

Tyfo® UC Composite Laminate Strip System

DESCRIPTION

Tyfo® UC Composite Laminate Strip System is comprised of a high modulus, high tensile strength, pull-formed, epoxy-carbon composite adhered to the primed substrate by a layer of Tyfo® TC Epoxy.

USE

For post-reinforcing of general building construction, industrial buildings, parking structures, bridges and other structures constructed of concrete, wood and steel.

ADVANTAGES

- Good high temperature properties
- Good low temperature properties
- Consistent material properties
- Ease of installation
- Pull-formed composites do not contain releasing agents that affect material properties
- High tensile modulus and strength
- 100% epoxy matrix

COVERAGE

Surface area coverage for Tyfo® UC Composite Laminate Strips is dependent on the width and length ordered (see "Available Widths and Thicknesses for Tyfo® UC Composite Laminate Strips"). One unit of Tyfo® TC Epoxy will cover approximately 30 to 75 sq. ft. (2.8 to 7m²) of surface area at a thickness of 1/16" (2mm). The existing condition of the surface as well as the temperatures of both the epoxy and application surface will significantly affect the coverage estimation.

PACKAGING

Tyfo® UC Strips are available in any length. Standard rolls come in 100, 250 and 500 foot lengths. Strips are rolled to approximately 36" (914mm) inside diameter. Typically ships in 40" x 40" x 6" (1016mm x 1016mm x 152mm) boxes. Tyfo® TC Epoxy pre-measured units ship in 5-gallon containers. See "Tyfo® TC Epoxy" data sheet for more information.

MIX RATIO

See "Tyfo® TC Epoxy" data sheet for mix ratio information.

SHELF LIFE

Epoxy - two years in original, unopened and properly stored containers.
Strips - ten years in proper storage conditions.

STORAGE CONDITIONS

Store in a dry location at 40° to 90° F (4° to 32° C). Avoid freezing.

CERTIFICATE OF COMPLIANCE

- Will be supplied upon request, complete with state and federal packaging laws with copy of labels used.
- Material safety data sheets will be supplied upon request.

8/06 Tyfo® UC Strips

TYPICAL DRY FIBER PROPERTIES

Tensile Strength	711,000 psi (4.9 GPa)
Tensile Modulus	33.4 x 10 ⁶ psi (230 GPa)
Ultimate Elongation	2.1%
Density	0.065 lbs./in. ³ (1.81 g/cm ³)
Volumetric Fiber Content	62%

COMPOSITE GROSS LAMINATE PROPERTIES

PROPERTY	ASTM METHOD	TYPICAL TEST VALUE	DESIGN VALUE*
Ultimate tensile strength in primary fiber direction, psi	D-3039	405,000 psi (2.79 GPa)	364,500 psi (2.51 GPa)
Elongation at break	D-3039	1.8%	1.8%
Tensile Modulus, psi	D-3039	22.5 x 10 ⁶ psi (155 GPa)	20.2 x 10 ⁶ psi (139 GPa)
Ultimate tensile strength 90 degrees to primary fiber, psi	D-3039	0	0
Layer Thickness		Varies	Varies

* Design and specification values will vary based on individual project requirements and applicable safety factors. Contact Fyfe Co. LLC engineers to determine appropriate specification values.

HOW TO USE THE TYFO® UC STRIP SYSTEM

DESIGN

The Tyfo® System shall be designed to meet specific design criteria. The criteria for each project is dictated by the engineer of record and any relevant building codes and/or guidelines. The design should be based on the allowable strain for each type of application and the design modulus of the material. The Fyfe Co. LLC engineering staff will provide preliminary design at no obligation.

INSTALLATION

Tyfo® UC System to be installed by Fyfe Co. LLC trained and certified applicators. Installation shall be in strict compliance with the Fyfe Co. LLC Quality Control Manual.

SURFACE PREPARATION

The surface to receive the Tyfo® UC Composite Laminate Strip must be sound and prepared for bonding by means of abrasive methods. Typically, light sandblasting, grinding or other approved methods are acceptable. The surface should be free of protrusions or cavities. The Fyfe Co. LLC engineering staff will provide the proper specifications and details based on the project requirements. Bond strength to substrate can be verified by ASTM D-4541-95.

MIXING

See "Tyfo® TC Epoxy" data sheet for mix ratio and mixing instructions.

APPLICATION

Apply a prime coat of Tyfo® S Epoxy to the prepared substrate. Apply a 1/16" (2mm) layer of Tyfo® TC Epoxy to the substrate prior to applying the Tyfo® UC Strip. Clean abraded side (side without lettering and glossy appearance) of Strip with acetone or similar approved solvent to remove any foreign debris and let stand for 30 minutes minimum to allow for evaporation of the solvent. Apply a 1/16" (2mm) minimum thickness layer of Tyfo® TC Epoxy adhesive to the cleaned side of Strip. Allow sufficient time for the epoxy to reach maximum tackiness. Apply the Strip within the specified cure time of the Tyfo® TC Epoxy. Tyfo® UC Composite Laminate Strips to be applied uniformly, meeting all specifications.

AVAILABLE WIDTHS AND THICKNESSES FOR TYFO® UC STRIPS

Thickness: 0.075" (1.9mm) or 0.055" (1.4mm) *
Widths: 2.0" (50.8mm) 4.0" (101.6mm) *

* Other thicknesses and widths are available.

DESIGNATIONS

Laminate strips are designated by the width then the thickness in mils. Example - 2" wide, 0.055-inch laminate would be designated as "2UC55."

LIMITATIONS

Minimum application temperature of the epoxy is 40° F (4° C). **DO NOT THIN**; solvents will prevent proper cure.

CAUTION!

EPOXY PRECAUTIONS

COMPONENT A - Irritant: Prolonged contact to the 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. Remove contaminated clothing. Avoid breathing vapors. Use adequate ventilation. Use of an organic vapor respirator recommended.

LAMINATE PRECAUTIONS

Use caution when uncoiling roll. Use of a Tyfo® Strip Dispenser is recommended when handling rolls. Use of an approved particle mask is recommended for possible airborne particles. Gloves are recommended when handling strips to avoid skin irritation. Safety glasses are recommended to prevent eye irritation.

FIRST AID

In case of skin contact, wash thoroughly with soap and water. For eye contact, flush immediately with plenty of water; contact physician immediately. For respiratory problems, remove to fresh air. Wash clothing before reuse.

CLEANUP

Collect with absorbent material, flush with water. Dispose of in accordance with local disposal regulations. Uncured material can be removed with approved solvent. Cured materials can only be removed mechanically.

SHIPPING LABELS CONTAIN

- State specification number with modifications, if applicable
- Component designation
- Type, if applicable
- Manufacturer's name
- Date of manufacture
- Batch name
- State lot number, if applicable
- Directions for use
- Warnings or precautions required by law

**NOT FOR INTERNAL CONSUMPTION.
CONSULT MATERIAL SAFETY DATA SHEET
(MSDS) FOR MORE INFORMATION.
KEEP OUT OF REACH OF CHILDREN.
FOR INDUSTRIAL USE ONLY.**

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