



TYFO® WS

Thickened Tyfo® S Epoxy

DESCRIPTION

The Tyfo® WS Epoxy is a two-component epoxy putty and primer. The Tyfo® WS Epoxy is pre-thickened Tyfo® S Epoxy. Tyfo® S Epoxy is filled with 1 lb. of fumed silica. It provides a long working time for application, with no offensive odor.

USE

Thickened Tyfo® S Epoxy is used to fill voids and provide a smooth bonding surface over porous and uneven surfaces, to bond onto vertical and overhead surfaces, to bond multiple fabric layers, as a protective finish over seams, edges and as a skim coat over the Tyfo® S.

ADVANTAGES

- ICC-ES ESR-2103 listed product
- Good high and low temperature properties
- 100% solids, solvent-free
- Long working time
- Ambient cure

PACKAGING

Pre-measured 5-gallon units with a combined material volume of 4.1 gallons.

EPOXY MIX RATIO

100A : 34B by weight

100A : 41B by volume

COVERAGE

100 sq. ft per gallon at 15 mils. Coverage is highly dependent on substrate condition.

SHELF LIFE

Epoxy - two years in original, unopened and properly stored containers

Fabric - 10 years in proper storage conditions

STORAGE CONDITIONS

Store epoxy at 60°F to 100°F (15°C to 38°C). Resin is susceptible to crystallization at temperatures below 50°F. If crystallized, epoxy must be reheated until clear. Store fabric rolls flat, not on ends, and at temperatures below 100°F (38°C). Avoid moisture and water contamination.

Epoxy Material Properties

Material properties are based on standard laboratory conditions (23°C, 50 percent relative humidity).

Property	Typical Test Value	
Net Weight	Component A Component B Mixed	28.4 lbs. (2.9 gal) 9.3 lbs. (1.2 gal) 37.7 lbs. (4.1 gal)
Color	Component A Component B Mixed	white paste clear to yellow white paste
Viscosity	Component A Component B Mixed	N/A 11 cps N/A
Density (D792) Pounds/Gallon	Component A Component B Mixed	9.8 (1.17 kg/L) 7.9 (0.95 kg/L) 9.2 (1.1 kg/L)
Pot Life (Working Time)	Mixed	3 to 4 hours
Gel Time (Time to Gelation)	Mixed	10 hours

Epoxy Material Properties

Cure schedule: 72 hour post-cure at 140°F (60°C)¹

Property	ASTM Method	Typical Test Value
Glass Transition Temperature, T _g	D4065 E1356	180°F (82°C)
Tensile Strength		7,350 psi (50.6 MPa)
Tensile Modulus	D638 Type 1	322,000 psi (2.20 GPa)
Elongation		3.0%
Compressive Strength	D695	7,700 psi (53.0 MPa)
Compressive Modulus		114,000 psi (786 MPa)
Flexural Strength	D790	12,500 psi (86.2 MPa)
Flexural Modulus		316,000 psi (2.18 GPa)
Shore D Hardness	D2240	87±3
Water Absorption (24 hours) Water Absorption (13 weeks)	D570	0.33% 1.98%
Adhesion Strength ² > Concrete (ASTM D7522) > Steel > Epoxy	D4541	> 400 psi (concrete failure typ.) > 1200 psi > 1200 psi

¹ Testing temperature: 73°F (23°C).

² Adhesion strength dependent on surface preparation and substrate thickness. Cure schedule: 7 days at 73°F (23°C).

HOW TO USE THE TYFO® WS EPOXY

INSTALLATION

The Tyfo® system is to be installed by FyfeFRP LLCC trained and certified applicators.

SURFACE PREPARATION

The required surface preparation is dependent on the type of element being strengthened. In general, the surface must be clean, dry and free of protrusions or cavities to prevent voids behind the Tyfo® system. Concrete and Masonry surfaces require a minimum CSP-2 profile to prepare for bonding, achieved by light sandblast, grinding or other approved methods per ICRI 310.2R-2013. Steel surfaces shall be prepared to near white metal per NACE/SSPC SP10. Coating can be applied over the Tyfo® systems immediately or within 72 hours of application without any surface preparation. Otherwise, lightly abrade composite surface prior to application. FyfeFRP LLCC engineering staff will provide the proper specifications and details based on project requirements.

MIXING TYFO® WS EPOXY

For pre-measured units in 5-gallon containers, pour the contents of component B into the component A container. Mix thoroughly with a low speed mixer at 400 to 600 RPM until uniformly blended. Ensure epoxy is transferred between the A and B buckets. Resin may be heated to achieve desired viscosity (i.e. radiant heating, drum heaters, water bath). DO NOT THIN. Solvents will prevent proper cure.

THICKENED TYFO® WS EPOXY

Use Cab-o-sil TS-720 by Cabot Corp. or similar to increase the thickness of Tyfo® WS. Use up to 1.6 lbs. Site conditions may affect the amount of fumed silica required to achieve desired thickness. Do not exceed 4 percent by weight.

APPLICATION

Tyfo® WS Epoxy is applied by trowel or similar.

LIMITATIONS

Recommended substrate temperature range is 50°F to 100°F (10°C to 38°C). All coating applications to be performed at a minimum of 5.4°F above the dew point. Maintain conditions for the first 48 hours of cure. Temperatures below 50°F will significantly increase the viscosity of the mixed product. Higher viscosity will reduce coating penetration, introduce additional air into the system, and extend the cure times beyond 48 hours. DO NOT THIN. Solvents will prevent proper cure.

CAUTION!

CLEANUP

Collect with absorbent material. Dispose in accordance with local disposal regulations. Uncured material can be removed with approved solvent. Cured materials must be removed mechanically.

HAZARDS

Consult the Safety Data Sheets (SDS) for associated hazards. SDS will be supplied upon request. Component A is a marine pollutant. Component B is a corrosive material.

Consult Safety Data Sheet
(SDS) For More Information.
For Industrial Use Only.

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