

## PRODUCT DATA SHEET

# SikaWrap<sup>®</sup>-103 C Pre-Saturated

### CARBON FIBER FABRIC FOR STRUCTURAL STRENGTHENING

#### PRODUCT DESCRIPTION

SikaWrap<sup>®</sup>-103 C Pre-Saturated is a high strength, unidirectional carbon fiber fabric pre-saturated to form a carbon fiber reinforced polymer (CFRP) used to strengthen structural concrete elements.

#### USES

##### Load Increases

- Increased live loads
- Increased traffic volumes on bridges
- Installation of heavy machinery in industrial buildings
- Vibrating structures
- Changes of building utilization

##### Seismic Strengthening

- Column wrapping
- Masonry walls

##### Damage to Structural Parts

- Aging of construction materials
- Vehicle impact
- Fire
- Blast resistance

##### Changes in the Structural System

- Removal of walls or columns
- Removal of slab sections for openings

##### Corrections to Design or Construction Defects

- Insufficient reinforcements
- Insufficient structural depth

#### CHARACTERISTICS / ADVANTAGES

- Used for shear, confinement, seismic or flexural strengthening
- Versatile, can be wrapped around complex geometries
- High Strength
- Light Weight
- Non-corrosive
- Alkali Resistant
- Low aesthetic impact
- 2-hour open time

#### APPROVALS / STANDARDS

- Use in accordance with American Concrete Institute (ACI) 440 Guides for the Design and Construction of Externally Bonded FRP Systems for Strengthening Concrete / Unreinforced Masonry Structures.

#### PRODUCT INFORMATION

##### Fiber Type

**Primary Fiber Direction:** 0° (unidirectional) - Carbon  
**Color:** Black

##### Packaging

Rolls: 24 in. x 30 ft. (61 cm x 9.14 m); Box contains 2 rolls.

<b>Shelf Life</b>	1 year from date of manufacture if stored properly in original, unopened, undamaged, sealed packaging.
<b>Storage Conditions</b>	Store dry at 40°- 95° F (4°- 35° C)
<b>Dry Fibre Density</b>	0.065 lbs./in <sup>3</sup> (1.8 g/cm <sup>3</sup> )
<b>Dry Fibre Thickness</b>	0.0135 in. (0.34 mm)
<b>Area Density</b>	18 oz. / sq. yd. (610 g/m <sup>2</sup> )
<b>Dry Fibre Tensile Strength</b>	5.5 x 10 <sup>5</sup> psi (3,793 MPa)
<b>Dry Fibre Modulus of Elasticity in Tension</b>	34 x 10 <sup>6</sup> psi (234.4 GPa)
<b>Dry Fibre Elongation at Break</b>	1.5%

## TECHNICAL INFORMATION

<b>Nominal Ply Thickness</b>	<b>Avg. Ultimate Value</b> 0.035 in. (0.889 mm)	<b>Design Value</b> 0.035 in. (0.889 mm)	-
<b>Tensile Strength</b>	<b>Avg. Ultimate Value</b> 147,594 psi (1,018 MPa)	<b>Design Value (<math>f_{fu}^*</math>)</b> 120,589 psi (831 MPa) *	(ASTM D 3039 / ASTM D 7565) at 73° F (23° C), 50% R.H.
	* Average ultimate value minus 3 standard deviations		
<b>Tensile Modulus</b>	<b>Avg. Ultimate Value</b> -	<b>Design Value (<math>E_f</math>)</b> 12.32 msi (85.0 GPa)	(ASTM D 3039 / ASTM D 7565) at 73° F (23° C), 50% R.H.
<b>Tensile % Elongation</b>	<b>Avg. Ultimate Value</b> 1.12%	<b>Design Value (<math>\epsilon_{fu}^*</math>)</b> 1.0% *	(ASTM D 3039 / ASTM D 7565) at 73° F (23° C), 50% R.H.
	* Average ultimate value minus 3 standard deviations		
<b>Tensile Resistance</b>	<b>Avg. Ultimate Value</b> 5.17 kips/in. width (923 kg/cm width) *	<b>Design Value</b> 4.22 kips/in. (754 kg/cm width) *	-
	* Average ultimate value minus 3 standard deviations		
<b>Tensile Stiffness</b>	<b>Avg. Ultimate Value</b> -	<b>Design Value (<math>E_f A_f</math>)</b> 431.2 kips/in. width (77,000 kg/cm width)	-

## APPLICATION INSTRUCTIONS

### SUBSTRATE 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. Consult the current product data sheets for Sikadur-330 / Sikadur 340 / Sikadur 345 for additional information on surface preparation. Existing uneven surfaces must be filled with an appropriate repair mortar. The adhesive

strength of the concrete must be verified after surface preparation by random pull-off testing (ASTM D 4541) at the discretion of the engineer. Minimum tensile strength, 200 psi (1.4 MPa) with concrete substrate failure is typical.

**Preparation Work: Concrete** - Blast clean, shotblast or use other approved mechanical means to provide a roughened, open-textured surface (minimum ICRI CSP-3). Round all corners to 1/2" radius in certain "contact critical" applications and at the engineers discretion, a thorough cleaning of the substrate using low pressure sand blasting or water blasting may be sufficient. If a wet method is chosen, a thorough amount of drying time will

be needed.

## APPLICATION METHOD / TOOLS

Prior to placing the fabric, the concrete surface is primed and sealed using either Sikadur®-330, Sikadur® 340 or Sikadur® 345. In either case, installation of this system should be performed only by a specially trained contractor.

### Tooling & Finishing

Fabric can be cut to appropriate lengths by using a commercial quality, heavy duty scissor. Since the dull or worn cutting implements can damage, weaken or fray the fabric, their use should be avoided.

**Open time:** 2 hours after foil is opened at standard, normal temperature and relative humidity conditions. Fabric must be placed while the Sikadur® adhesive is still in a tacky condition. The installer is strongly encouraged to apply the fabric in a timely manner after removal from its sealed foil packaging.

## LIMITATIONS

- System is a vapor barrier. Concrete should not be fully encapsulated in areas of freeze/thaw. Consideration should be given to the substrate's ability to "breathe" (i.e. the release of moisture vapor).
- Design calculations must be made and certified by an independent licensed professional engineer.
- Do not place carbon fiber in direct contact with steel. Must be isolated (e.g. glass fabric) to protect against corrosion.

## 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
- KEEP OUT OF REACH OF CHILDREN
- NOT FOR INTERNAL CONSUMPTION
- FOR INDUSTRIAL USE ONLY
- FOR PROFESSIONAL USE ONLY

Prior to each use of any product of Sika Corporation, its subsidiaries or affiliates ("SIKA"), the user must always read and follow the warnings and instructions on the product's most current product label, Product Data Sheet and Safety Data Sheet which are available at [usa.sika.com](http://usa.sika.com) or by calling SIKA's Technical Service Department at 800-933-7452. Nothing contained in any SIKA literature or materials relieves the user of the obligation to read and follow the warnings and instructions for each SIKA product as set forth in the current product label, Product Data Sheet and Safety Data Sheet prior to use of the SIKA product.

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 Product Data Sheet if used as directed within the product's shelf life. User determines suitability of product for intended use and assumes all risks. User's and/or buyer's sole remedy shall be limited to the purchase price or replacement of this product exclusive of any labor costs. **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. SIKA SHALL NOT BE RESPONSIBLE FOR THE USE OF THIS PRODUCT IN A MANNER TO INFRINGE ON ANY PATENT OR ANY OTHER INTELLECTUAL PROPERTY RIGHTS HELD BY OTHERS.**

Sale of SIKA products are subject to the Terms and Conditions of Sale which are available at <https://usa.sika.com/en/group/SikaCorp/termsandconditions.html> or by calling 201-933-8300.

**Sika Corporation**  
201 Polito Avenue  
Lyndhurst, NJ 07071  
Phone: 800-933-7452  
Fax: 201-933-6225

**Sika Canada Inc.**  
601 Delmar Avenue  
Pointe Claire  
Quebec H9R 4A9  
Phone: 514-697-2610  
Fax: 514-694-2792

**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



Product Data Sheet  
SikaWrap®-103 C Pre-Saturated  
March 2019, Version 01.03  
020206020050000002

SikaWrap-103CPre-Saturated-en-US-(03-2019)-1-3.pdf

