

# Sikadur® 31, Hi-Mod Gel (1:1 Mix Ratio)

## High-modulus, high-strength, structural, epoxy paste adhesive

<b>Description</b>	Sikadur® 31, Hi-Mod Gel, is a 2-component, 100% solids, solvent-free, moisture-tolerant, high-modulus, high strength, structural epoxy paste adhesive. It conforms to the current ASTM C-881, Types I and IV, Grade-3, Class-B/C and AASHTO M-235 specifications.
<b>Where to Use</b>	<ul style="list-style-type: none"> <li>■ Structural bonding of concrete, masonry, metals, wood, etc. to a maximum glue line of 1/8 in. (3 mm).</li> <li>■ Grout bolts, dowels, and pins.</li> <li>■ Seals cracks and around injection ports prior to pressure-injection grouting.</li> <li>■ Interior, vertical, and overhead repair of concrete as an epoxy mortar binder.</li> <li>■ As a pick-proof sealant around windows, doors, lock-ups etc. inside correctional facilities.</li> </ul>
<b>Advantages</b>	<ul style="list-style-type: none"> <li>■ Meets physical requirements of ASTM C-881 Types I, II &amp; IV, Grade 3, Classes B &amp; C.</li> <li>■ Suitable for potable water contact, meets NSF/ANSI Standard 61.</li> <li>■ Excellent adhesion to concrete, masonry, metals, wood, and most structural materials.</li> <li>■ Paste consistency ideal for vertical and overhead repair of concrete.</li> <li>■ Fast-setting and strength-producing adhesive.</li> <li>■ Convenient easy mix ratio A:B = 1:1 by volume.</li> </ul>
<b>Coverage</b>	1 gal. yields 231 cu. in. (3,785 cm <sup>3</sup> ) of epoxy paste adhesive. 1 gal. (3.8 L) mixed with 1 gal. (3.8 L) by loose volume of oven-dried aggregate yields approximately 346 cu. in. (5,670 cm <sup>3</sup> ) of epoxy mortar.
<b>Packaging</b>	1 gal. and 3 gal. (11.4 L) units.

### Typical Data (Material and curing conditions @ 73°F (23°C) and 50% R.H.)

RESULTS MAY DIFFER BASED UPON STATISTICAL VARIATIONS DEPENDING UPON MIXING METHODS AND EQUIPMENT, TEMPERATURE, APPLICATION METHODS, TEST METHODS, ACTUAL SITE CONDITIONS AND CURING CONDITIONS.

<b>Shelf Life</b>	2 years in original, unopened containers		
<b>Storage Conditions</b>	Store dry at 40°-95°F (4°-35°C). Condition material to 65°-85°F (18°-29°C) before using.		
<b>Color</b>	Concrete gray		
<b>Mixing Ratio</b>	Component 'A' : Component 'B' = 1:1 by volume		
<b>Consistency</b>	Non-sag paste		
<b>Pot Life</b>	Approximately 60 minutes @ 73°F. (500 gram mass)		
<b>Tack-Free Time</b>	1.5 - 2.5 hours at 30 mils. thick		
<b>Tensile Properties (ASTM D-638)</b>			
<b>7 day</b>	Tensile Strength	3,300 psi (22.7 MPa)	
	Elongation at Break	0.9 %	
<b>Flexural Properties (ASTM D-790)</b>			
<b>7 day</b>	Flexural Strength (Modulus of Rupture)	6,100 psi (42.0 MPa)	
	Tangent Modulus of Elasticity in Bending	1.67 X 10 <sup>6</sup> psi (11,520 MPa)	
<b>Shear Strength (ASTM D-732)</b>	<b>7 day</b>	Shear Strength	4,600 psi (31.7 MPa)
<b>Bond Strength (ASTM C-882)</b>			
	<b>Hardened Concrete to Hardened Concrete:</b>		
	<b>2 day (dry cure)</b>	2,200 psi (15.2 MPa)	
	<b>2 day (moist cure)</b>	2,400 psi (16.5 MPa)	
	<b>14 day (moist cure)</b>	2,900 psi (20.0 MPa)	
	<b>Hardened Concrete to Steel:</b>		
	<b>2 day (dry cure)</b>	2,900 psi (20.0 MPa)	
<b>Tensile Bond Strength (Pull-off Method, Dyna, ASTM C-1583-04)</b>			
	<b>2 day</b>	420 psi (2.9 MPa)	
<b>Heat Deflection Temperature (ASTM D-648)</b>	<b>7 day</b>	(Fiber Stress Loading = 264 psi)	135°F (57°C)
<b>Water Absorption (ASTM D-570)</b>	<b>24 hour</b>	0.07%	
<b>Compressive strength (ASTM D-695) psi (MPa)</b>			
		<b>40°F (4°C)* **</b>	<b>73°F (23°C)* **</b>
			<b>90°F (32°C)* **</b>
	<b>2 hour</b>	-	450 (3.1)
	<b>4 hour</b>	-	800 (5.5)
	<b>8 hour</b>	-	8,500 (58.6)
	<b>16 hour</b>	700 (4.8)	10,500 (72.4)
	<b>1 day</b>	6,000 (41.4)	13,000 (89.6)
	<b>3 day</b>	11,000 (75.8)	15,000 (103.4)
	<b>7 day</b>	12,900 (88.9)	16,000 (110.3)
	<b>14 day</b>	13,500 (93.0)	16,000 (110.3)
	<b>28 day</b>	14,000 (96.5)	16,000 (110.3)

**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 SAFETY DATA SHEET WHICH ARE AVAILABLE ONLINE AT [HTTP://USA.SIKA.COM/](http://usa.sika.com/) OR BY CALLING SIKA'S TECHNICAL SERVICE DEPARTMENT AT 800.933.7452 NOTHING CONTAINED IN ANY SIKA MATERIALS RELIEVES THE USER OF THE OBLIGATION TO READ AND FOLLOW THE WARNINGS AND INSTRUCTIONS FOR EACH SIKA PRODUCT AS SET FORTH IN THE CURRENT PRODUCT DATA SHEET, PRODUCT LABEL AND SAFETY DATA SHEET PRIOR TO PRODUCT USE.**



**Compressive Modulus of Elasticity (ASTM D-695)** 7 day 7.95 X 10<sup>5</sup> psi (5,485 MPa)  
**VOC Content** 4.0 g/L (A+B)

\* Material cured and tested at temperatures indicated.  
 \*\* See Limitations section for further information.

## How to Use

### Surface Preparation

Surface must be clean and sound. It may be dry or damp, but free of standing water. Remove dust, laitance, grease, curing compounds, impregnations, waxes, and any other contaminants.

**Preparation Work:** Concrete - Should be cleaned and prepared to achieve a laitance and contaminant free, open textured surface by blast cleaning or equivalent mechanical means.

**Steel** - Should be cleaned and prepared thoroughly by blast cleaning or other equivalent mechanical means.

### Mixing

**Pre-mix each component.** Proportion 1 part Component 'B' to 1 part Component 'A' by volume into a clean pail or appropriately sized mixing container. Mix thoroughly for 3 minutes with Sika paddle on low-speed (400-600 rpm) drill until uniform in color. Mix only that quantity which can be used within its pot life. Prior to mixing, material should be conditioned to 65°-85°F (18°-29°C). To prepare an epoxy mortar, slowly add up to 1 part, by loose volume of an oven dried aggregate, to 1 part of the mixed Sikadur® 31, Hi-Mod Gel, and mix until uniform in consistency.

### Application

**As a structural adhesive** - Apply the neat mixed Sikadur® 31, Hi-Mod Gel to the prepared substrates. Work into the substrate for positive adhesion. Secure the bonded unit firmly into place until the adhesive has cured. Glue line should not exceed 1/8-in. (3 mm).

**To seal cracks for injection grouting** - Place the neat mixed material over the cracks to be pressure injected and around each injection port. Allow sufficient time to set before pressure injecting. For interior vertical and overhead patching - Place the prepared mortar in void, working the material into the prepared substrate, filling the cavity. Strike off level. Lifts should not exceed 1-in (25 mm).

**As a pick-proof sealant** - Use automated or manual method. Apply an appropriate size bead of material around the area being sealed. Seal with neat Sikadur® 31, Hi-Mod Gel.

### Limitations

- **THE NTSB HAS STATED THAT THIS PRODUCT IS APPROVED FOR SHORT TERM LOADS ONLY AND SHOULD NOT BE USED IN SUSTAINED TENSILE LOAD ADHESIVE ANCHORING APPLICATIONS WHERE ADHESIVE FAILURE COULD RESULT IN A PUBLIC SAFETY RISK. CONSULT A DESIGN PROFESSIONAL PRIOR TO USE.**
- Components of original 2:1 mix ratio formulation of Sikadur® 31, Hi-Mod Gel cannot be cross-mixed with components of Sikadur® 31, Hi-Mod Gel (NEW 1:1 Mix Ratio) formulation.
- Minimum substrate and ambient temperature 40°F (4°C).
- Do not thin. Solvents will prevent proper cure.
- When preparing an epoxy mortar, use oven-dried aggregate only.
- Maximum epoxy mortar thickness is 1 in. (25 mm) per lift.
- Epoxy mortar is for interior use only. Material is a vapor barrier after cure.
- Minimum age of concrete must be 21-28 days, depending upon curing and drying conditions, for mortar applications.
- Porous substrates must be tested for moisture-vapor transmission prior to mortar applications.
- Not for sealing cracks under hydrostatic pressure.
- Not an aesthetic product. Color may alter due to variations in lighting and/or UV exposure.

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

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