

SikaFast®-3121

Structural Methacrylate Adhesive

Technical Product Data: Results may differ based upon statistical variations depending upon mixing methods and equipment, temperature, application methods, test methods, actual site conditions and curing conditions.

Properties	Component A: SikaFast®-3121	Component B: SikaFast®-3081N
Chemical base	Toughened 2-component acrylic	
Color	Dark Gray Natural	White
Color mixed	Dark Gray/White = Dark Gray Natural/White = Straw	
Viscosity, Approximate (Brookfield T _E @ 10 RPM)	725,000 cps	150,000 cps
Cure mechanism	Free Radical Polymerization	
Density (Typical) Density mixed (Typical)	8.0 lb/gal	10.8 lb/gal
Mixing ratio (Typical)	8.30 lb/gal	
	by volume	10 : 1
	by weight	7.4 : 1
VOC, Approximate (Method 40CFR, Pt.63, Subpt. PPPP, App. A.)	0.15 lb/gal (18 g/l)	
Consistency (mixed)	Non-Sag Paste	
Application temperature, Approximate	product 50° - 95°F (10° - 35°C)	
Open time ¹ (Typical) (static mixer)	72°F (22°C) 95°F (35°C)	5 min 2 min
Gel time (Typical at 72°F / 22°C)	7 min	
Peak exotherm (Typical)	time / temperature 10 min / 190 °F	
Shore D-hardness, Approximate	65	
Tensile strength, Approximate (ASTM D 412) ¹	1300 psi	
Elongation at break, Approximate (ASTM D 412) ¹	80%	
Elastic modulus, Approximate (ASTM D 412) ¹	14,500 psi	
Service temperature range, Approximate	-20° - 180°F (-29° - 82°C)	
Shelf life ²	Drums & Pails 9 months	Pails 9 months
	Cartridges 9 months	

¹ 72°F (22°C) / 50% r.h.

² Stored below 72°F (22°C) and no exposure to direct sun light

Description

SikaFast®-3121 is a fast-curing, two component flexible adhesive for applications requiring quick fixturing for higher throughput. Like other SikaFast®-3000 adhesives, 3121 is designed to efficiently transfer high loads and evenly distribute stresses. These characteristics distinguish SikaFast®-3121 from other acrylic adhesives that claim high strength and elongation. SikaFast®-3121 bonds many materials without surface separation or priming and cures rapidly at room temperature.

Product Benefits

- High strength
- Fast setting and curing
- High elongation
- High ductility
- Good damping properties
- Excellent adhesion to a wide variety of substrates with little or no surface preparation

Areas of Application

SikaFast®-3121 is a 10:1 two part structural adhesive designed to substitute or complement welding, riveting, clinching and other mechanical fastening techniques used in the manufacture of transportation vehicles and assembly components. SikaFast®-3121 is suitable for bonding sidewall panels; roofs, floors and parts made of aluminum, stainless or galvanized steel and fiber reinforced polymers.

This product is suitable for use by experienced professionals only. Tests with actual substrates and conditions must be performed to ensure adhesion and material compatibility.

Industry



Cure Mechanism

Two-component mix. Free radical polymerization.

Chemical Resistance

Cured SikaFast®-3121 has good resistance to alcohols, glycols, dilute acids and bases, water, and crude oil. Cured product is not resistant to gasoline, kerosene, and low molecular weight aldehydes and ketones. Actual chemical resistance of bonded components must be tested. 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.

Adhesion Results

The following results are offered for general guidance only. Due to the variations among substrates, preliminary tests must be completed before use of product.

Adhesion table (table 1)

Material		Value
Aluminum 5052	C	1500 psi
CR Steel	C	1500 psi
Stainless steel 3000	C	1500 psi
Galvanized steel	C	1500 psi
Fiberglass	S	N/A
ABS	S	N/A
PVC	S	N/A

Table 1: Lap shear samples per SAE J1525 for plastics and composites; SAEJ1523 for metals. N/A = not applicable.

Conditions: 72 hour cure @ 72° F.
Tested at 72°F. Substrates as received or IPA wipe.

Breaktype: A = adhesive
C = cohesive
S = substrate

Method of Application

Substrate preparation

Surfaces should be clean and dry. Remove heavy oils and dirt with suitable solvent that will not harm substrate. A 2:1 solution of isopropyl alcohol in water is recommended, but substrate compatibility must first be tested. Heavily contaminated areas must be more rigorously cleaned before bonding. Advice on specific applications is available from the Technical Service Department of Sika Industry at tsmh@us.sika.com

Mixing

From Cartridge

Sika recommends a high quality pneumatic dispense gun. Manual guns should be avoided. The preferred

dispense gun is Sulzer MixPac 400/100 with a 10:1 cradle. The recommended static mixers are Sulzer MixPac MFX 10-18 or MEFX 13-18 or MFX 13-18. The 13-18 mixers enable faster flow rates.

Slide out the metal tab on top of cartridge. Unscrew the locking nut, remove plug and retain both. Carefully attach an airline with pressure not exceeding 100 psi (7 bar) to the dispense gun. Adjust the air valve on the gun to its lowest setting and fully retract the pistons if needed. Insert the opened cartridge into the dispensing tool -- never point assembly at anyone. Be certain that the cartridge is seated securely into the cradle and that the flange at the cartridge tip is properly positioned in the slot at the front of the gun. Slowly advance the pistons and dispense a very small amount of Part A and Part B into a paper cup until it is obvious that both parts are dispensing. Only a few milliliters should be required for this step. Insert the manufacturer recommended static mixer and secure with saved locking nut. Slowly increase the pressure with the gun valve to start dispensing. Purge at least 1 static mixer full of material into the paper cup, mix in with the previous material using a wooden stick, let cure, and discard. Begin application. Use the dispense tool air regulator to achieve desired flow rate. If application stops for a period of time that exceeds ½ of the products' stated gel time, the static mixer must be removed and a new one installed as outlined above.

NOTE: cooler temperatures will afford a longer gel time; warmer temperatures will afford a shorter gel time. For storage of partially used cartridges, retract the dispense tool pistons, remove the air line, take out cartridge, remove static mixer, wipe off tip of cartridge, taking care not to cross contaminate the two openings, reinsert the original plug and reaffix the locking nut.

From Meter/mix/dispense units.

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.

Application

Bondline thickness should not exceed 0.125 inches (3mm). Larger bondlines may be possible, but must be approved by Sika Technical Services. Suitability of adhesive must be determined by laboratory test prior to application. Apply mixed adhesive to one substrate; mate

other substrate within the product stated open time: NOTE: Cure data published in this Technical Data Sheet is measured at 72°F (22°C). Cooler temperature slow the cure reaction, higher temperatures hasten the reaction. This must be considered when determining the suitability of this product for any application and assembly process. Application of stress to the bonded parts before the stated or temperature-adjusted fixture time can cause permanent destruction of the adhesive bond layer and result in bondline failures. Spacers may be used to ensure a uniform bond line. Glass spacer beads can be used, but at less than 4% of the adhesive volume. To ensure maximum performance when using manually placed or mixed spacers, it is recommended to keep the spacers outside of the bond line.

IMPORTANT NOTE:

Larger quantities of SikaFast® will generate heat during cure reaction. Therefore bondline thickness is limited to approximately 0.125 inches. Large masses, greater than 2.0 oz (50 grams), may boil or blister; therefore purge volumes should be limited to amounts less than this. Exposure of cartridges to temperatures above 95°F (35°C) will rapidly decrease shelf life.

For additional information and support in evaluation of the appropriate application equipment please contact our Sika Technical Service at tsmh@us.sika.com

Removal

Excess material can best be removed before curing with a dry wipe. Uncured SikaFast®-3121 may be removed from tools and equipment with a suitable solvent. Citrus cleaners may be used. Strictly follow solvent manufacturer's warnings and instructions for use. Also, if surfaces that were cleaned are to be rebonded, they must be thoroughly wiped with a 2:1 solution of isopropyl alcohol and water. Adhesion testing is strongly recommended in these cases. Cured material can only be removed mechanically. A solvent wipe should follow mechanical removal if rebonding is to be done.

Overpainting

If over painting is desired, the paint and paint process compatibility must be tested before use. SikaFast®-3121 should not be exposed to paint-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 adhesive and lead to cracking of the paint film over time. Contact Sika Industry technical service department at tsmh@us.sika.com.

Further information available at:
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Limitations

SikaFast®-3121 will not bond polyolefins such as polyethylene and polypropylene, polytetrafluoro-ethylene and other fluorine containing polymers, polyacetals, or nylon. Adhesion to, and compatibility with composites of these materials as well as other materials should be tested before using. Cure may be accelerated with heat, but avoid temperatures over 110°F (43°C). Product will cure at temperatures well below 40°F (4°C), but will do so very slowly.

Comp. A

DANGER: FLAMMABLE, IRRITANT, SENSITIZER. Contains Methyl methacrylate (CAS 80-62-6), Diisodecyl Adipate (CAS 27178-16-1), 2-Hydroxyethyl methacrylate phosphate (CAS 52628-03-2). **Keep away from heat, sparks, sunlight, electrical equipment, flame or other sources of ignition. VAPORS MAY IGNITE AND EXPLODE. DO NOT SMOKE.** Use only in well ventilated areas. Open doors and windows during use. Eye/skin/respiratory irritant. May cause skin sensitization after 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. Inhalation can result in headaches and dizziness. **Intentional misuse by deliberate concentration and inhalation of vapors may be harmful or fatal.**

Comp. B

WARNING: COMBUSTIBLE, IRRITANT, SENSITIZER –Contains Benzoyl Peroxide (CAS 94-36-0), Tris(methylphenyl) Phosphate (CAS 1330-78-5), and Bisphenol A / Epichlorohydrin Epoxy Resin (CAS 25068-38-6). Keep away from heat, sparks, electrical equipment, and open flame. **DO NOT SMOKE.** Use only in well ventilated areas. Irritating to eyes, skin and respiratory irritation. May cause skin sensitization by contact. Harmful if swallowed. Intentional misuse by deliberate concentration and inhalation of vapors may be harmful or fatal.

HMIS

	Comp. A	Comp. B Drums/Pails	Comp. B Cartridges
Health	*2	*2	*2
Flammability	3	2	2
Reactivity	0	1	1
Personal Protection	C	C	C

Comp. A and Comp. B

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.sikausa.com or by contacting tsmh@us.sika.com:

- Material Safety Data Sheets
- Product Data Sheet

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

Pail ¹ (comp. A)	4.5 gal
Pail ¹ (comp. B)	4.5 gal
Drum (comp. A)	45 gal
Dual cartridge ²	490 ml

¹⁾ 5 gallon plastic or metal straight side pail

²⁾ Mixpac 400-type

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.

Comp. A: Handling and Storage

Keep away from heat, sparks, sunlight, electrical equipment or flame. VAPORS MAY IGNITE AND EXPLODE. DO NOT SMOKE. Open doors and windows during use. Use

adequate local and mechanical ventilation. Wear protective equipment (chemically resistant gloves/ goggles/ clothing) to prevent direct contact with skin and eyes. Use properly fitted NIOSH vapor cartridge respirator if ventilation is poor. Wash thoroughly with soap and water after use. Remove contaminated clothing after use. Store product in tightly sealed containers in a cool, dry well ventilated area at temperatures between 50°F and 72°F (10°C and 22°C) away from ignition sources.

Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material.

Keep stored in original containers below 72°F (22°C) and avoid exposure to direct sunlight. Prolonged exposure of Activator Component B to temperatures above 90°F (32°C) should be avoided. Exposure to temperatures above 95°F (35°C) will rapidly decrease shelf life. Total exposure to temperatures in the range of 90°F- 95°F (32°C-35°C) should not exceed 14 days.

Comp. B: Handling and Storage

Keep away from heat, sparks, sunlight, electrical equipment or flame. VAPORS MAY IGNITE AND EXPLODE. DO NOT SMOKE. Open doors and windows during use. Use adequate local and mechanical ventilation. Wear protective equipment (chemical resistant gloves / goggles / clothing) to prevent direct contact with skin and eyes. Use properly fitted NIOSH vapor cartridge respirator if ventilation is poor. Wash thoroughly with soap and water after use. Remove contaminated clothing after use. Store product in tightly sealed containers in a cool, dry, well ventilated area at temperatures between 50°F and 72°F (10°C and 22°C) away from ignition sources. **Material can become unstable at high temperatures and pressures.**

Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding

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and bonding containers and equipment before transferring material.

Keep stored in original containers between 50°F and 72°F (10°C and 22°C) and avoid exposure to direct sunlight. Prolonged exposure of product to temperatures above 90°F (32°C) should be avoided. Exposure to temperatures above 95°F (35°C) will rapidly decrease shelf life. Total exposure to the 90°F-95°F (32°C-35°C) range should not exceed 14 days. Refrigeration of components will extend shelf life. No formal recommendations can be made since storage conditions at customer locations may fluctuate and are beyond Sika's control.

Clean Up

In case of spill, eliminate all ignition and heat sources. Ventilate area. Open doors and windows. Wear chemically resistant gloves/ goggles/ clothing. In absence of proper ventilation use properly fitted NIOSH respirator. Confine spill, collect using noncombustible absorbent material and place in properly sealed container. Dispose of excess product in accordance with applicable local, state and federal regulations.

Clean up is best done prior to curing with a dry wipe. Uncured SikaFast®-3121 may be removed from tools and equipment with a suitable solvent. Strictly follow solvent manufacturer's instructions for use and warnings. **DO NOT USE SOLVENTS ON SKIN!** Citrus cleaners may be used but all manufacturer's precautions must be heeded before use. Cured material must be mechanically removed.

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.**

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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 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 available at www.sikausa.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.sikausa.com or by contacting tsmh@us.sika.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.

