

Sikaflex® -221

Multi-Purpose One Component Polyurethane Sealant/Adhesive

Technical Data (typical values). Results may differ based upon statistical variations depending upon mixing methods and equipment, temperature, application methods, test methods, actual site conditions and curing conditions.

Technical Product Data Chemical base	1-C polyurethane
Color (CQP ¹ 001-1)	White, grey, black, brown
Cure mechanism	Moisture-curing
Density (uncured) (CQP 006-4)	10.6 lbs/gallon approx. depending on color
Non-sag properties	Good
VOC (EPA Method 24)	28.5 g/l
Application temperature	40 - 105°F (5 - 40°C)
Tack free time ² (CQP 019-1)	60 min. approx.
Open time ² (CQP 526-1)	45 min. approx.
Curing speed (CQP 049-1)	(see diagram)
Shrinkage (CQP 014-1)	5% approx.
Shore A-hardness (CQP 023-1 / ISO 868)	40 approx.
Tensile strength (CQP 036-1 / ISO 37)	260 psi approx.
Elongation at break (CQP 036-1 / ISO 37)	500% approx.
Tear propagation resistance (CQP 045-1/ ISO 34)	40 pli approx.
Glass transition temperature (CQP 509 -1/ ISO 4663)	-50°F (-45°C) approx.
Movement Accommodation. (ASTM C719)	±12.5%
Thermal resistance (CQP 513-1)	Short term 1 day 1 hour
	195°F (90°C) 250°F (120°C) 285°F (140°C)
Service temperature	-40 - 195°F (-40 - 90°C)
Shelf life (storage below 77°F (25°C)) (CQP 016-1)	12 months, Cartridges & Unipacs. 6 months, Drums & Pails

1) CQP = Sika Corporate Quality Procedure 2) 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. 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 weathering exposure
- Non-corrosive

- Can be overpainted
- Can be sanded
- Lower VOC's
- Bonds well to a wide variety of substrates
- NSF registered, Proprietary Substances and Nonfood Compounds (black, gray, and white)
- UL listed for potable water (black, gray, and white)

Industry



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 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 tsmh@us.sika.com. 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 1).

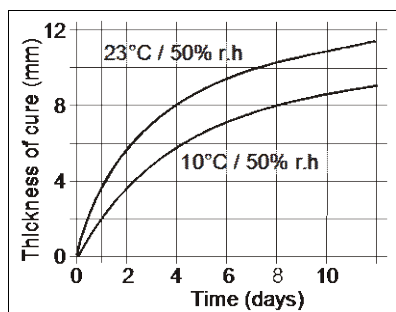


Diagram 1: Curing speed Sikaflex®-221

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 tsmh@us.sika.com.

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 at tsmh@us.sika.com.

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 tsmh@us.sika.com.

Tooling and finishing

Tooling and finishing must be carried out within the tack free time of the sealant. We recommend the use of soapy water. 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 silane terminated polymer sealants or in the presence of curing silicones or silane terminated polymer sealants. Contact with alcohol or alcohol-containing solvents will prevent cure.

Danger

Contains: titanium dioxide (CAS: 13463-67-7), xylene (CAS: 1330-20-7), ethylbenzene (CAS: 100-41-4), 4, 4'-methylenediphenyl diisocyanate (CAS: 101-68-8), Quartz (SiO₂) (CAS: 14808-60-7), Carbon black (CAS: 1333-86-4). Combustible liquid. May cause an allergic skin reaction. May cause allergy or asthma, symptoms or breathing difficulties if inhaled. May cause cancer. Reports have associated repeated and prolonged exposure to some of the chemicals in this product with permanent brain, liver, kidney and nervous system damage. Intentional misuse by deliberate concentration and inhalation of vapors may be harmful or fatal. **WARNING!** This product contains a chemical known in the State of California to cause cancer. **WARNING:** This product contains a chemical known in the State of California to cause birth defects or other reproductive harm.

Further information available at:
www.sikaindustry.com

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HMIS

Health	*3
Flammability	2
Reactivity	0
Personal Protection	X

First Aid Measures

IF ON SKIN: Wash with plenty of soap and water. IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. IF exposed or concerned: Get medical advice/ attention. If skin irritation or rash occurs: Get medical advice/ attention

Further Information

For further information and advice regarding transportation, handling, storage and disposal of chemical products, users should refer to the actual Safety Data Sheets containing physical, ecological, toxicological and other safety related data. Read the current actual Safety Data Sheet before using the product. In case of emergency, call CHEMTREC at 1-800-424-9300, International 703-527-3887.

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

Packaging Information

Cartridge	300 ml
Unipac	400 ml
Hobbock	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

Handling:

- Do not breathe vapors or spray mist.
- Avoid exceeding the given occupational exposure limits
- Do not get in eyes, on skin, or on clothing.
- For personal protection review product SDS
- Persons with a history of skin sensitization problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.
- Smoking, eating and drinking should be prohibited in the application area.
- Follow standard hygiene measures when handling chemical products.

Conditions for safe storage:

- Prevent unauthorized access.
- Store in original container.
- Keep container tightly closed in a dry and well-ventilated place.
- Observe label precautions.
- Store in accordance with local regulations.

Store product in tightly sealed containers in a cool, dry well-ventilated area at temperatures between 40°F and 95°F is acceptable away from ignition sources. Storage temperature of < 77°F is most highly recommended to ensure maximum shelf life.

Clean Up

- Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).

- Keep in suitable, closed containers for disposal.

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 EXPRESS OR IMPLIED 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.**

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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

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