



PRODUCT DATA SHEET

Edition 03.2018/v1
CSC Master Format™ 03 64 23
EPOXY INJECTION GROUTING

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	- 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	- 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 C881, Type I, II, IV and V, Grade 3, Class B and C, epoxy resin adhesive. - Meets the requirements of CFIA and USDA for use in food plants. - Ministère des Transports du Québec acceptance. - Product recognized by the British Columbia Ministry of Transportation (BC MoT). - NSF-ANSI 61 Approved for contact with Potable Water (Special order only).

Technical Data

Packaging	10 L (2.64 US gal.) unit [Component A : 5 L (1.32 US gal.) and Component B : 5 L (1.32 US gal.)]		
Colour	Concrete Grey		
Yield	1 L yields 1 m² 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 in³. 1 US gal. of adhesive when mixed with 1 US gal. by loose volume of oven-dried silica sand yields approx. 346 in³ of epoxy mortar.)		
Shelf Life	2 years in original, unopened packaging. Store dry at temperatures between 5 and 32 °C (41 and 89 °F). Condition product between 18 and 25 °C (65 and 77 °F) before using.		
Mix 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 h 30 min - 2 h (30 mils thickness)		
Compressive Strength ASTM D695, MPa (psi)	4 °C (39 °F)*	23 °C (73 °F)*	32 °C (89 °F)*
2 h	-	-	33 (4785)
4 h	-	14 (2030)	59 (8555)
8 h	-	53 (7690)	67 (9715)
16 h	-	64 (9280)	72 (10 440)
1 day	13 (1885)	81 (11 745)	79 (11 455)
3 days	63 (9135)	81 (11 475)	85 (12 325)
7 days	70 (10 150)	86 (12 470)	87 (12 615)
14 days	76 (11 020)	87 (12 615)	87 (12 615)
28 days	83 (12 040)	87 (12 615)	87 (12 615)
* Product cured and tested at the temperatures indicated			
Tensile Properties ASTM D638			
14 days	Tensile strength	24 MPa (3480 psi)	
	Elongation at break	0.95 %	
	Modulus of elasticity	5.13 GPa (7.4 x 105 psi)	

Flexural Properties ASTM D790

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

Shear Strength ASTM D732

14 days		19 MPa (2755 psi)
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Bond Strength ASTM C882

Hardened concrete to hardened concrete

2 days	Dry cure	28 MPa (4060 psi)
14 days	Wet cure	22 MPa (3190 psi)

Deflection Temperature ASTM D648

14 days	Fibre stress loading = 1.8 MPa (264 psi)	53 °C (127 °F)
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Water Absorption ASTM D570

7 days	24 h boil	0.29 %
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VOC Content ≤10 g/L

Product properties are typically averages, obtained under laboratory conditions. Reasonable variations can be expected on-site due to local factors, including environment, preparation, application, curing and test methods.

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 three (3) minutes 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 to 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® Epoxy Cleaner. Cured material can only be removed mechanically.

Limitations

- Minimum surface temperature: 4 °C (39 °F).
- Do not thin with 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.

Health and Safety Information

For information and advice on the safe handling, storage and disposal of chemical products, users should refer to the most recent SAFETY DATA SHEET containing physical, ecological, toxicological and other safety-related data.

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 shelflife. 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 information contained herein does not relieve the user of the products from testing them for the intended application and purpose. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users must always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be supplied on request or may be downloaded from our website at: www.sika.ca

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