primer-206 G+P</td>
<td>Sikaflex®-296 UV</td>
<td>Sikaflex®-295 UV</td>
</tr>
<tr>
<td>Insulating mineral glass</td>
<td>Sika® Primer-206 G+P</td>
<td>Sikasil® SG-20</td>
<td>Sikasil® SG-20</td>
<td>Sikasil® WS-605 S</td>
</tr>
<tr>
<td>Laminated</td>
<td>Sika® Aktivator-100</td>
<td>Sika® Primer-206 G+P</td>
<td>Sikaflex®-296 UV</td>
<td>Sikaflex®-295 UV</td>
</tr>
<tr>
<td>Insulating mineral glass</td>
<td>Sika® Primer-206 G+P</td>
<td>Sikasil® SG-20</td>
<td>Sikasil® SG-20</td>
<td>Sikasil® WS-605 S</td>
</tr>
</tbody>
</table>

Sika® Primer-206 G+P can be eliminated if proper UV-protection of the bond line is ensured.
Sealing and bonding organic windows

APPLICATION DESCRIPTION

Most of the organic glazing materials used in boat building are clear acrylic sheet (PMMA).

Plastic glazing products have a high coefficient of thermal expansion. In general, incorrectly installed plastic glazing panels are prone to environmental stress cracking (ESC). This can be aggravated by the use of the wrong adhesives or wrong dimensioned adhesive / sealant.

Plastic glazing products have a higher coefficient of thermal expansion than conventional glass.

Therefore, when designing glazing installations, an expansion gap of at least 8 mm all round the periphery must be incorporated between the window rebate and the plastic glazing panel to accommodate thermal movement. In case of additional mechanical fixations any clearance holes for fixing screws must be drilled oversized; slightly larger than the diameter of the screw shank. See also plastic manufacturer recommendations.

To minimise the risk of environmental stress cracking, flat sheets of plastic glazing material should be installed completely flat; they should not be forced to take up a curvature by the use of mechanical fastenings.

When the design calls for curved glazing panels, these should be prefabricated to order and properly tempered by a specialist supplier to ensure installation with no remaining stresses.

As many varieties of organic window exist, it is recommended to ensure that the specific grade selected is suitable for use with Sikaflex®-295 UV. Please note that the extruded type of organic glazing (XT) exhibits a higher tendency to environmental stress cracking than the cast type (GS).

Please contact your local Sika company for technical advice.
PROCEDURE FOR BONDING AND SEALING WITH Sikaflex®-295 UV ORGANIC WINDOWS

BONDLINE CONFIGURATION
Organic windows have a high thermal movement which creates stress in the bond line. Additionally dynamic stress due to the boat movement and the wind load have to be taken in consideration. The following graphs are a result of theoretical and practical experience, considering all parameters of a boat under the conditions to which a window is subjected.

Basis of calculation are substrates MMA/GFK, wind load 2 kN/m², ΔT = 30° C

ADHESIVE WIDTH (BITE)

Joint thickness

Joint width

Note: For important projects consult Corporate Technical Service Sika Industry

SUBSTRATE PREPARATION

GRP FRAME
- Lightly abrade the gel coat of the contact area with a very fine sanding pad
- Remove the dust with a vacuum cleaner
- Mask off any areas that need it
- Pre-treat the substrate with Sika® Aktivator-205, using a clean, lint-free rag or paper towel. Change the rag frequently!
- Flash-off: 10 minutes (min) to 2 hours (max)
- Apply a thin, continuous coat of Sika® MultiPrimer Marine, using a clean brush or felt applicator
- Drying time: 30 minutes (min) to 24 hours (max)

ALUMINUM FRAME
- Mask off any areas that need it
- Lightly abrade the contact area with a fine sand pad
- Remove the dust with a vacuum cleaner
- Pre-treat with Sika® Aktivator-205, using a clean, lint-free rag or paper towel. Change the rag frequently!
- Flash-off: 10 minutes (min) to 2 hours (max)
- Apply a thin, continuous coat of Sika® MultiPrimer Marine, using a clean brush or felt applicator
- Drying time: 30 minutes (min) to 24 hours (max)

ALUMINUM OR TIMBER FRAME COATED WITH TWO-PART LACQUER
- Mask off any areas that need it
- Pre-treat the substrate with Sika® Aktivator-100, using a clean, lint-free rag or paper towel. Change the rag frequently!
- Flash-off: 10 minutes (min) to 2 hours (max)
APPLICATION OF Sikaflex®-295 UV ADHESIVE

Place spacers in position. Depending on the size of the glazing panel, the thickness of the spacer should be chosen accordingly (see page 16). Shore A hardness of the spacer approximately 30 or less.

Avoid interruption of the bead by the spacers.

Apply Sikaflex®-295 UV to the frame rebate or glazing panel using a triangular nozzle with a bead width of at least 10 mm.

Assemble all components within 20 minutes of applying the adhesive.

To prevent slip down of vertical glazing panels, distance blocks (wood or plastic) must be placed in the lower rebate during installation. After curing, these must be removed. The backfill gap must be at least 8 mm (see page 16).

Fastening aids can be removed after 24 hours. After this time, the expansion gap between glazing panel and the backfill gap should be filled and completely sealed with Sikaflex®-295 UV. This sealant joint can be tooled to a smooth finish using Sika® Tooling Agent N. This must be carried out before skining of the sealant.

After tooing remove any masking tape before the adhesive skins over.

Uncured Sika adhesives or sealants may be removed with Sika® Remover-208.

WINDOW EDGE SEALING/ BACKFILLING

Commonly, the edge of the window will be cosmetically finished with Sikaflex®-295 UV. The preparation of the surfaces must be identical to that used for bonding. Edge sealing ensures both the prevention of standing water on or near the bond and helps cosmetically finish the window. Fill up the joint completely, ensuring there is no space between the adhesive bead and the joint. The diagram on page 9 illustrates the required dimensioning of the back-fill gap for plastic window panels using Sikaflex®-295 UV.

IMPORTANT:
Always refer to the current Sika Product Datasheet and Safety Datasheet obtainable through your local Sika company.

SIKA RULE

\[ O = 2 \times D \]

Example:
If \( D = 8 \text{ mm} \), the overlap should be at least 16 mm.

PMMA / PC GLAZING PANELS

If required, apply an acryl paint or a profile opaque to cover the bond line in accordance with the Sika recommendations.

Abrade the bond area with abrasive paper or very fine abrasive pad. Abrade the bonding periphery with 80 grit sand-paper if the organic glazing panel has a scratch proof coating (example Margard).

Remove the dust with a vacuum cleaner.

Mask off any areas that need it.

Apply a continuous coat of Sika® Primer-209 D, using a clean brush or felt applicator.

Drying time: 30 minutes (min) to 24 hours (max).

BOND LINE PROTECTION

As with conventional glass, plastic glazing panels generally do not protect the adhesive face from damage by UV radiation. Therefore, the bond line must be protected from direct sunlight using one of the methods recommended.

- External cover strip of appropriate dimensions
- Internal sieve printing acrylic paint (contact Technical Service Sika Industry for appropriated types)

The use of black Primer Sika® Primer-209 D as a sole UV-protection is only permitted in case of a low UV-transmission of the organic glass (UV-transmission < 0.5%).

IMPORTANT:
For the preparation of other substrates, please refer to the Pre-Treatment Chart for Sika Marine Applications or contact the local Technical Service Sika Industry.
APPLICATION DESCRIPTION

The direct mineral glazing into frames or directly into the hull or deck, requires a full understanding of all the important principles involved.

It is essential that the glass meets all the demands and standards required for the intended application, such as IMO resolutions or other regulations as laid down by the classification societies.

In case of self cleaning glass we ask you to consult the Corporate Technical Service Sika Industry.

The adhesive bond line must be protected against UV radiation.

This may be achieved using several materials and methods:
- Using a black, ceramic coated border with a light transmission of less than 0.01%.

IMPORTANT:
Local and international rules for maritime constructions and appropriate legislation must always be observed.
BONDING AND SEALING MINERAL GLASS WITH Sikaflex®-296

ADHESIVE AND SEALANT DIMENSIONING

The dimensioning of the adhesive and the joint geometry must be carried out in accordance with Sika’s basic rules of calculation. If deck movement is negligible the following dimensions are recommended.

Basis of calculation substrate aluminum-glass, wind load 2.4 kN/m², ∆T = 40° C

DETERMINATION OF THE ADHESIVE WIDTH (BITE)

![Diagram of adhesive width (bite)](image)

**IMPORTANT:**
At all times recommendations from classification societies must be respected

ADHESIVE THICKNESS

<table>
<thead>
<tr>
<th>Biggest window dimension [m]</th>
<th>Minimal joint thickness [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Go thin</td>
</tr>
<tr>
<td>1</td>
<td>ok</td>
</tr>
</tbody>
</table>

Joint thickness

JOINT WIDTH

<table>
<thead>
<tr>
<th>Longest window dimension [m]</th>
<th>Minimal joint width [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Go small</td>
</tr>
<tr>
<td>1</td>
<td>ok</td>
</tr>
</tbody>
</table>

Joint thickness

Note: For insulating glass or important projects consult Corporate Technical Service

SUBSTRATE PREPARATION

**GRP FRAME**

- Lightly abrade the gel coat of the contact area with a very fine sanding pad
- Remove the dust with a vacuum cleaner
- Mask off any areas that need it
- Pre-treat the substrate with Sikaflex® Aktivator-205, using a clean, lint-free rag or paper towel. Change the rag frequently!
- Flash-off: 10 minutes (min) to 2 hours (max)
- Apply a thin, continuous coat of Sikaflex® MultiPrimer Marine, using a clean brush or felt applicator
- Drying time: 30 minutes (min) to 24 hours (max)

For the preparation of other types of frames, please refer for the Pre-Treatment Chart for marine application.

**GLASS WITH EXTERNAL UV PROTECTION OR WITH BLACK CERAMIC BORDER (TRANSMISSION < 0.01%)**

- Pre-treat the substrate with Sikaflex® Aktivator-100, using a clean, lint-free rag or paper towel. Change the rag frequently!
- Flash-off: 10 minutes (min) to 2 hours (max)

**GLASS WITH BLACK CERAMIC CLASS BORDER (TRANSMISSION > 0.01% VISIBLE LIGHT)**

- Pre-treat the substrate with Sikaflex® Primer-206 G+P, using a clean brush or felt applicator
- Drying time: 30 minutes (min) to 24 hours (max)
APPLICATION OF Sikaflex®-296 ADHESIVE

- Place spacers in position. Depending on the size of the glazing panel, the thickness of the spacer should be chosen accordingly. Shore A hardness of the spacer approximately 40 or less.

- Avoid interruption of the bead by the spacers.

- Apply Sikaflex®-296 to the frame rebate or glazing panel using a triangular nozzle with a bead width of at least 10 mm.

- Assemble all components within 20 minutes of applying the adhesive.

To prevent slip down of vertical glazing panels, distance blocks (wood or plastic) must be placed in the lower rebate during installation. After curing, these must be removed. The rebate gap must be at least 10 mm (see page 16).

Clamps and other fastening aids can be removed after 24 hours. After this time, the expansion gap between glazing panel and the rebate should be filled and sealed with Sikaflex®-296. This sealant joint can be tooled to a smooth finish using Sika® Tooling Agent N. This must be carried out before skinning of the sealant.

After tooling remove any masking tape before the adhesive skins over.

Uncured Sika adhesives or sealants can be removed with Sika® Remover-208.

Pre-treatment of the ceramic ink area with Sika® Aktivator-100.

Adhesive is applied to the window frame.

The window is fitted.
Flybridge bonding

APPLICATION DESCRIPTION

Many modern motor yachts have flybridges. Conventional fixing methods such as mechanical fixings or rigid adhesives have concentrations of peak stresses which lead to breaching of the substrate allowing access to moisture.

Bonding of flybridges using flexible adhesive systems evens the distribution of stresses and optimises resistance to impact and fatigue effects.

In service, flybridges are subjected to substantial stress on the joints at high speeds. The main reason that makes Sikaflex®-292i perfect for this application is the high modulus characteristic that ensures the integrity of the joint under stress.

A perfect cosmetic finish is obtained with the weather resistance Sikaflex®-295 UV in white colour.
**FLYBRIDGE BONDING PROCEDURE**

**PREPARING THE SUBSTRATE**

**GRP**

- Heavily soiled surfaces should first be cleaned off with a pure solvent, like Sika® Remover-208, to remove the worst of the soiling.
- Lightly abrade the contact area with a very fine sanding pad.
- Remove the dust with a vacuum cleaner.
- Pre-treat the substrate with Sika® Aktivator-205, using a clean, lint-free rag or a paper towel. Change the rag frequently!
- Flash-off: 10 minutes (min) to 2 hours (max)
- Apply a thin, continuous coat of Sika® MultiPrimer Marine, using a clean brush or a felt applicator.
- Drying time: 30 minutes (min) to 24 hours (max)

---

**APPLICATION OF Sikaflex®-292i ADHESIVE**

- Place 3 mm deep elastic spacers, of about 50 Shore A hardness, into position.
- Apply Sikaflex®-292i in an appropriate profile around the entire periphery of the flybridge. An additional bead may be required for heavier loads.
- Assemble the components within 20 minutes of applying adhesive.
- Apply pressure with clamps or other fastening aids to compress the adhesive to the height of the spacers.

---

**Uncured Sika adhesives or sealants should be removed with Sika® Remover-208**

**For open joints, cover Sikaflex®-292i with a layer of Sikaflex®-295 UV**

**Clamps and other fastening aids can be removed after 12 hours. Full service strength is attained after about 7 days.**

**IMPORTANT:**
Always refer to the current Sika Product Datasheet and Safety Datasheet obtainable through your local Sika company.

---

*Sealing with Sikaflex®-295 UV*
APPLICATION DESCRIPTION

Arguably the most crucial joint on the vessel is that between the deck and the hull where Sika’s resilient, one-component polyurethane adhesives have many benefits to the designer and boat builder alike.

The naval architect can be confident that a deck and a hull that have been built separately of differing materials can be brought together to form a single unit that is both strong and durable. The tolerances in alignment between the two parts need not be quite as close, because minor discrepancies can be taken up by the gap filling property of the adhesives.

The strength of the adhesives makes mechanical fixings redundant and the resilience absorbs much of the stresses and strains from temperature changes, impact shocks and torsion forces.

All of these factors reduce the design and source costs of the build and remove many design obstacles.

To the boat builder, the assembly techniques are simplified and streamlined.

Applying an adhesive around the joint between deck and hull is far quicker, simpler and easier than laborious GRP laminated joints.

And providing the Sika guidelines are followed ensures a reliable watertight joint, as is not the case with taping methods.

With no mechanical fixings, there is no need to drill holes in the joint area, no need for gaskets, no need to spend the time aligning the holes and no need to insert and tighten the fixings.

For information regarding bondline dimensions, please contact Sika’s Technical Service department, who can also provide appropriate values for FEM calculations.

Also, the critical joint between keel and hull is subjected to very high stresses when a boat is under sail and needs to be very strong if it runs aground. So it must be designed and built with great care in order to withstand these stresses.

This particular joint is prone to leaks, which identify themselves by rust streaking and staining on the keel when the boat is out of the water.
DECK TO HULL BONDING PROCEDURES WITH Sikaflex®-292I

PREPARING THE SUBSTRATE FOR ALUMINIUM

- Heavily soiled surfaces should first be cleaned off with a pure solvent, like Sika® Remover-208, to remove the worst of the soiling
- Lightly abrade the contact area with a very fine sanding pad
- Remove the dust with a vacuum cleaner
- Pre-treat the substrate with Sika® Aktivator-205, using a clean, lint-free rag or a paper towel. Change the rag frequently!
- Flash-off: 10 minutes (min) to 2 hours (max)
- Apply a thin, continuous coat of Sika® MultiPrimer Marine, using a clean brush or a felt applicator
- Drying time: 30 minutes (min) to 24 hours (max)

APPLICATION OF Sikaflex®-292I

- Place spacers of at least 4 mm deep and about 50 shore A hardness, in position. Alternatively, these can be pressed into the adhesive once applied
- Apply Sikaflex®-292I onto the entire periphery of the hull. A continuous zig-zag bead Sikaflex®-292I should be used; the amount applied will depend on the width of the bond face. The adhesive bead must be carried continuously around any cut-outs or clearance holes (e.g. for deck stanchions, pipes, chain plates) to maintain the integrity of the watertight joint
- Assemble the components within 20 minutes of applying the adhesive
- Apply pressure with clamps or other fastening aids to compress the adhesive to the height of the spacers
- Clamps and other fastening aids can be removed after 24 hours. Full service strength is attained after approximately 7 days
- Uncured Sika® adhesives or sealants must be removed with Sika® Remover-208

PREPARING THE SUBSTRATE FOR GRP

- Heavily soiled surfaces should first be cleaned off with Sika® Remover-208, to remove the worst of the soiling
- Lightly abrade the contact area with a very fine sanding pad
- Remove the dust with a vacuum cleaner
- Pre-treat the substrate with Sika® Aktivator-205, using a clean, lint-free rag or a paper towel. Change the rag frequently!
- Flash-off: 10 minutes (min) to 2 hours (max)
- Apply a thin, continuous coat of Sika® MultiPrimer Marine, using a clean brush or a felt applicator
- Drying time: 30 minutes (min) to 24 hours (max)

IMPORTANT:
- Do not use Sika® Aktivator or any other cleaning agent or solvent for cleaning purposes

IMPORTANT:
- It is vital to check the accuracy of the fit before applying the adhesive so that the parts do not need to be separated again once they have been brought together

OTHER SUBSTRATE

Refer to the actual Sika Pre-Treatment Chart for Marine Applications.

SA 205

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

SA 205

Drying time: 30 minutes (min) to 24 hours (max)

Hull and deck are brought together

A locating pin ensures perfect alignment
KEEL TO HULL BONDING

PREPARING THE SUBSTRATE
ALUMINUM HULLS (PAINTED WITH 2C PAINT)

Heavily soiled surfaces should first be cleaned off with Sika® Remover-208, to remove the worst of the soiling.

Pre-treat the substrate with Sika® Aktivator-100, using a clean, lint-free rag or a paper towel. Change the rag frequently!

Flash-off: 10 minutes (min) to 2 hours (max)

SA 100

SA 205

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

Flash-off: 10 minutes (min) to 2 hours (max)

A keel is carefully slid into position

The adhesive is applied

IMPORTANT:
With lead keels, the contact area must also be given a coating with a two-part epoxy-resin based protective paint

For the preparation of other substrates, please refer to the Pre-Treatment Chart for Sika Marine Applications.

APPLICATION OF Sikaflex®-292I ADHESIVE

Place elastic spacers of about 10 mm thick and 50 Shore A hardness into position

Apply Sikaflex®-292I in sufficient quantity. Each bead must form a continuous, closed ring, with no gaps. The same applies to the beads around the bolt holes

The keel must then be lifted into position, carefully observing the open time of Sikaflex®-292I. Then the keel bolts must be tightened as far as the spacer blocks. Any adhesive that is squeezed out of the joint can be tooled to a finish

Remove Sika adhesives or sealants with Sika® Remover-208

After three or four days, the keel bolts can be tightened to their full torque rating. The additional pressure exerted on the adhesive, gives the joint between keel and hull the required degree of torsional stiffness. When the adhesive has fully hardened, the sealed joint can be over-painted in the normal way with any good quality anti-fouling paint. The sealed joint absorbs the dynamic stresses generated in this area and forms a totally watertight bond between keel and hull.
## RECOMMENDATIONS FOR SIKA MARINE RANGE

### Precondition:
Surfaces have to be clean, dry and free of oil, grease, dust and loose particles. Depending on the nature of soiling, Sika® Remover-218, Sika® Cleaner P or another suitable cleaning solution may be used. For substrates that are prone to oxidation and/or have a weak surface layer it might be necessary to abrade the surface down to sound material. Verify compatibility with cleaning products.

### Substrate Table

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mechani-cal</td>
<td>Adhesion</td>
<td>Primer</td>
<td>Mechani-cal</td>
<td>Adhesion</td>
<td>Primer</td>
<td>Mechani-cal</td>
<td>Primer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Promoter</td>
<td>Promoter</td>
<td></td>
<td>Promoter</td>
<td>Promoter</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aluminum (AlMg3, AlMgSi2)</td>
<td>1</td>
<td>AP-C</td>
<td>SA-100</td>
<td>SA-205</td>
<td>SMM</td>
<td>AP-C</td>
<td>SA-205</td>
<td>SA-205</td>
<td>SA-205</td>
</tr>
<tr>
<td>Aluminum (anodized)</td>
<td>2</td>
<td>AP-C</td>
<td>SA-100</td>
<td>SA-205</td>
<td>SMM</td>
<td>AP-C</td>
<td>SA-205</td>
<td>SA-205</td>
<td>SA-205</td>
</tr>
<tr>
<td>Steel (stainless)</td>
<td>3</td>
<td>AP-C</td>
<td>SA-100</td>
<td>SA-205</td>
<td>SMM</td>
<td>AP-C</td>
<td>SA-205</td>
<td>SA-205</td>
<td>SA-205</td>
</tr>
<tr>
<td>Steel (hot dipped, galvanized)</td>
<td>4</td>
<td>AP-C</td>
<td>SA-205</td>
<td>SA-205</td>
<td>SMM</td>
<td>AP-C</td>
<td>SA-205</td>
<td>SA-205</td>
<td>SA-205</td>
</tr>
<tr>
<td>Non ferrous materials (copper, brass, bronze…)</td>
<td>5</td>
<td>AP-C</td>
<td>SA-205</td>
<td>SA-205</td>
<td>SMM</td>
<td>AP-C</td>
<td>SA-205</td>
<td>SA-205</td>
<td>SA-205</td>
</tr>
<tr>
<td>Metal with shop primer</td>
<td>6</td>
<td>SA-100</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metal with 2C Ac/PU-paint</td>
<td>6</td>
<td>SA-100</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FRP (unsaturated polyester) gelcoat side or SMC</td>
<td>7</td>
<td>AP-C</td>
<td>SP-209 D</td>
<td></td>
<td></td>
<td>AP-C</td>
<td>SP-209 D</td>
<td>SA-205</td>
<td></td>
</tr>
<tr>
<td>FRP (unsaturated polyester) lay-up side</td>
<td>7</td>
<td>GR-V</td>
<td>SP-280 DC</td>
<td></td>
<td></td>
<td>GR-V</td>
<td>SP-280 DC</td>
<td>SA-205</td>
<td></td>
</tr>
<tr>
<td>ABS</td>
<td>8</td>
<td>SP-280 DC</td>
<td>SP-280 D</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hard PVC</td>
<td>8</td>
<td>SP-280 DC</td>
<td>SP-280 D</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PMMA/PC (without anti scratch coating)</td>
<td>9</td>
<td></td>
<td></td>
<td>SP-280 D</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SikaTransfloor®-352 SL/ST/VSL</td>
<td>10</td>
<td>GR-V*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glass (mineral)</td>
<td>11</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ceramic screen print</td>
<td>11</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teak</td>
<td>12</td>
<td>SP-280 DC</td>
<td>SP-280 D</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wood and wood derivatives</td>
<td>12</td>
<td>SP-280 DC</td>
<td>SP-280 D</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phenolic Plywood</td>
<td>13</td>
<td>GR-V</td>
<td>SP-280 DC</td>
<td></td>
<td></td>
<td>GR-V</td>
<td>SP-280 DC</td>
<td>GR-V</td>
<td></td>
</tr>
</tbody>
</table>

### Notes:
1. *EN = Explanatory notes see page 4.
2. Alternative: Grit-blasting with aluminium oxide
3. Alternative: Sandblasting
4. If shop primer is detoriated it has to be grinded instead of scuffed (AP)
5. Do not clean with solvents
6. Grind off phenolic layer to bare wood where adhesive or sealant have to be applied
7. When Sika® Aktivator-100 is used only combine with Sikaflex®-296 for this application
8. All other adhesives are not allowed (ensure proper UV protection)
9. Sikasil® SC-20 must not be applied here
10. Sikasil® WS-605S and SikaFiresil Marine N must not be applied here
11. Up to 14 days no sanding is necessary

### Version Information
VERSION 5 (3/2018)
PRODUCT DATA AND ABBREVIATIONS

The following product information is an abbreviated version of the current Product Data Sheets.

<table>
<thead>
<tr>
<th>Sika® Aktivator</th>
<th>-100</th>
<th>-205</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color of container cap</td>
<td>orange</td>
<td>yellow</td>
</tr>
<tr>
<td>Color of product</td>
<td>colorless to slight yellow</td>
<td>colorless, clear</td>
</tr>
<tr>
<td>Type of product</td>
<td>Adhesion promoter</td>
<td></td>
</tr>
<tr>
<td>Application temperature</td>
<td></td>
<td>The general range is 10 – 35 °C. For specific values always refer to the most recent Product Data Sheet.</td>
</tr>
<tr>
<td>Application</td>
<td>Wipe with a clean and lint-free paper towel (Sika® Aktivator®-100 wipe on / wipe off application is required)</td>
<td></td>
</tr>
<tr>
<td>Consumption</td>
<td>Approximately 20 ml/m² (depending on application method).</td>
<td></td>
</tr>
<tr>
<td>Flash-off time (23 °C / 50 % r.h.)</td>
<td>The minimal range of the flash-off time varies from 10 to 30 minutes depending on product, substrate and climatic conditions. For specific values always refer to the most recent Product Data Sheet.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sika® Primer</th>
<th>-206 G+P</th>
<th>-209 D</th>
<th>-290 DC</th>
<th>Sika® MultiPrimer Marine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color of container cap</td>
<td>black</td>
<td>green</td>
<td>blue</td>
<td>grey</td>
</tr>
<tr>
<td>Color of product</td>
<td>black</td>
<td>black</td>
<td>transparent, slightly yellow</td>
<td></td>
</tr>
<tr>
<td>Type of product</td>
<td>Primer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Application temperature</td>
<td></td>
<td></td>
<td></td>
<td>The general range is 10 – 35 °C. For specific values always refer to the most recent Product Data Sheet.</td>
</tr>
<tr>
<td>Preparation for use</td>
<td>Shake bottle vigorously until the mixing balls rattle freely. Then continue shaking for an additional minute.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Application</td>
<td>Brush / felt / foam applicator</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consumption</td>
<td>Approximately 50 ml/m² (depending on application method and substrate porosity).</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flash-off time (23 °C / 50 % r.h.)</td>
<td>The minimal range of the flash-off time varies from 30 to 60 minutes depending on product, substrate and climatic conditions. For specific values always refer to the most recent Product Data Sheet.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notice: Sika® activators and primers are moisture reactive systems. In order to maintain product quality it is important to reseal the container immediately after use. With frequent use i.e. opening and closing several times, it is recommend disposing of the product one month after the first opening. With infrequent use, it is recommend disposing of the product 2 months after opening. When selecting a foam applicator, the solvent resistance must be considered. Suitable products include Sika® Cleaner PCA or melamine foam Basotect from BASF.

Always consult additional information, such as General Guidelines “Bonding and Sealing with SikaFlex®”, current Product Data Sheets, Safety Data Sheets, additional Product and Technical Information, etc. prior to use of the products. Project oriented solutions are documented in Technical Service reports. These solutions can vary from the table opposite and take priority over the general recommendations provided in this Pre-Treatment Chart.

LEGAL DISCLAIMER

The information contained herein and any other advice are given in good faith based on Sika’s current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with Sika’s recommendations. The information only applies to the application(s) and product(s) expressly referred to herein and is based on laboratory tests which do not replace practical tests. In case of changes in the parameters of the application, such as changes in substrate, etc., or in case of a different application, consult Sika’s Technical Service prior to using Sika products. The information contained herein does not relieve the user of the products from testing them for the intended application and purpose. All orders are accepted subject to our current terms of sale and delivery. Users must always refer to the most recent issue of the local Product Data Sheet for the product concerned; copies of which can be downloaded on your local Sika company website or will be supplied on request.
GLOSSARY OF TERMS

Activator
Solvent containing adhesion promoters that increase the adhesion of an adhesive on a substrate.

Adhesion
Adherence of an adhesive to a substrate.

Adhesive joint (bond-line)
Gap between two components that must be filled with adhesive.

Aging
Behaviour of the adhesive layer under the influence of time, temperature and environmental conditions.

Balanced moisture content
Moisture content of a material (specially wood) when allowed to stabilize relative to ambient levels of atmospheric temperature and air humidity.

Bonding joint
Gap between two bonding surfaces filled with adhesive.

Bondline
Contact area between adhesive and substrate.

Breaking stress
Stress required to produce failure or fracture in a material.

Clamping
Temporary securing of components in the desired position by mechanical means, with or without the application of pressure, while the adhesive is setting.

Cleaner
Chemical agent used to clean surfaces prior to bonding.

Coefficient of thermal expansion
A factor that expresses the dimensional changes in a component as a function of temperature change.

Cohesion
Inherent strength of a material.

Contact adhesive
Laminating adhesive, applied to both surfaces of the joint. Once ready, the adhesive surface is not tacky and the bonding force results only on contact of the two adhesives surfaces.

Cross-linking
Creation of a three-dimensional network through the formation of chemical bonds between molecular chains.

Curing / Setting
Setting or hardening of an adhesive due to physical or chemical reaction.

Curing conditions
Factors that influence the curing of adhesives, e.g. temperature, relative humidity.

Dew point
Temperature at which a condensation of the air humidity occurs (depending on environmental temperature and relative humidity).

Diffusion
Migration of gases or liquids through materials. The hardening process of one-component PUR and silicones is limited by the speed of diffusion of water through the hardened skin or layer of the adhesive.

Drying time
Duration required for a primer to reach a state that will safely allow the process that follows it to be started (e.g. adhesive application).

Duromer
Crosslinked, mostly unmeltable plastics.

Elastomers
Elastomers are macromolecules with an open network structure which do not undergo plastic flow even at high temperatures approaching the point of chemical decomposition, but undergo reversible elastic deformation instead.

Elongation at break
Elongation that takes place before a material fails or fractures.

ESC
Environmental stress cracking. Cracking of thermoplastics under internal or external stress and chemicals.

Final strength
Strength of an adhesive joint when the adhesive has attained full cure.

Fillers
Additives (mostly inorganic) to improve the properties of the adhesive.

Flash-off time
Duration required for a primer, solvent, cleaner or activator to reach a state that will safely allow the process that follows it to be started (e.g. adhesive application).

FEM (Finite Element Method)
Calculation using interactive analysis methods. Calculation values are available from Technical Service Sika Industry.

Fracture energy
Energy that is required to cause a material to fail or fracture.

Galvanic corrosion
Corrosion due to the electrical contact of metals with different electrochemical potential (e.g. aluminum, steel). The use of nonconductive adhesives can stop this effect.

Handling strength
Strength level development at which the bonded assembly can be handled and passed on to the next stage of processing.

Heat resistance
The ability of a material to withstand heat without altering its state as a result of exposure to a specified temperature over a fixed period of time.

Hygric movement
Movement as a result of humidity content in the material. Particularly applies to wood but also affects other materials like PA (brand name Nylon). The values from wood depend on the type and the orientation of the grain (radial, tangential).

Joint assembly
Process of bringing the substrates together under light pressure so that the adhesive is compressed to form the adhesive bond.

Impact resistance
Resistance against abrupt forces (crash).

Modulus of elasticity
Modulus of elasticity describes the ratio of stress to strain in a rod under tension whose sides are unconstrained.

Non-sag properties
Resistance of an adhesive to collapse or slump when extruded as a bead.

One-component polyurethane adhesive
Adhesive containing isocyanate groups that cure on exposure to moisture.

Open or working time
Maximum period of time that may elapse between application of the adhesive and assembly of the joint.
Organic window
Transparent plastic such as PMMA and PC (e.g. Brand names; Plexiglas / Lexan). Thermoplastics which are prone to ESC.

Pot-life
Period of time during which multi-component adhesives can be processed after their components have been mixed. Pot-life depends on the ambient temperature and the quantity of batch mixed. It decreases with higher temperature and increased batch quantities.

Primer
A special paint coating designed to improve adhesion between adhesive and substrate. They may also have additional functions such as UV-protection of the bond line, reinforcing the substrate and some corrosion protection.

QA
Quality assurance. Reactive adhesives Adhesives that cure or set when exposed to heat, moisture, radiation, etc.

Resistance
Behaviour of an adhesive under changed environmental conditions. Sag resistance (see Viscosity)

Sealant
Substance that separates a joint from any medium to which it is exposed.

Setting
Solidification of adhesive through physical and / or chemical process.

Shear modulus
Defined as the ratio of the shear stress to the shear strain in a body that undergoes simple angular deformation.

Shelf life
Period of time that can elapse between the manufacture of an adhesive and its use, subject to storage of the product under controlled conditions.

Solvent
Organic liquid that dissolves the base materials and other soluble adhesive constituents without changing their chemistry.

Solids content
Nonvolatile portion of components.

Spacers
Elastic parts, mostly self-adhesive, used to control the thickness of the adhesive. The shore hardness of the spacer should be equal to or lower than that of the adhesive.

Substrates
The base materials to be bonded, e.g. fabric, steel, wood, GRP.

Tack-free or skinning time
Time between the application of a one-component adhesive and the formation of a skin on its surface, after which point bonding can no longer take place.

Tensile lap-shear strength
Breaking strength of the adhesive bond joining two parallel surfaces in a single lap joint when the joint is subjected to a shearing stress by applying a tensile load centrically to the two lapped substrates.

Tensile strength
Breaking stress of a material under tension.

Thermoplastic adhesive
Plastics that soften under the application of heat (e.g. PVC, PMMA, ABS).

Thermosetting resins
Closely cross-linked macromolecules that do not undergo plastic deformation, even at high temperatures (e.g. Polyester, Epoxy).

Thick-layer elastic bonding
Elastic bonding application where the thickness of the adhesive layer exceeds 3 mm.

Tie-coating
An industry specific term used to indicate a bonding coat or layer applied to a material to facilitate ready adhesion with other media.

Transmission
Ratio of the intensity of a beam of light passing through a body, related to its original intensity. Measured in the UV (organic glazing) and visible range (mineral glazing). Sika stipulates limits for primerless glass bonding.

TV-value
Maximum workplace concentration or highest admissible concentration of evaporating solvent at a workplace. Two-part polyurethane adhesive Adhesive formed by the addition reaction of two components: main component and hardener.

UV-radiation
High energy part of sunlight, mainly responsible for surface degradation of organic materials like paint, sealants, etc.

Viscosity
Resistance to flow exhibited by fluids or paste-like substances as a result of internal friction.

White spirit
Petroleum spirit solvent, common used for thinning and cleaning.

Wetting
Ability of liquids to disperse themselves uniformly over solid materials.

Wet bonding
Method of bonding whereby the adhesive is applied by wetting.

Disclaimer
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 Sika Product Datasheet for the product concerned, copies of which will be supplied on request.
GLOBAL BUT LOCAL PARTNERSHIP

Who we are
Sika is a specialty chemicals company with a leading position in the
development and production of systems and products for bonding, sealing,
damping, reinforcing and protecting in the building sector, motor
vehicle and marine industry.

Sika Norge AS
Sanitetsveien 1
N-2013 Skjetten
Postboks 71, N-2026 Skjetten
Norge

Contact info
Tlf.: +47-67 06 79 00
Email: kundeservice@no.sika.com
www.sika.no