

Sikaflex® -291

Fast Cure Marine Adhesive and Sealant

Technical Product Data (typical values)

Chemical base		1-C polyurethane
Color		White, black, colonial white
Cure mechanism		Humidity-curing
Density (uncured)		10.8 lb/gal depending on color
VOC (EPA method 24)		0.43 lb/gal (51.5 g/l)
Non-sag properties		Good
Application temperature	product	41°F - 104°F (5°C - 40°C)
Tack free time ¹		60 min
Open time ¹		45 min
Curing speed		(see diagram 1)
Shrinkage		5%
Shore A-hardness (ASTM D 2240)		40
Tensile strength (ASTM D 412)		260 psi
Elongation at break (ASTM D 412)		500%
Tear propagation resistance (ASTM D 624)		34 pli
Glass transition temperature		-49°F (-45°C)
Movement accommodation factor		12.5%
Service temperature	permanent	-40° - 194°F (-40° C -+90°C)
Short term	1 day	248°F (120°C)
	1hour	284°F (140°C)
Shelf life (storage below 77°F (25°C))		12 months cartridge/unipac

¹) 73°F (23°C) / 50% r.h.

Industry

Description

Sikaflex®-291 is a 1-component, marine grade polyurethane elastomeric adhesive and sealant. Used by many boat builders, its fast cure time makes it ideal for applications where speed is important. Sikaflex®-291 is manufactured in accordance with ISO 9001 / 14001 quality assurance system and the responsible care program.

Product Benefits

- Use above and below water line
- Resists salt water
- Fast strength build-up
- Excellent adhesion to gelcoat, fiberglass, metal and wood
- May be squeezed or brushed into place
- Stable
- Paintable
- Versatile packaging
- Excellent bond
- Fast tack-free time
- High solids content
- Sandable
- NSF approved for potable water (black and white only)
- USDA approved for incidental food contact.

Areas of Application

- General all-purpose sealant
- May be used for light duty bonding

This product is suitable for experienced professional users only. Tests with actual substrates and conditions have to be performed to ensure adhesion and material compatibility.



Cure Mechanism

Sikaflex®-291 cures by reaction with atmospheric moisture. At low temperatures the water content of the air is generally lower and the curing reaction proceeds somewhat slower (see diagram).

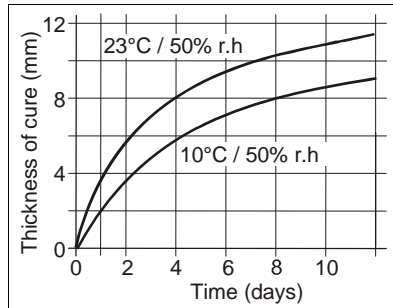


Diagram 1: Curing speed Sikaflex®-291

Chemical Resistance

Sikaflex®-291 is resistant to fresh water, seawater, limewater, sewage effluent, diluted acids and caustic solutions; temporarily resistant to fuels, mineral oils, vegetable and animal fats and oils; not resistant to organic acids, alcohol, concentrated mineral acids and caustic solutions or solvents.

The above information is offered for general guidance only. Advice on specific applications will be given on request. Contact the Technical Service Department of Sika Industry at 888-832-7452.

Method of Application

Surface preparation

Surfaces must be clean, dry, free of oil and grease, and of sound quality. Thoroughly remove all loose particles such as residues of color, splashes, etc. Clean surface with a strong jet of compressed air, sandblast, solvent.

Pretest substrates for adhesion. Cleaners and/or primers may be required to achieve optimal adhesion. Please refer to the Surface Preparation Guidelines for specific application information. Advice on specific applications is available from the Technical Service Department of Sika Industry.

Application

Recommended application temperatures: 41°F-104°F (5-40°C). For cold-weather application, store units at approximately 70°F; remove just prior to using. Make sure joint is frost free. Cut tip of plastic nozzle to joint size. Puncture air tight seal. Install with hand or power operated caulking gun. For best performance, Sikaflex®-291 should be gunned into joint when joint slot is mid-point of its designed expansion and contraction. To facilitate tooling, wet pointing tool or finger with soap solution. For advice on selecting and setting up a suitable pump system please contact the System Engineering Department of Sika Industry at 888-832-7452.

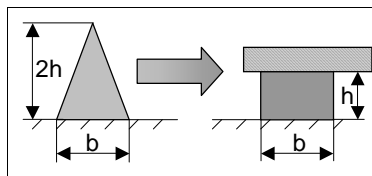


Figure 1: Recommended bead configuration

Tooling and finishing

Tooling and finishing must be carried out within the tack free time of the sealant. We recommend the use of Sika®-Slick Cutout Lubricant and Tooling Agent. Other finishing agents or lubricants must be tested for suitability/compatibility.

Removal

Uncured Sikaflex®-291 may be removed from tools and equipment with mineral spirit or an other suitable solvent. Once cured, the material can only be removed mechanically. Hands and exposed skin should be washed immediately using a suitable industrial hand cleanser and water. Do not use solvents on hands!

Overpainting

Sikaflex®-291 can be overpainted when tack-free. The paint and paint process must be tested for compatibility by carrying out preliminary trials. Sikaflex®-291

should not be exposed to baking temperatures until it has attained full cure. It should be understood that the hardness and film thickness of the paint may impair the elasticity of the sealant and lead to cracking of the paint film with time.

Limitations

- Do not apply on frozen surface or through standing water.
- Do not apply over silicones or in the presence of curing silicones.
- Avoid contact with alcohol and alcohol containing solvents during cure.
- Allow minimum of 1 week full cure prior to total water immersion situations.
- Maximum chlorine exposure 2.5 ppm.
- Do not use as a deck seam sealant.

CAUTION: IRRITANT.

Irritant; Sensitizer; Contains Polyisocyanate pre-polymer, xylene. May cause skin / eye / respiratory irritation. May cause skin and/or respiratory sensitization after prolonged or repeated contact. Avoid contact. Xylene may cause headaches, dizziness or other CNS effects; and may cause liver or kidney effects. Use only with adequate ventilation. Use of safety goggles and chemical resistant gloves is recommended. In case of exceedance of PELs, use an appropriate, properly fitted NIOSH/MSHA approved respirator. Remove contaminated clothing.

Certified to the NSF/ANSI Standard 61 for potable water.

HMIS

Health	*2
Flammability	1
Reactivity	0
Personal Protection	C

Further information available at:
www.sikaindustry.com

Sika Corporation
Industry Division
30800 Stephenson Highway
Madison Heights, MI 48071
USA
Tel. 248 577 0020
Fax 248 577 0810



First Aid Measures

In case of skin contact, wash immediately and thoroughly with soap and water. If symptoms persist, consult physician. For eye contact, flush immediately with plenty of water for at least 15 minutes, contact a physician. For respiratory problems, remove person to fresh air; if symptoms persist, contact a physician. In case of ingestion, dilute with water and consult physician. Remove contaminated clothing.

Further Information

Copies of the following publications are available on our website www.sikaindustry.com:

- Material Safety Data Sheets
- Product Data Sheet
- Sika Primer Chart
- General guidelines for bonding and sealing with Sika products

In case of emergency call:

Chemtrec: 800-424-9300
International: 703-527-3887

For further information and advice regarding transportation, handling, storage and disposal of chemical products, users should refer to the actual Material Safety Data Sheets containing physical, ecological, toxicological and other safety related data. It is highly recommended to read the actual Material Safety Data Sheet before using the product.

- KEEP OUT OF REACH OF CHILDREN**
- NOT FOR INTERNAL CONSUMPTION**
- FOR INDUSTRIAL USE ONLY**
- KEEP CONTAINER TIGHTLY CLOSED**

Packaging Information

Cartridge	300 ml
Unipac	600 ml
Pail	4.5 gal
Drums	50 gal

Value Basis

All technical data stated in this Product Data Sheet are based on laboratory tests only. Actual measured data in the field may vary

due to site specific conditions which are not known to Sika and beyond our control.

Handling and Storage

Sikaflex®-291 should not be stored at temperatures in excess of 77°F. Properly stored in cool, dry conditions, the unopened cartridges and unipacs have a shelf life of 12 months and unopened pails and drums have a shelf life of 6 months.

Clean Up

Uncured sealant may be removed with solvent. Cured sealant is only removed mechanically. In case of spills or leaks, wear suitable protective equipment, contain spill, collect with absorbent material and transfer to suitable container. Ventilate area. Avoid contact. Dispose of in accordance with current, applicable local, state, and federal regulations.

Limited Material Warranty

SIKA warrants this product for one year from date of installation to be free from manufacturing defects and to meet the technical properties on the current Product Data Sheet if used as directed within shelf life. User determines suitability of product for intended use and assumes all risks. Buyer's sole remedy shall be limited to the purchase price or replacement of product exclusive of labor or cost of labor. **NO OTHER WARRANTIES IMPLIED OR EXPRESS SHALL APPLY INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. SIKA SHALL NOT BE LIABLE UNDER ANY LEGAL THEORY FOR SPECIAL OR CONSEQUENTIAL DAMAGES. SIKA SHALL NOT BE RESPONSIBLE FOR THE USE OF THIS PRODUCT IN A MANNER TO INFRINGE ON ANY PATENT OR ANY OTHER INTELLECTUAL**

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Prior to each use of any Sika product, the user must always read and follow the warnings and instructions on the product's most current Product Data Sheet, product label and Material Safety Data Sheet which are available at www.sikaindustry.com. Nothing contained in any Sika materials relieves the user of the obligation to read and follow the warnings and instruction for each Sika product as set forth in the current Product Data Sheet, product label and Material

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Safety Data Sheet prior to product use.



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