BUILDING TRUST
CONSTRUIRE LA CONFIANCE

PRODUCT DATA SHEET
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COMPOSITE REINFORCING

Sikadur®-30

HIGH MODULUS, HIGH STRENGTH, STRUCTURAL EPOXY PASTE ADHESIVE FOR USE WITH Sika® CarboDur® REINFORCEMENT SYSTEM

Description

Sikadur®-30 is a two-component, 100 % solids, moisture-tolerant, high modulus, high strength, structural epoxy paste adhesive. Meets ASTM C881 and AASHTO M-235 requirements.

Where to Use

- Adhesive for bonding external reinforcement to concrete, masonry, steel, wood, stone, etc.
- Structural bonding of composite laminates (Sika® CarboDur® CFRP) to concrete, brickwork and timber.
- Structural bonding of steel plates to concrete.
- Suitable for use in vertical and overhead configurations.
- Multi-purpose, high strength, structural epoxy paste adhesive.
- As a binder for epoxy mortar repairs.
- Designed for use at normal temperatures between 8 and 35 °C (46 and 95 °F).

Advantages

- Long pot life and open time.
- Moisture tolerant before, during and after cure.
- High modulus, high strength, structural paste adhesive.
- Excellent adhesion to concrete, masonry, metals, wood and most structural materials.
- Fully compatible and excellent adhesion to Sika® CarboDur® CFRP composite laminates.
- Paste consistency ideal for vertical and overhead applications.
- High creep resistance under permanent loads.
- High abrasion and shock resistances.
- Convenient easy mix ratio A:B = 3:1 by weight.
- Solvent-free.
- Colour coded components to ensure proper mixing control.
- Canadian Food Inspection Agency accepted.
- Approved by the Ministère des Transports du Québec.

Technical Data

Packaging	10 kg (6 L) unit	
Colour	Component A	White
	Component B	Black
	Components A+B	Light Grey
Yield		
Type of Laminate	**Sikadur®-30**	
	kg/Linear meter	(lb/ft)
S512	0.30	(0.20)
M614	0.36	(0.24)
S812	0.48	(0.32)
M914	0.54	(0.36)
S1012/S1014/M1014	0.60	(0.40)
S1214/M1214	0.72	(0.48)
S1512	0.90	(0.60)

Yield is based on a 3 mm (1/8 in) nominal thickness and does not take into consideration the plane, roughness of substrate as well as laminate crossings. Actual consumption of adhesive will then be higher.

Shelf Life	2 years in original, unopened packaging. Store dry at 5 to 32 °C (41 to 89 °F). Condition product to 15 to 24 °C (59 to 75 °F) before using.	
Mix Ratio	A:B = 3:1 by weight and by volume	

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

Density (A+B)	1.65 kg/L (14.0 lb/US gal.)	
Pot Life [20°C (68°F)]	Approx. 1 hr 30 min	
Open Time	Approx. 1 hr 50 min	
Tensile Properties ASTM D 638		
7 days	Tensile strength	24.8 MPa (3598 psi)
	Elongation at break	1 %
	Modulus of elasticity	4.5 GPa (65.3 x 10^4 psi)
Flexural Properties ASTM D 790		
14 days	Modulus of rupture	46.8 MPa (6790 psi)
	Tangent modulus of elasticity in bending	11.7 GPa (17.0 x 10^5 psi)
Shear Strength ASTM D 732		
14 day cure @ 15 °C (59 °F)	15 MPa (2175 psi)	
14 day cure @ 35 °C (95 °F)	17 MPa (2465 psi)	

Bond Strength ASTM C882			
Hardened concrete to hardened concrete			
2 days	Moist cure		18.6 MPa (2699 psi)
2 days	Dry cure		22 MPa (3192 psi)
14 days	Moist cure		21.3 MPa (3091 psi)
Hardened concrete to steel			
2 days	Moist cure		17.9 MPa (2597 psi)
2 days	Dry cure		20.6 MPa (2989 psi)
14 days	Moist cure		17.9 MPa (2597 psi)
Deflection Temperature ASTM D648			
7 day cure @ 10 °C (50 °F)	Fiber stress loading =		30 °C (86 °F)
7 day cure @ 35 °C (95 °F)	1.8 MPa (264 psi)		53 °C (127 °F)
Water Absorption ASTM D570			
24 hrs	0.03%		
Compressive Strength ASTM D695, MPa (psi)			
	5 °C (41 °F)*	**23 °C (73 °F)***	**32 °C (89 °F)***
4 hrs	-	-	37.9 (5499)
8 hrs	-	24.1 (3497)	46.2 (6703)
16 hrs	-	46.2 (6703)	51 (7400)
1 day	5.1 (740)	53.7 (7792)	53.7 (7792)
3 days	46.8 (6790)	57.2 (8300)	57.2 (8300)
7 days	55.1 (7995)	59.3 (8604)	59.3 (8604)
14 days	58.6 (8503)	59.3 (8604)	61.3 (8894)
28 days	58.6 (8503)	59.3 (8604)	62 (8996)
*Product cured and tested at temperatures indicated.			
Modulus of Elasticity ASTM D695			
7 days	2.69 GPa (39.0 x 10^4 psi)		
Coefficient of Thermal Expansion	9 x 10^5/°C [Temperature range: -10 to 40 °C (14 to 104 °F)]		

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 and frost. Remove dust, laitance, grease, curing compounds, impregnations, waxes, foreign particles, disintegrated materials, and other bond inhibiting materials from the surface. Existing uneven surfaces must be filled with an appropriate repair mortar (i.e. Sikadur®-30 with the addition of 1 part silica sand). The concrete adhesive strength must be verified after surface preparation by random pull-off testing (ACI 503R) at the engineer's discretion. Minimum tensile strength : 1.5 MPa (218 psi) with concrete substrate failure.

Planeness of substrate to be checked with a metal batten. tolerance for 2 m (6.5 ft) length max. 10 mm (3/8 in), or 2.5 mm (3/32 in) for 50 cm (20 in) length respectively.

Concrete: Blast clean, shotblast or use other approved mechanical means to provide an open roughened texture. (CSP 5) steel: Sandblast to white metal finish.

Timber: Blast clean or grind. After cleaning, remove all dust from the surface with an industrial vacuum cleaner.

CarboDur®: Surface should be wiped clean using an appropriate cleaner. Using a clean white cloth wipe down the side receiving adhesive (this side is not labeled) with acetone until all residual carbon dust is removed (i.e. the white cloth remains white after wiping the laminate).

In the case where the design requires "stacking" of the strips, the bottom surface of the strip (labeled) should be lightly sanded (emery paper type 180) and cleaned as above prior to the application of the second strip.

Mixing

Pre-mix each component. Proportion 1 part of component B to 3 parts of component A by volume into a clean pail. Mix for three (3) minutes using a low-speed drill (300 - 450 rpm) to minimize air entrapment. Use a *Exomixer®* type mixing paddle (recommended model). During the mixing operation, scrape down the sides and bottom of the pail with a flat or straight edge trowel at least once to ensure thorough mixing. Upon completion of mixing, Sikadur®-30 should be uniform in colour. Mix only that quantity you can use within its pot life.

Application

For bonded, external reinforcement: Apply the neat mixed Sikadur®-30 onto the concrete with a trowel or spatula to a nominal thickness of 1.5 mm (1/16 in). Apply mixed Sikadur®-30 onto the CarboDur® laminate with a "roof-shaped" spatula to a nominal thickness of 1.5 mm (1/16 in). Within the epoxy open time and depending on the temperature, place CarboDur® laminate onto the concrete surface. Using a hard rubber roller, press the laminate into the epoxy resin until the adhesive is forced out on both sides. Remove excess adhesive. Glue line should not exceed 3 mm (1/8 in). The laminate must not be disturbed for a minimum of 24 hours. The epoxy will reach its design strength after 7 days.

For vertical and overhead patching: Work Sikadur®-30 with the addition of 1 part oven dried sand into the prepared substrate, filling the cavity. Strike off level. Lifts should not exceed 25 mm (1 in).

Clean Up

Clean all tools and equipment immediately with Sika® Epoxy Cleaner. Once hardened, product can only be removed mechanically. Wash soiled hands and skin thoroughly in hot, soapy water.

Limitations

- Minimum substrate and ambient temperature: 5 °C (41 °F).
- Maximum substrate and ambient temperature: 35 °C (95 °F).
- Do not thin: Solvents will prevent proper cure.
- Use oven-dried aggregate only.
- Maximum glue line of neat epoxy: 3 mm (1/8 in).
- Maximum epoxy mortar thickness: 25 mm (1 in) per lift.
- Material is a vapour barrier after cure.
- Minimum adhesive strength of concrete substrate: 1.5 MPa (218 psi).
- Minimum age of concrete must be between 21 and 28 days, depending upon curing and drying
- conditions.
- Porous substrates must be tested for moisture-vapour transmission prior to mortar applications.

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

SIKA CANADA INC.
Head Office
601, avenue Delmar
Pointe-Claire, Quebec
H9R 4A9

Other locations
Toronto
Edmonton
Vancouver

1-800-933-SIKA
www.sika.ca

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