

Sikadur® 31, Hi-Mod Gel

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

Description	Sikadur 31, Hi-Mod Gel, is a 2-component, 100% solids, moisture-tolerant, high-modulus, high-strength, structural epoxy paste adhesive. It conforms to the current ASTM C-881 and AASHTO M-235 specifications.
Where to Use	<ul style="list-style-type: none"> ■ Structural bonding of concrete, masonry, metals, wood, etc. to a maximum glue line of 1/8 in. (3 mm). ■ Grout bolts, dowels, pins, vertical and overhead, etc. ■ Seals cracks and around injection ports prior to pressure-injection grouting. ■ Interior, vertical, and overhead repair of concrete as an epoxy mortar binder. ■ As a pick-proof sealant around windows, doors, lock-ups etc. inside correctional facilities.
Advantages	<ul style="list-style-type: none"> ■ Tolerant of moisture before, during and after cure. ■ High-modulus, high-strength, structural paste adhesive. ■ Excellent adhesion to concrete, masonry, metals, wood and most structural materials. ■ Paste consistency ideal for vertical and overhead applications. ■ Fast-setting and strength-producing adhesive. ■ Convenient easy mix ratio A:B = 2:1 by volume.

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

Shelf Life	2 years in original, unopened containers.		
Storage Conditions	Store dry at 40°-95°F (4°-35°C). Condition material to 65°-75°F (18°-24°C) before using.		
Color	Concrete gray		
Mixing Ratio	Component 'A' : Component 'B' = 2:1 by volume		
Consistency	Non-sag paste		
VOC Content	0.8%		
Pot Life	Approximately 30 minutes @ 73°F (23°C). (60 gram mass)		
Tack-Free Time	2-3 hours		
Tensile Properties (ASTM D-638)			
14 day	Tensile Strength	3,600 psi (24.8 MPa)	
	Elongation at Break	0.4 %	
	Modulus of Elasticity	7.5 X 10 ⁵ psi (5,200 MPa)	
Flexural Properties (ASTM D-790)			
14 day	Flexural Strength (Modulus of Rupture)	6,000 psi (41.4 MPa)	
	Tangent Modulus of Elasticity in Bending	1.0 X 10 ⁶ psi (6,900 MPa)	
Shear Strength (ASTM D-732)	14 day	Shear Strength	3,400 psi (23.4 MPa)
Bond Strength (ASTM C-882): Hardened Concrete to Hardened Concrete			
2 day (moist cure)	Bond Strength	2,900 psi (20.0 MPa)	
14 day (moist cure)	Bond Strength	2,700 psi (18.6 MPa)	
2 day (dry cure)	Bond Strength	3,300 psi (22.7 MPa)	
Heat Deflection Temperature (ASTM D-648)			
7 day	[fiber stress loading = 264 psi (1.8 MPa)]	128°F (53°C)	
Water Absorption (ASTM D-570) 7 day	(24 hour immersion)	021%	
Compressive Properties (ASTM D-695)			
Compressive Strength, psi (MPa)			
	40°F (4°C)	73°F (23°C)	90°F (32°C)
2 hour	-	-	900 (6.2)
4 hour	-	140 (0.9)	5,400 (37.2)
8 hour	-	5,400 (37.2)	8,800 (60.7)
16 hour	400 (2.8)	9,600 (66.2)	9,500 (65.5)
1 day	3,100 (21.4)	9,800 (67.6)	10,000 (68.9)
3 day	6,700 (46.2)	10,000 (68.9)	11,000 (75.8)
7 day	9,100 (62.8)	11,000 (75.8)	11,000 (75.8)
14 day	10,400 (71.7)	11,000 (75.8)	11,000 (75.8)
28 day	11,000 (75.8)	11,000 (75.8)	11,000 (75.8)
Compressive Modulus	7 day	3.9 X 10 ⁵ psi (2,700 MPa)	



Coverage	1 gal. yields 231 cu. in. of epoxy paste adhesive and grout. 1 gal. mixed with 1 gal. by loose volume of oven-dried aggregate yields approximately 346 cu. in. of epoxy mortar.
Packaging	3-gal. units; 12 fl. oz. units, 12/case.
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.
Mixing	Pre-mix each component. Proportion 1 part Component 'B' to 2 parts Component 'A' by volume into a clean pail. 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. 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 adhesion 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. To anchor bolts, dowels and pins - Annular space around bolt should not exceed 1/8 in. (3 mm); depth of embedment is typically 10-15 times the bolt diameter. Grout with neat Sikadur 31, Hi-Mod Gel. 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	<ul style="list-style-type: none"> ■ Minimum substrate and ambient temperature 40°F (4°C). ■ Do not thin. Addition of solvents will prevent proper cure. ■ 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 at time of application.
Caution	Component 'A' - Irritant; Sensitizer - Contains epoxy resin and crystalline silica (sand). Can cause skin sensitization after prolonged or repeated contact. Skin and eye irritant. High concentrations of vapor may cause respiratory irritation. If sanded, crystalline silica dust may be generated and may cause delayed lung injury (silicosis) and is listed as a suspect carcinogen by NTP and IARC (2A). 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 approved respirator. Remove contaminated clothing. Consult MSDS for more detailed information. Component 'B' - Corrosive; Sensitizer - Contains amines and crystalline silica (sand). Contact with eyes or skin may cause severe burns. Can cause skin and/or respiratory sensitization after prolonged or repeated contact. Skin and eye irritant. High concentrations of vapor may cause respiratory irritation. Overexposure may cause liver, kidney, and/or central nervous system effects. If sanded, crystalline silica dust may be generated and may cause delayed lung injury (silicosis) and is listed as a suspect carcinogen by NTP and IARC (2A). Avoid skin contact. 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 approved respirator. Remove contaminated clothing. Consult MSDS for more detailed information.
First Aid	Components 'A' and 'B': 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 person to fresh air. Ingestion: Do not induce vomiting. In all cases, contact a physician immediately if symptoms persist.
Clean Up	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.

KEEP CONTAINER TIGHTLY CLOSED
NOT FOR INTERNAL CONSUMPTION
CONSULT MATERIAL SAFETY DATA SHEET FOR MORE INFORMATION

KEEP OUT OF REACH OF CHILDREN
FOR INDUSTRIAL USE ONLY

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 technical 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.

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