

Sikaflex® -221

One-component adhesive sealant

Technical Product Data (typical values)

Chemical base	1-C polyurethane
Color	White, black, aluminum gray, colonial white
Cure mechanism	Humidity-curing
Density (uncured)	10.6 lb/gal depending on color
VOC (EPA method 24)	0.4 lb/gal (48.3 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°-+90°C) 1 day 248°F (120°C) 1 hour 284°F (140°C)
Shelf life (storage below 77°F (25°C))	12 months Cartridges and Unipacs 6 months Drums and Pails

¹⁾ 73°F (23°C) / 50% r.h.

Description

Sikaflex®-221 is a high-quality multi purpose non-sag 1-c polyurethane sealant that cures on exposure to atmospheric humidity to form a durable elastomer. For US: Meets approvals ASTM C920 types and Federal Specifications TT-S-00230C. Sikaflex®-221 is tested and classified in accordance with ANSI/UL 723 "Test for Surface Burning Characteristics of Building Materials". Sikaflex®-221 is manufactured in accordance with

ISO 9001 / 14001 quality assurance system and the Responsible Care Program.

Product Benefits

- 1-C formulation
- Elastic
- Low odor
- Resistant to aging and weathering exposure
- Non-corrosive
- Can be overpainted
- Can be sanded

- Bonds well to a wide variety of substrates
- NSF-approved for incidental food contact and potable water (black and white only).

Areas of Application

Sikaflex®-221 bonds well to a wide variety of substrates and is suitable for making permanent elastic seals of high adhesive strength. Suitable substrate materials are wood, metals, metal primers and paint coatings (2-c systems), ceramic

Industry



materials and plastics. Before using on transparent and pigmented materials that are prone to stress cracking, contact the Technical Service Department of Sika Industry at 888-832-7452.

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®-221 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).

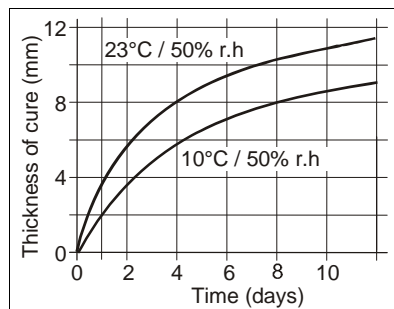


Diagram 1: Curing speed Sikaflex®-221

Chemical Resistance

Sikaflex®-221 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 and free from all traces of grease, oil and dust. The substrates must be

prepared in accordance with the instructions given in the current Sika Primer Chart. Advice on specific applications is available from the Technical Service Department of Sika Industry.

Application

Cartridges: Pierce cartridge membrane.

Unipacs: Place unipac in the application gun and snip off the closure clip.

Cut off the tip of the nozzle to suit joint width and apply the sealant into the joint with a suitable hand operated or compressed air gun, taking care to avoid air entrapment. Once opened, packs should be used up within a relatively short time. Do not apply at temperatures below 41°F (5°C) or above 104°F (40°C). The optimum temperature for substrate and sealant is between 59°F (15°C) and 77°F (25°C). For advice on selecting and setting up a suitable pump system, as well as on the techniques of pump operated application, please contact the System Engineering Department of Sika Industry at 888-832-7452.

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®-221 can be removed from tools and equipment with Sika® Remover-208 or another suitable solvent. Strictly follow solvent manufacturer's warnings and instruction for use. Once cured, the material can only be removed mechanically. Hands and exposed skin should be washed immediately using a suitable industrial hand cleaner and water. Do not use solvents on skin!

Overpainting

Sikaflex®-221 can be overpainted when tack-free. The paint and paint process must be tested for compatibility by carrying out preliminary trials. Sikaflex®-221 should not be exposed to baking temperatures until it has attained full cure. 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

Avoid application below 41°F (5°C) and above 104°F (40°C). Do not apply on frozen or wet surfaces or through standing water. Do not apply over silicones or in the presence of curing silicones. Contact with alcohol or alcohol-containing solvents will prevent cure.

WARNING:

IRRITANT, SENSITIZER. Contains Polyisocyanate Prepolymer (Mixture), Xylene (CAS 1330-20-7). Causes eye irritation. May cause skin/respiratory irritation. May cause skin and/or respiratory sensitization after prolonged contact. May be harmful if swallowed. Reports have associated repeated and prolonged exposure to some of the chemicals in this product with permanent brain, liver, kidney and nervous system damage. Headaches and dizziness may result. **Deliberate misuse by inhalation of vapors may be harmful or fatal. Strictly follow all usage, handling and storage instructions.**

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

Eyes – Hold eyelids apart and flush thoroughly with water for 15 minutes. **Skin** – Remove contaminated clothing. Wash skin thoroughly for 15 minutes with soap and water. **Inhalation** – Remove to fresh air. **Ingestion** – Do not induce vomiting. Dilute with water. Contact physician. **In all cases contact a physician immediately if symptoms persist.**

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

Health and Safety Information

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	300 ml 600 ml
Pail	4.5 gal
Drum	50 gal

Value Basis

All technical data stated on this Product Data Sheet are based on the results of 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

Avoid direct contact. Wear personal protective equipment (chemical resistant goggles/gloves/clothing) to prevent direct contact with skin and eyes. Use only in well ventilated areas. Open doors and windows during use. Use a properly fitted NIOSH respirator if ventilation is poor. Wash thoroughly with soap and water after use. Remove contaminated clothing and launder before reuse.

Product Storage: Although a storage temperature range of 40-95°F is acceptable, maintaining a storage temperature of <77°F is most highly recommended to ensure maximum shelf life.

Clean Up

Use personal protective equipment (chemical resistant gloves/goggles/clothing). Without direct contact, remove spilled or excess product and place in suitable sealed container. Dispose of excess product and container in accordance with applicable environmental 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 PROPERTY RIGHTS HELD BY OTHERS.

Legal Notes/Disclaimer

All information provided by Sika Corporation ("Sika") concerning Sika products, including but not limited to, any recommendations and advice relating to the application and use of Sika products, is given in good faith based on Sika's current experience and knowledge of its products when properly stored, handled and applied under normal conditions in accordance with Sika's instructions. In practice, the differences in materials, substrates, storage and handling conditions, actual site conditions and other factors outside of Sika's control are such that Sika assumes no liability for the provision of such information, advice, recommendations or instructions related to its products, nor shall any legal relationship be created by or arise from the provision of such information, advice, recommendations or instructions related to its products. The user of the Sika product(s) must test the product(s) for suitability for the intended application and purpose before proceeding with the full application of the product(s).

Sika reserves the right to change the properties of its products without notice. All sales of Sika product(s) are subject to its current terms and conditions of sale which are

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



available at www.sikacorp.com or by calling 201-933-8800.

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 Safety Data Sheet prior to product use.

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

