

# Tyfo® SCH Composite Anchors using Tyfo® S Epoxy

## DESCRIPTION

The Tyfo® SCH Composite Anchor is comprised of Tyfo® S Epoxy and Tyfo® SCH carbon fiber reinforced roving. Tyfo® SCH is a custom, uni-directional carbon roving for improved end details and force transfer. The Tyfo® S Epoxy is a two-component epoxy matrix material for saturation and bonding applications.

## USE

Tyfo® SCH Composite Anchor is combined with Tyfo® Epoxy to improve end details and anchorage of various Fibwrap® designs.

## ADVANTAGES

- Durability
- Good high & low temperature properties
- Long working time
- High tensile modulus and strength
- Ambient cure
- 100% solvent-free

## PACKAGING

Packaged in lots of 50 anchors. Weight will vary based on anchor design requirements.

## EPOXY MIX RATIO

100.0 component A to 42.0 component B by volume. (100 component A to 34.5 component B by weight.)

## SHELF LIFE

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

## STORAGE CONDITIONS

Store at 40° to 90° F (4° to 32° C). Avoid freezing. Avoid moisture and water contamination.

## 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.
- Possesses 0% V.O.C. level.

## TYPICAL DRY FIBER PROPERTIES

Tensile Strength	550,000 psi (3.79 GPa)
Tensile Modulus	33.4 x 10 <sup>6</sup> psi (230 GPa)
Ultimate Elongation	1.7%

## COMPOSITE GROSS LAMINATE PROPERTIES

PROPERTY	ASTM METHOD	TYPICAL TEST VALUE	DESIGN VALUE*
Ultimate tensile strength in primary fiber direction, psi	D-3039	127,000 psi (876 MPa)	107,950 psi (745 MPa)
Elongation at break	D-3039	1.2%	1.2%
Tensile Modulus, psi	D-3039	10.5 x 10 <sup>6</sup> psi (72.4 GPa)	8.9 x 10 <sup>6</sup> psi (61.5 GPa)

\* Design and specification values will vary based on individual project requirements and required area of composite anchor. Standard anchor diameters are 1/2" and 3/4", however, individual project designs will govern the required area. Contact Fyfe Co. LLC engineers to determine required design.

## EPOXY MATERIAL PROPERTIES

Curing Schedule 72 hours post cure at 140° F (60° C).		
PROPERTY	ASTM METHOD	TYPICAL TEST VALUE*
T <sub>g</sub> 140° F (60° C) Post Cure (24 hours)	ASTM D-4065	180° F (82° C)
Tensile Strength <sup>1</sup> , psi	ASTM D-638 Type 1	10,500 psi (72.4 MPa)
Tensile Modulus, psi	ASTM D-638 Type 1	461,000 psi (3.18 GPa)
Elongation Percent	ASTM D-638 Type 1	5.0%
Flexural Strength, psi	ASTM D-790	17,900 psi (123.4 MPa)
Flexural Modulus, psi	ASTM D-790	452,000 psi (3.12 GPa)

<sup>1</sup> Testing temperature: 70° F (21° C) Crosshead speed: 0.5 in. (13mm)/min. Grips Instron 2716-0055 - 30 kips  
\* Specification values can be provided upon request.

## HOW TO USE THE TYFO® S COMPOSITE 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® 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 required surface preparation is largely dependent on the type of element being strengthened. In general, the surface must be clean, dry and free of protrusions or cavities, which may cause voids behind the Tyfo® composite. Discontinuous wrapping surfaces (walls, beams, slabs, etc.) typically require a light sandblast, grinding or other approved methods to prepare for bonding. The Fyfe Co. LLC engineering staff will provide the proper specifications and details based on the project requirements.

### MIXING

For pre-measured units in 5-gallon containers, pour the contents of component B into the pail of component A. For drums, premix each component: 100.0 parts of component A to 42.0 parts of component B by volume (100 parts of component A to 34.5 parts of component B by weight). Mix thoroughly for five minutes with a Tyfo® low speed mixer at 400-600 RPM until uniformly blended.

### APPLICATION

Apply the Tyfo® Epoxy to the Tyfo® SCH Composite Anchors by hand. The fully saturated anchor is then applied as detailed on the project drawings.

### LIMITATIONS

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

## CAUTION!

### 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.

### SAFETY PRECAUTIONS

Use of an approved particle mask is recommended for possible airborne particles. Gloves are recommended when handling fabrics 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

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

## Fyfe Co. LLC

Tyfo® Fibrwrap® Systems

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