Submittal Review Response

Project Name:	***Hilo WWTP Rehabilitation and Replacement Project Phase 1***
Submittal No.:	***03071-001.0***
Date:	***8/19/2025***

Client:	County of Hawai‘i	**Carollo Project No.:**	203975
Contractor:	Nan, Inc.		
Submittal Name:	Sika Epoxies_Submitted		
Reviewed By:	Marissa Kurniawan, Felicia Fan		

SUBMITTAL REVIEW		
Review is for general compliance with contract documents. No responsibility is assumed by Carollo for correctness of quantities, dimensions, and details. No deviation or variation is approved unless specifically addressed in these review comments. Refer to Section 01330 for additional requirements. The Contractor shall assume full responsibility for coordination with all other trades and deviations from contract requirements.		
Approved	☒	No Exceptions
	☐	Make Corrections Noted - See Comments
	☐	Make Corrections Noted - Confirm
Not Approved	☐	Correct and Resubmit
	☐	Rejected - See Remarks
Receipt Acknowledged	☐	Filed for Record
	☐	With Comments - Resubmit

Review Comments:

1. No comments.

☐ High Priority

CONTRACTOR SUBMITTAL TRANSMITTAL FORM REV. A

Owner: County of Hawaii
Contractor: Nan, Inc.
Project Name: Hilo WWTP Phase 1
Submittal Title: EPOXIES
TO: County
From: Nan Inc.

Project No.: WW-4705R
Submittal Number: 03070 - 001.0

☐ For Information Only

Specification No. and Subject of Submittal / Equipment Supplier			
Spec: 03071	**Paragraph:** 1.03, 2.02		
Authored By: Sika		**Date Submitted:**	07/29/2025

Submittal Certification

Check Either (A) or (B):

☑ (A) We have verified that the equipment or material contained in this submittal meets all the requirements specified in the project manual or shown on the contract drawings with no exceptions.

☐ (B) We have verified that the equipment or material contained in this submittal meets all the requirements specified in the project manual or shown on the contract drawings except for the deviations listed.

Certification Statement: By this submittal, I hereby represent that I have determined and verified all field measurements, field construction criteria, materials, dimensions, catalog numbers and similar data, and I have checked and coordinated each item with other applicable approved shop drawings and all Contract requirements.

General Contractor's Reviewer's Signature:

Printed Name and Title: Jyun-Cheng Jhuo, Project Engineer

In the event, Contractor believes the Submittal response does or will cause a change to the requirements of the Contract, Contractor shall immediately give written notice stating that Contractor considers the response to be a Change Order.

Firm: **Signature:** **Date Returned:**

PM/CM Office Use

Date Received GC to PM/CM:
Date Received PM/CM to Reviewer:
Date Received Reviewer to PM/CM:
Date Sent PM/CM to GC:

Nan, Inc

PROJECT: HILO WWTP REHABILITATION AND REPLACEMENT PROJECT - PHASE 1

JOB NO. WW-4705R

THIS SUBMITTAL HAS BEEN CHECKED BY THIS CONTRACTOR. IT IS CERTIFIED CORRECT, COMPLETE, AND IN COMPLIANCE WITH CONTRACT DRAWINGS AND SPECIFICATIONS. ALL AFFECTED CONTRACTORS AND SUPPLIERS ARE AWARE OF, AND WILL INTEGRATE THIS SUBMITTAL (UPON APPROVAL) INTO THEIR OWN WORK.

DATE RECEIVED 7/30/2025
SPECIFICATION SECTION # 03071
SPECIFICATION Epoxies
PARAGRAPH 1.03, 2.02
DRAWING N/A
SUBCONTRACTOR N/A
SUPPLIER Sika Corp.
MANUFACTURER N/A

CERTIFIED BY CQCM or Designee :_____

SECTION 03071

EPOXIES

PART 1 GENERAL

1.01 SUMMARY

A. Section includes:
   1. Epoxy.
   2. Epoxy gel.
   3. Epoxy bonding agent.

1.02 REFERENCES

A. ASTM International (ASTM):
   1. C881 - Standard Specification for Epoxy-Resin-Base Systems for Concrete.
   2. C882 - Standard Test Method for Bond Strength of Epoxy-Resin Systems Used with Concrete by Slant Shear.
   3. D638 - Standard Test Method for Tensile Properties of Plastics.
   4. D695 - Standard Test Method for Compressive Properties of Rigid Plastics.

1.03 SUBMITTALS

A. General: Submit as specified in Section 01330 - Submittal Procedures.

B. Product Data: Submit manufacturer's data completely describing epoxy materials:
   1. Submit evidence of conformance to ASTM C881. Include manufacturer’s designations of Type Grade, Class, and Color.
   2. Submit documentation that materials meet or exceed the specified strength and performance characteristics. Indicate test methods and test results.

C. Quality control submittals:
   1. Manufacturer's installation instructions.

PART 2 PRODUCTS

2.01 DESIGN AND PERFORMANCE CRITERIA

A. Performance requirements:
   1. Provide epoxy materials that are new.
   2. Store and use products within limitations set forth by manufacturer.
   3. Perform and conduct work of this Section in neat orderly manner.

2.02 MATERIALS

A. General:
   1. Moisture tolerant, water-insensitive, two-component epoxy resin adhesive material containing 100 percent solids, and meeting or exceeding the performance properties specified when tested in accordance with the standards specified.

B. Epoxy: Low viscosity product in accordance with ASTM C881; Types I, II and IV; Grade 1; Class C , except as modified in this Section.
   1. Manufacturers: One of the following or equal:
      a. Master Builders Solutions, MasterInject 1380.
      b. Dayton Superior, Unitex Pro-Poxy 100.
      c. Sika Corporation, Sikadur 35 Hi-Mod LV.
   2. Required properties:

Table 1 - Material Properties - Epoxy		
Property	**Test Method**	**Required Results ("neat")**
Tensile Strength (7-day)	ASTM D638	7,000 pounds per square inch, minimum.
Compressive Yield Strength (7-day)	ASTM D695	10,000 pounds per square inch, minimum.
Bond Strength (harded concrete to harded concrete after2-day cure)	ASTM C882	1,000 pounds per square inch, minimum. Concrete failure before failure of epoxy.
Viscosity (mixed)		250-550 centipoise
Notes:	Testing results are for materials installed and cured at a temperature between 72 and 78 degrees Fahrenheit for 7 days, unless otherwise noted.	

C. Epoxy gel: Non-sagging product in accordance with ASTM C881, Types I and IV, Grade 3, Class C.
   1. Manufacturers: One of the following or equal:
      a. Master Builders Solutions, MasterEmaco ADH 327.
      b. Dayton Superior, Sure Anchor J50.
      c. Sika Corp., Sikadur 31, Hi-Mod Gel.
   2. Required properties:

Table 2 - Material Properties - Epoxy Gel		
Property	**Test Method**	**Required Results ("neat")**
Tensile Strength (7-day)	ASTM D638	2,000 pounds per square inch, minimum.
Compressive Yield Strength (7-day)	ASTM D695	8,000 pounds per square inch, minimum.

Table 2 - Material Properties - Epoxy Gel		
Property	**Test Method**	**Required Results ("neat")**
Bond Strength (14-day)	ASTM C882	1,500 pounds per square inch, minimum.
Notes:	Testing results are for materials installed and cured at a temperature between 72 and 78 degrees Fahrenheit for 7 days, unless otherwise noted.	

D. Epoxy bonding agent: Non-sagging product in accordance with ASTM C881, Type II, Grade 2, Class C.
   1. Manufacturers: One of the following or equal:
      a. Master Builders Solutions, MasterEmaco ADH 326.
      b. Dayton Superior, Sure Bond J58.
      c. Sika Chemical Corp., Sikadur 32 Hi-Mod LPL.
   2. Required properties.

Table 3 - Material Properties - Epoxy Bonding Agent		
Property	**Test Method**	**Required Results**
Tensile Strength (7-day)	ASTM D638	3,300 pounds per square inch, minimum.
Compressive Yield Strength (7-day)	ASTM D695	8,300 pounds per square inch, minimum.
Bond Strength (14-days)	ASTM C882	1,800 pounds per square inch, minimum. Concrete failure before failure of epoxy bonding agent.
Pot Life	-	Minimum 60 minutes at 77 degrees Fahrenheit.
Notes:	Testing results are for materials installed and cured at a temperature between 72 and 78 degrees Fahrenheit for 7 days, unless otherwise noted.	

   3. If increased contact time is required for concrete placement, epoxy resin/portland cement bonding agent as specified in Section 03072 - Epoxy Resin/Portland Cement Bonding Agent may be used instead of epoxy bonding agent.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install and cure epoxy materials in accordance with manufacturer's installation instructions.

B. Epoxy:
   1. Apply in accordance with manufacturer's installation instructions.

C. Epoxy gel:
   1. Apply in accordance with manufacturer's installation instructions.
   2. Use for vertical or overhead work, or where high viscosity epoxy is required.
   3. Epoxy gel used for vertical or overhead work may be used for horizontal work.

D. Epoxy bonding agent:
   1. Apply in accordance with manufacturer's installation instructions.
   2. Bonding agent will not be required for filling form tie holes or for normal finishing and patching of similar sized small defects.

END OF SECTION

Construction

Product Data Sheet
Edition 11.12.2010
Identification no. 350
Sikadur 35, Hi-Mod LV

Sikadur® 35, Hi-Mod LV

High-modulus, low-viscosity, high-strength epoxy grouting/sealing/binder adhesive

Description	Sikadur 35, Hi-Mod LV is a 2-component, 100% solids, moisture-tolerant, low-viscosity, high-strength, multi-purpose, epoxy resin adhesive. It conforms to the current ASTM C-881, Types I, II, and IV, Grade-1, C* and AASHTO M-235 specifications. * except for gel time
Where to Use	■ Pressure-injection of cracks in structural concrete, masonry, wood, etc. ■ Gravity-feed of cracks in horizontal concrete and masonry. ■ Epoxy resin binder for epoxy mortar patching and overlay of interior, horizontal surfaces. ■ Seal interior slabs and exterior above-grade slabs from water, chlorides, and mild chemical attack; also improves wearability.
Advantages	■ Super low viscosity. ■ Convenient easy mix ratio A:B = 2:1 by volume. ■ Unique, high-strength, structural adhesive for "can't dry" surfaces. ■ Deep penetrating and tenacious bonding of cracks in structural concrete. ■ High-early-strength developing adhesive. ■ Excellent chemical resistance for flooring systems.
Coverage	1 gal. yields 231 cu. in. of adhesive and grout. 1 gal. of adhesive, when mixed with 5 gal. by loose volume of oven-dried aggregate, yields approximately 808.5 cu. in. of epoxy mortar.
Packaging	3 gal. units; 1 gal. units; 12 fl.-oz. units, 12/case.

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	Clear, amber.			
Mixing Ratio	Component A : Component B=2:1 by volume.			
Viscosity (Mixed)	Approximately 375 cps.			
Pot Life	Approximately 25 minutes. (60 gram mass)			
Tack Free Time	**40°F (4°C)**	**73°F (23°C)**	**90°F (32°C)**	
(3-5 mils) Neat	14-16 hrs.	3-3.5 hrs.	1.5-2 hrs.	

Tensile Properties (ASTM D-638)		**Neat**		**Mortar**
7 day	Tensile Strength	8,900 psi (61.4 MPa)	**14 day**	840 psi (5.8 MPa)
	Elongation at Break	5.4%		0.3%
14 day	Modulus of Elasticity	4.1 X 10^5 psi (2,800 MPa)		7.6 X 10^5 psi (5,200 MPa)

Flexural Properties (ASTM D-790)			
14 day	Flexural Strength (Modulus of Rupture)	14,000 psi (96.6 MPa)	2,200 psi (15.2 MPa)
	Tangent Modulus of Elasticity in Bending	3.7 x 10^5 psi (2,600 MPa)	9.5 X 10^5 psi (6,500 MPa)

Shear Strength (ASTM D-732)			
14 day	Shear Strength	5,100 psi (35.2 MPa)	2,300 psi (15.9 MPa)

Heat Deflection Temperature (ASTM D-648)			
7 day	[fiber stress loading = 264 psi (1.8 MPa)]	124°F (51°C)	129°F (54°C)

Bond Strength (ASTM C-882): Hardened concrete to hardened concrete			
2 day	**(moist cure)**	Bond Strength	4,000 psi (27.6 MPa)
14 day	**(moist cure)**	Bond Strength	2,900 psi (20.0 MPa)
2 day	**(dry cure)**	Bond Strength	2,800 psi (19.3 MPa)

Water Absorption (ASTM D-570) **7 day** (24 hour immersion)0.27 %

Compressive Properties (ASTM D-695)

Compressive Strength, psi (MPa)	**Neat**			**Mortar (1:5)**		
	40°F (4°C)	73°F (23°C)	90°F (32°C)	40°F(4°C)	73°F (23°C)	90°F (32°C)
4 hour	-	-	-	-	-	800 (5.5)
8 hour	-	180 (1.2)	3,200 (22.1)	-	-	4,100 (28.3)
16 hour	-	4,500 (31.1)	6,300 (43.5)	-	400 (2.8)	5,700 (39.3)
1 day	-	6,000 (41.4)	9,100 (62.8)	120 (0.8)	5,000 (34.5)	6,900 (47.6)
3 day	4,000 (27.6)	10,700 (73.8)	10,500 (72.5)	6,200 (42.8)	6,800 (46.9)	7,000 (48.3)
7 day	6,800 (46.9)	11,000 (75.9)	10,500 (72.5)	6,300 (43.5)	7,900 (54.5)	8,800 (60.7)
14 day	10,300 (71.1)	12,000 (82.8)	10,500 (72.5)	6,800 (46.9)	8,500 (58.7)	8,800 (60.7)
28 day	12,400 (85.6)	13,000 (89.7)	10,500 (72.5)	7,000 (48.3)	8,600 (59.3)	8,800 (60.7)

Compressive Modulus		**Neat**		**Mortar**
	7 day	3.2 X 10^5 psi (2,200 MPa)	**28 day**	8.1 X 10^5 psi (5,600 MPa)

Construction

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 and disintegrated materials.

Preparation Work:

Concrete - Blast clean, shot blast or use other approved mechanical means to provide an open roughened texture. **Steel** - Should be cleaned and prepared thoroughly by blast cleaning.

Mixing

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 uniformly blended.
Mix only that quantity that can be used within its pot life.

To prepare an epoxy mortar, slowly add 4-5 parts by loose volume of an oven-dried aggregate to 1 part of the mixed Sikadur 35, Hi-Mod LV and mix until uniform in consistency.

Application

To gravity feed cracks - Blow vee-notched crack clean with oil-free compressed air. Pour neat Sikadur 35, Hi-Mod LV into vee-notched crack. Continue placement until completely filled. Seal underside of slab prior to filling if cracks reflect through.

To pressure-inject cracks - Use automated injection equipment or manual method. Set appropriate injection ports based on system used. Seal ports and crack with Sikadur 31, Hi-Mod Gel or Sikadur 33. When the epoxy adhesive seal has cured, inject Sikadur 35, Hi-Mod LV with steady pressure. Consult Technical Service for additional information.

To seal slabs - Spread neat Sikadur 35, Hi-Mod LV over slab. Allow penetration. Remove excess to prevent surface film. Seal interior slabs and above-grade exterior slabs only.

For an epoxy mortar - Prime prepared surface with neat Sikadur 35, Hi-Mod LV. Place prepared epoxy mortar before primer becomes tack-free. Place the epoxy mortar using trowels. Compact and level with vibrating screed or trowels. Finish with finishing trowel. Sikadur 35, Hi-Mod LV mortar is for interior use only.

Limitations

- Minimum substrate and ambient temperature 40°F (4°C).
- Do not thin with solvents. Consult Technical Service at 800-933-7452.
- Use oven-dried aggregate only.
- Maximum epoxy mortar thickness is 1.5 in. (38 mm) per lift.
- Epoxy mortar is for interior use only.
- Do not seal exterior slabs on grade.
- Minimum age of concrete must be 21-28 days, depending on curing and drying conditions, for mortar and to seal slabs.
- Porous substrates must be tested for moisture-vapor transmission prior to application.
- Not for injection of cracks under hydrostatic pressure at the time of application.
- Do not inject cracks greater than ¼ in. (6 mm) Consult Technical Service.
- Not an aesthetic product. Color may alter due to variations in lighting and/or UV exposure.

Warning

Component 'A' - IRRITANT; SENSITIZER - Contains epoxy resin, nonyl phenol. May cause skin sensitization after prolonged or repeated contact. Eye irritant. May cause skin/respiratory irritation. Harmful if swallowed.

Component 'B' - CORROSIVE; IRRITANT; SENSITIZER Contains amines, benzylalcohol, nonyl phenol. Contact with eyes or skin causes severe burns. May cause skin sensitization after prolonged or repeated contact. Eye irritant. May cause respiratory irritation. Harmful if swallowed. Deliberate concentration of vapors of Component A or B for purposes of inhalation is harmful and can be fatal.

First Aid

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

Wear chemical resistant gloves/goggles/clothing. Ventilate area. In absence of adequate general and local exhaust ventilation, use a properly filled NIOSH respirator. Confine spill. Collect with absorbent material. Dispose of in accordance with current, applicable local, state and federal regulations. Uncured material can be removed with solvent. Strictly follow manufacturer's warnings and instructions for use. Cured material can only be removed mechanically.

Handling & Storage

Avoid direct contact with skin and eyes. Wear chemical resistant gloves/goggles/clothing. Use only with adequate ventilation. In absence of adequate general and local exhaust ventilation, use a properly filled NIOSH respirator. Wash thoroughly after handling product. Launder clothing before reuse. Store in a cool dry well ventilated area.

Visit our website at www.sikaconstruction.com **1-800-933-SIKA NATIONWIDE**

Regional Information and Sales Centers. For the location of your nearest Sika sales office, contact your regional center.

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201 Polito Avenue
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Sika Canada Inc.
601 Delmar Avenue
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Sika Mexicana S.A. de C.V.
Carretera Libre Celaya Km. 8.5
Fracc. Industrial Balvanera
Corregidora, Queretaro
C.P. 76920
Phone: 52 442 2385800
Fax: 52 442 2250537

BUILDING TRUST

PRODUCT DATA SHEET

Sikadur®-31 Hi-Mod Gel

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

PRODUCT DESCRIPTION

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.

USES

Sikadur®-31 Hi-Mod Gel may only be used by experienced professionals.

- Structural bonding of concrete, masonry, metals, wood, etc. to a maximum glue line of 1⁄8 in. (3 mm).
- Grout bolts, dowels, and pins.
- 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.

CHARACTERISTICS / ADVANTAGES

- Meets physical requirements of ASTM C-881 Types I, II & IV, Grade 3, Classes B & C.
- Suitable for potable water contact, meets NSF/ANSI Standard 61.
- Excellent adhesion to concrete, masonry, metals, wood, and most structural materials.
- Paste consistency ideal for vertical and overhead repair of concrete.
- Fast-setting and strength-producing adhesive.
- Convenient easy mix ratio A:B = 1:1 by volume.

PRODUCT INFORMATION

Packaging	1 gal. and 3 gal. (11.4 L) units.
Color	Concrete gray
Shelf Life	24 months in original, unopened containers
Storage Conditions	Store dry at 40–95 °F (4–35 °C). Condition material to 65–85 °F (18–29 °C) before using.
Consistency	Non-sag paste

TECHNICAL INFORMATION

Compressive Strength (ASTM D-695)

	40 °F (4 °C)* **	73 °F (23 °C)* **	90 °F (32 °C)* **
2 hours	-	-	450 psi (3.1 MPa)
4 hours	-	800 psi (5.5 MPa)	10,500 psi (72.4 MPa)
8 hours	-	8,500 psi (58.6 MPa)	11,000 psi (75.8 MPa)
16 hours	-	10,000 psi (68.9 MPa)	11,500 psi (79.3 MPa)
1 day	2,000 psi (13.8 MPa)	11,000 psi (75.8 MPa)	11,800 psi (81.4 MPa)
3 days	6,000psi (41.4 MPa)	12,000 psi (82.7 MPa)	12,000 psi (82.7 MPa)
7 days	10,000 psi (68.9 MPa)	12,300 psi (84.8 MPa)	12,400 psi (85.5 MPa)
14 days	11,000 psi (75.8 MPa)	12,500 psi (86.2 MPa)	13,000 psi (89.6 MPa)
28 days	12,000 psi (82.7 MPa)	13,000 psi (89.6 MPa)	13,000 psi (89.6 MPa)

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

Modulus of Elasticity in Compression	5.6 X 10^5 psi (53,861 MPa) (7 days)	(ASTM D-695) 73 °F (23 °C) 50 % R.H.
Flexural Strength	6,100 psi (42.0 MPa) (7 days)	(ASTM D-790) 73 °F (23 °C) 50 % R.H.
Modulus of Elasticity in Flexure	1.5 X 10^6 psi (10,342 MPa) (7 days)	(ASTM D-790) 73 °F (23 °C) 50 % R.H.
Tensile Strength	3,300 psi (22.7 MPa) (7 days)	(ASTM D-638) 73 °F (23 °C) 50 % R.H.
Elongation at Break	0.9 % (7 days)	(ASTM D-638) 73 °F (23 °C) 50 % R.H.
Tensile Adhesion Strength	**Hardened Concrete to Hardened Concrete:** 2 days (dry cure): 4,000 psi (27.5 MPa) 2 days (moist cure): 3,800 psi (26.2 MPa) 14 days (moist cure): 3,800 psi (26.2 MPa)	(ASTM C-882)
	Hardened Concrete to Steel: 2 days (dry cure): 2,900 psi (20.0 MPa)	(ASTM C-882)
	Tensile Bond Strength (Pull-off Method, Dyna): 2 days: 420 psi (2.9 MPa	(ASTM C-1583-04)
Shear Strength	4,600 psi (31.7 MPa) (7 days)	(ASTM D-732) 73 °F (23 °C) 50 % R.H.
Heat deflection temperature	(Fiber Stress Loading = 264 psi)135 °F (57 °C) (7 days)	(ASTM D-648)

Water Absorption	0.07 % (24 hours)	(ASTM D-570)

APPLICATION INFORMATION

Mixing Ratio	Component 'A' : Component 'B' = 1:1 by volume
Coverage	1 gal. yields 231 cu. in. (3,785 cm^3) 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^3) of epoxy mortar.
Pot Life	Approximately 60 minutes at 73 °F (500 gram mass)
Cure Time	Tack-Free Time: 1.5–2.5 hours at 30 mils. thick

BASIS OF 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.

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.

ENVIRONMENTAL, HEALTH AND SAFETY

For further information and advice regarding transportation, handling, storage and disposal of chemical products, user should refer to the actual Safety Data Sheets containing physical, environmental, toxicological and other safety related data. User must read the current actual Safety Data Sheets before using any products. In case of an emergency, call CHEMTREC at 1-800-424-9300, International 703-527-3887.

DIRECTIVE 2004/42/CE - LIMITATION OF EMISSIONS OF VOC

4.0 g/L (A+B)

SUBSTRATE 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 METHOD / TOOLS

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.

OTHER RESTRICTIONS

See Legal Disclaimer.

LEGAL DISCLAIMER

- **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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BUILDING TRUST

PRODUCT DATA SHEET

Sikadur®-32 Hi-Mod LPL

High-modulus, high-strength, extended pot life, epoxy bonding/grouting adhesive

PRODUCT DESCRIPTION

Sikadur®-32 Hi-Mod LPL is a multi-purpose, 2-component, 100% solids, moisture-tolerant, structural epoxy adhesive. Sikadur®-32 Hi-Mod LPL offers a long pot life and contact time even at 100 °F (38 °C). Sikadur®-32 Hi-Mod LPL conforms to the current ASTM C-881, Types I and II, Grade-2, Class-C and AASHTO M-235 specifications.

USES

Sikadur®-32 Hi-Mod LPL may only be used by experienced professionals.

- Hot weather concrete placements requiring a bonding adhesive.
- Bond fresh, plastic concrete to hardened concrete and steel.
- Grout horizontal cracks in structural concrete and wood by gravity feed.
- Machinery and baseplate grout.
- Structural adhesive for concrete, masonry, metal, wood, etc.

CHARACTERISTICS / ADVANTAGES

- Extended pot life and contact time at elevated temperatures.
- High-strength bonding/grouting adhesive.
- Tolerant of moisture before, during, and after cure.
- Excellent adhesion to most structural materials.
- Convenient easy-to-mix ratio A:B = 1:1 by volume.
- Easy-to-use for bonding/grouting applications.

PRODUCT INFORMATION

Packaging	1 (3.8 L) and 4 gal. (15.1 L) units
Color	Dark gray
Shelf Life	24 months 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
Viscosity	Approximately 2,800 cps.

TECHNICAL INFORMATION

Compressive Strength (ASTM D-695) 50 % R.H.

	40 °F* (4 °C)	73 °F* (23 °C)
1 day	-	-
3 day	-	10,700 psi (73.8 MPa)
7 day	2,500 psi (17.2 MPa)	11,000 psi (75.9 MPa)
14 day	8,300 psi (57.2 MPa)	12,000 psi (82.3 MPa)
28 day	10,000 psi (68.9 MPa)	13,000 psi (89.7 MPa)

* Material cured and tested at the temperatures indicated.

Modulus of Elasticity in Compression 2.6 x 10^5 psi (1,794 MPa) (28 days) (ASTM D-695) 73 °F (23 °C) 50 % R.H.

Flexural Strength 9,100 psi (62.8 MPa) (14 days) (ASTM D-790) 73 °F (23 °C) 50 % R.H.

Modulus of Elasticity in Flexure 7.3 X 10^5 psi (5,037 MPa) (14 days) (ASTM D-790) 73 °F (23 °C) 50 % R.H.

Tensile Strength 5,800 psi (40.0 MPa) (14 days) (ASTM D-638) 73 °F (23 °C) 50 % R.H.

Elongation at Break 5 % (14 days) (ASTM D-638) 73 °F (23 °C) 50 % R.H.

Shear Strength 6,400 psi (44.1 MPa) (14 days) (ASTM D-732) 73 °F (23 °C) 50 % R.H.

Slant Shear Strength (ASTM C-882) 73 °F (23 °C) 50 % R.H.

Plastic concrete to hardened concrete	2,200 psi (15.2 MPa)	14 day (moist cure)
Plastic concrete to steel	2,200 psi (15.2 MPa)	14 day (moist cure)
Hardened concrete to hardened concrete	3,100 psi (21.3 MPa)	2 day (dry cure)
Hardened concrete to hardened concrete	2,900 psi (20 MPa)	14 day (moist cure)

Heat Deflection Temperature 108 °F (42 °C) (14 days at (fiber stress loading = 264 psi {1.8 MPa}) (ASTM D-648)

Water Absorption 0.15 % (7 days, 4 hours) (ASTM D-570)

APPLICATION INFORMATION

Mixing Ratio Component 'A' : Component 'B' = 1:1 by volume

Pot Life	Approximately 90 minutes at 73 °F (23 °C). (8 fl. oz., 237 ml volume) Approximately 60 minutes at 100 °F (38 °C). (8 fl. oz., 237 ml volume)

Contact Time

	Substrate Temperature 40 °F (4 °C)	Substrate Temperature 73 °F (23 °C)	Substrate Temperature 90 °F (32 °C)
Material Temperature 73 °F (23 °C)	10–14 h	6–7 h	2–2.5 h
Material Temperature 100 °F (38 °C)	6–8 h	5–6 h	1.5–2 h

APPLICATION INSTRUCTIONS

SUBSTRATE 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 equal parts by volume of Component 'A' and Component 'B' into clean pail. Mix thoroughly for 3 minutes with Sika paddle on low-speed (400–600 rpm) drill until blend is a uniform color. Mix only that quantity that can be applied within its pot life.

APPLICATION METHOD / TOOLS

To bond fresh concrete to hardened concrete - Apply by brush, roller, broom, or spray. Place fresh concrete while Sikadur®-32 Hi-Mod LPL is still tacky. If coating becomes glossy and loses tackiness, remove any surface contaminants then recoat with additional Sikadur®-32 Hi-Mod LPL and proceed.

To grout base plates - Add 1 1/2 parts of oven-dried aggregate to 1 part of mixed Sikadur®-32 Hi-Mod LPL by volume. Place grout under baseplate. Avoid contact with the underside of the plate. A 1/4 to 3/8 in. (6–10 mm) space should remain between the top of the grout and the bottom of the plate. Maximum thickness of grout per lift is 1.5 in. (38 mm) If multiple lifts are needed, allow preceding layer to cool to touch before applying additional layer. The remaining 1/4 to 3/8 in. (6–10 mm) space should be filled with neat Sikadur®-32 Hi-Mod LPL. Pour a sufficient quantity of neat epoxy to allow the level to rise slightly higher than the underside of the bearing plate.

To gravity feed cracks - Pour neat material into vee-notched crack. Continue placement until completely filled. Seal underside of slab prior to filling if cracks reflect through.

LIMITATIONS

- Minimum substrate and ambient temperature 40 °F (4 °C)
- For spray applications, consult Technical Service
- Use only oven-dry aggregate
- Material is a vapor barrier after cure
- For applications on exterior, on-grade substrates, consult Technical Service
- Not an aesthetic product. Color may alter due to variations in lighting and/or UV exposure

BASIS OF 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.

OTHER RESTRICTIONS

See Legal Disclaimer.

ENVIRONMENTAL, HEALTH AND SAFETY

For further information and advice regarding transportation, handling, storage and disposal of chemical products, user should refer to the actual Safety Data Sheets containing physical, environmental, toxicological and other safety related data. User must read the current actual Safety Data Sheets before using any products. In case of an emergency, call CHEMTREC at 1-800-424-9300, International 703-527-3887.

LEGAL DISCLAIMER

• KEEP CONTAINER TIGHTLY CLOSED

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