

Tyfo® S

Saturant Epoxy

DESCRIPTION

The Tyfo® S Epoxy is a two-component epoxy matrix material for bonding applications. The Tyfo® S Epoxy combined with Tyfo® SEH and Tyfo® SCH fabrics is a NSF/ANSI Standard 61 listed product for drinking water systems. It is a high elongation material which gives optimum properties as a matrix for the Tyfo® Fibrwrap® System. It provides a long working time for application, with no offensive odor. Tyfo® S Epoxy may be thickened with fumed silica (such as Cab-O-Sil TS-720) to produce Tyfo® WS Epoxy and used as a prime or finish coat depending upon the project requirements.

USE

The Tyfo® S Epoxy matrix material is combined with the Tyfo® fabrics to provide a wet-layup composite system for strengthening structural members.

ADVANTAGES

- ICC-ES ESR-2103 listed product
- NSF/ANSI Standard 61 listed product for drinking water systems
- Good high temperature properties
- Good low temperature properties
- Long working time
- High elongation
- Ambient cure
- 100% solvent-free

PACKAGING

Order in 55-gallon drums or pre-measured units in 5-gallon containers.

MIX RATIO

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).

SHELF LIFE

Two years in original, unopened and properly stored containers.

STORAGE CONDITIONS

Store epoxy at 40° to 90° F (4° to 32° C). Avoid freezing. Store rolls flat, not on ends, at temperatures below 100° F (38° C). 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.

HOW TO USE THE TYFO® S EPOXY

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. Column surfaces that will receive continuous wraps typically require only a broom cleaning. Discontinuous wrapping surfaces (walls, beams, slabs, etc.) typically require a light sandblast, grinding or other approved methods to prepare for bonding. Tyfo® Fibr™ Anchors are incorporated in some designs. 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). If material is too thick, drum heaters may be used on metal containers, or heat unmixed components by placing containers in 130° F (54° C) tap water or sunlight, if available, until the desired viscosity is achieved. Do not thin; solvents will prevent proper cure. Mix thoroughly for five minutes with a low speed mixer at 400-600 RPM until uniformly blended. When using as a prime coat or finish coat, Tyfo® S Epoxy may be thickened in the field to the desired consistency.

APPLICATION

Tyfo® S Epoxy is applied to a variety of Tyfo® fabrics using the Tyfo® Saturator or by approved hand-applied methods. See data sheet on this equipment. Hand saturation is allowable, provided the epoxy is applied uniformly and meets the specifications. Tyfo® S Epoxy can also be applied as a prime coat by brush or roller. Please refer to the NSF Listing for the NSF-61 Listed Application.

LIMITATIONS

Application temperature of the epoxy is a minimum 40° F (4° C) and maximum of 100° F (38° C). **DO NOT THIN**, solvents will prevent proper cure.

| EPOXY COMPONENT PROPERTIES | | |
|---|------------------|---|
| Curing Schedule 72 hours post cure at 140° F (60° C). | | |
| PROPERTY | ASTM TEST METHOD | TYPICAL TEST VALUE* |
| Net Weight | | Component A = 27.35 lbs. Component B = 9.60 lbs. |
| Color | | Component A is clear to pale yellow Component B is clear |
| Viscosity | | Component A at 77° F (25° C) is 11,000-13,000 cps Component B at 77° F (25° C) is 11 cps |
| Pot Life | | 3 to 6 hours at 68° F (20° C) |
| Viscosity of Mixed Product | | 600-700 cps |
| Density at 68° F (20° C) Pound/Gallon | D792 | Component A = 9.7 (1.16kg/L) Component B = 7.9 (0.95kg/L) Mixed product = 9.17 (1.11kg/L) |

¹ 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.

EPOXY MATERIAL PROPERTIES

Curing Schedule 72 hours post cure at 140° F (60° C).

| PROPERTY | ASTM METHOD | TYPICAL TEST VALUE* |
|-------------------------------|----------------|--|
| T _g | D4065 | 180° F (82° C) |
| Tensile Strength ¹ | D638 Type 1 | 10,500 psi (72.4 MPa) |
| Tensile Modulus | D638 Type 1 | 461,000 psi (3.18 GPa) |
| Elongation Percent | D638 Type 1 | 5.0% |
| Compressive Strength | D695 | 12,500 psi (86.2 MPa) |
| Compressive Modulus | D695 | 0.465 x 10 ⁶ psi (3.2 GPa) |
| Flexural Strength | D790 | 17,900 psi (123.4 MPa) |
| Flexural Modulus | D790 | 452,000 psi (3.12 GPa) |

¹ 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.

CAUTION!

COMPONENT A - Irritant:

Prolonged contact to the skin may cause irritation. Avoid eye contact.

COMPONENT B - Irritant:

Corrosive. 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

Avoid breathing vapors. Avoid contact with eyes and skin. Use of an approved respirator with an organic absorption cartridge is recommended for possible vapors. Rubber gloves, rubber boots, and protective suits are recommended for handling and application of this material. Safety glasses or a face shield are recommended to prevent eye contact.

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.**

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