

Sikadur® 31 Hi-Mod Gel^{CA}

High-Modulus, High-Strength, Structural, Epoxy Paste Adhesive

Description	Sikadur® 31 Hi-Mod Gel ^{CA} is a two-component, solvent-free, moisture-insensitive, high-modulus, high-strength, structural epoxy paste adhesive.
Where to Use	<ul style="list-style-type: none"> ■ Structural bonding of concrete, masonry, metals, wood, etc. to a maximum glue line of 3 mm (1/8 in). ■ Grout bolts, dowels, pins, vertical and overhead. ■ Seals cracks and injection port surrounds prior to pressure-injection grouting. ■ Interior, vertical, and overhead repair of concrete as an epoxy mortar binder.
Advantages	<ul style="list-style-type: none"> ■ Insensitive to 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. ■ Easy mix A:B = 1:1 ratio by volume. ■ Meets ASTM C 881, Type I, II, IV and V, Grade 3, Class B and C, epoxy resin adhesive. ■ Canadian Food Inspection Agency acceptance. ■ Ministry of Transport Québec acceptance. ■ NSF (Title 61) Approved for Potable Water (Special Order Only).

Technical Data

Packaging	10 L (2.64 US gal.) unit
Colour	Concrete Grey
Yield	1 L yields 1 m ² of epoxy adhesive, 1 mm thick. 1 L of adhesive when mixed with 1 L by loose volume of oven-dried sand yields approx. 1.5 L of epoxy mortar. (1 US gal. = 231 in ³ . 1 US gal. of adhesive when mixed with 5 US gal. by loose volume of oven-dried silica sand yields approx. 808 in ³ of epoxy mortar.)
Shelf Life	2 years in original, unopened packaging. Store dry at 5° - 32°C (41° - 89°F). Condition product to 18° - 25°C (65° - 77°F) before using.
Mixing Ratio	A:B = 1:1 by volume

Properties at 23°C (73°F) and 50% R.H.

Consistency	Non-sag paste
Pot Life	Approx. 30 min
Tack-Free Time	1.5-2 h (30 mils thickness)

	4°C (39F)*	23°C (73F)*	32°C (89F)*
2 h	-	-	33 (4785)
4 h	-	14 (2030)	59 (8555)
8 h	-	53 (7690)	67 (9715)
16 h	-	64 (9280)	72 (10440)
1 day	13 (1885)	81 (11745)	79 (11455)
3 days	63 (9135)	81 (11475)	85 (12325)
7 days	70 (10150)	86 (12470)	87 (12615)
14 days	76 (11020)	87 (12615)	87 (12615)
28 days	83 (12040)	87 (12615)	87 (12615)

* Product cured and tested at the temperatures indicated

Tensile Properties ASTM D 638

14 days	Tensile strength	24 MPa (3480 psi)
	Elongation at break	0.95%
	Modulus of elasticity	5.13 GPa (7.4 x 10 ⁵ psi)

Flexural Properties ASTM D 790

14 days	Flexural strength	42 MPa (6090 psi)
	Tangent modulus of elasticity	7.22 GPa (10.5 x 10 ⁵ psi)

Shear Strength ASTM D 732

14 days		19 MPa (2755 psi)
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Bond Strength ASTM C 882

Hardened concrete to hardened concrete		
2 days	Dry cure	28 MPa (4060 psi)
14 days	Wet cure	22 MPa (3190 psi)



Deflection Temperature ASTM D 648

14 days Fibre stress loading = 1.8 MPa (264 psi) 53°C (127°F)

Water Absorption ASTM D 570

7 days 24 h boil 0.29%

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, foreign particles disintegrated materials.

Concrete - Sandblast or use other approved mechanical methods.

Steel - Sandblast to white-metal finish.

Mixing

Pre-mix each component. Proportion 1 part component B to 1 part of component A by volume into clean pail. Mix thoroughly for 3 min with paddle on low-speed drill (300-450 rpm), until uniform in colour. Mix only that quantity that 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 sand to 1 part of the mixed Sikadur® 31 Hi-Mod Gel^{CA} and mix until uniform in consistency.

Application

As a structural adhesive - Apply the neat, mixed Sikadur® 31 Hi-Mod Gel^{CA} to the mating or non-mating 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 3 mm (1/8 in).

To seal cracks for injection grouting - Place the neat 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 3 mm (1/8 in); depth of embedment is typically 10-15 times the bolt diameter. Grout with neat Sikadur® 31 Hi-Mod Gel^{CA}.

For interior vertical and overhead patching - Place the prepared mortar into the void working the material into the prepared substrate and filling the cavity. Strike off level. Lifts should not exceed 38 mm (1 1/2 in).

Clean Up

Collect with absorbent material. Dispose of in accordance with local disposal regulations. Uncured material can be removed with Sika® Equipment Cleaner/Epoxy Thinner. Cured material can only be removed mechanically.

Limitations

- Minimum surface temperature: 4°C (39°F).
- Do not thin solvents, it will prevent proper cure.
- Use oven-dried sand only.
- Maximum epoxy mortar thickness is 38 mm (1 1/2 in) per lift.
- Product is a vapour barrier after cure.
- Minimum age of concrete must be 21-28 days, depending upon curing and drying conditions.
- Porous substrates must be tested for moisture-vapour transmission prior to mortar applications.
- Not for sealing cracks under hydrostatic pressure.

Caution

Component A - Irritant - Prolonged contact with skin may cause irritation. Avoid eye contact.

Component B - Irritant - Contact with skin may cause severe burns. Avoid eye contact. Product is a strong sensitizer. Use of safety goggles and chemical-resistant gloves recommended. Avoid breathing vapours. Use adequate ventilation. Use of a NIOSH/MSHA organic vapour respirator recommended. Consult product label for additional information.

First Aid

In case of skin contact, wash with soap and water. For eye contact flush immediately with plenty of water for at least 15 min. Contact a physician. For respiratory problems, transport victim to fresh air. Remove contaminated clothing and wash before re-use.

For more information, consult Sika Material Safety Data Sheet.

KEEP OUT OF REACH OF CHILDREN
FOR INDUSTRIAL USE ONLY

The information, and in particular, the recommendations relating to the application and end-use of Sika products, are given in good faith based on Sika's current knowledge and experience of the products when properly stored, handled and applied under normal conditions, within their shelf life. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any recommendations, or from any other advice offered. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users should always refer to the most recent issue of the Technical Data Sheet for the product concerned, copies of which will be supplied on request or can be accessed in the Internet under www.sika.ca.

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