



# TYFO<sup>®</sup> NSM GEL

## DESCRIPTION

Tyfo NSM Gel is a two-part adhesive used to install Tyfo Ti NSM bars in near surface mounted (NSM) applications on hands-down or vertical surfaces.

- Meets requirements of ASTM C881, Type I, II, IV, and V, Grade 3, Class A, B, C.
- Complies with Fyfe Ti NSM Bars Strengthening Specification

## USE

- Increase negative moment flexural capacity of concrete slabs, beams, and walls.
- Used to fill bugholes or other small voids in concrete.
- Adheres NSM bars into grooves in hand-down and vertical applications.

## ADVANTAGES

- Can be applied in ambient/substrate temperature range of 40-110 °F
- Contributes toward satisfying credits under LEED
- Insensitive to moisture during and after cure
- Strong adhesive properties
- Little to no odor
- Available in 53-oz cartridges

## LIMITATIONS

- Do not thin with solvents
- Application gun recommended by supplier should be used
- Not ideal for overhead application; refer to Tyfo EZ Paste product and data sheet

## PACKAGING

- 53-oz. (1.6 L) dual cartridges
- 6 cartridges per case

## SHELF LIFE AND STORAGE

Store in a dry place at 40-90 °F (4-32 °C) out of direct sunlight. Material has a shelf life of 28 months when stored in unopened containers.

## CONSUMPTION RATE

White (Part A - Resin )  
 Black ( Part B - Hardener)  
 Gray (Mixed) Mix Ratio - 1:1

## Gel Physical Properties

\*Performance to ASTM C881

Property	ASTM Method			
Mix Ratio		Part A - Resin Part B - Hardener		1:1
Color		Part A Part B Mixed		White Black Grey
Consistency (Viscosity)	C881	Part A Part B Mixed		Non-Sag
<b>Sample Conditioning Temperature</b>				
		38°F (3°C)	50°F (10°C)	75°F (24°C)
Gel time 60 Gram Mass	C881	31 minutes	28 minutes	22 minutes
Pot Life <sup>1</sup>		13 minutes		
Heat Deflection (7 days at 75°F)	D648	132°F (55.6°C)		
<b>Base Material Temperature (° F)<sup>4</sup></b>				
		40°F (4°C)	75°F (24°C)	110°F (43°C)
Working Time <sup>2</sup>		36 minutes	20 minutes	12 minutes
Cure Time <sup>3</sup>		72 hours	24 hours	18 hours

<sup>1</sup>Property not referenced in ASTM C881. Pot life measured as the workable and applicable time of 1.0 gallon (3.8 L) when mixed at 75 °F.

<sup>2</sup>Working and cure times are approximations and may vary slightly based on substrate temperatures and the temperature at which the adhesive was conditioned at prior to application. Working and cure times are dependent on cartridge/nozzle system performance.

<sup>3</sup>Full cure is based on the duration it takes for the product to reach specified mechanical properties.

<sup>4</sup>When ambient or base material temperature falls below 70 °F, condition the adhesive to 70-75 °F prior to use.

## Gel Mechanical Epoxy Material Properties

Property	ASTM Method	Units	Value	
Compressive Yield Strength <sup>1</sup>	D695	psi(MPa)	12,850 (88.6)	
Compressive Modulus <sup>1</sup>			506,300 (3,491)	
Tensile Strength <sup>1</sup>	D638	psi(MPa)	4,590 (31.6)	
Tensile Elongation <sup>1</sup>			%	0.9
Lap Shear Strength <sup>1</sup>	D1002	psi(MPa)	440 (3.03)	
Bond Strength Hardened to Hardened Concrete	C882	psi(MPa)	@2 Days <sup>2</sup>	@14 Days <sup>3</sup>
			3,470 (23.9)	3,670 (25.3)
Bond Strength Fresh to Hardened Concrete		psi(MPa)	-	2,000 (13.8)

<sup>1</sup>Reported properties are based on conditioning at 75 °F (24 °C) for 7 days.

<sup>2</sup>Reported properties are based on conditioning at for 75 °F (24 °C) 2 days.

<sup>3</sup>Reported properties are based on conditioning at for 75 °F (24 °C) 14 days.

# INSTALLATION OF THE TYFO® NSM GEL

## DESIGN

The Tyfo Ti NSM Bar system is designed to meet specific project criteria dictated by the engineer of record and any relevant building codes and/or guidelines. The design shall be based on the quantified performance goals defined for each project. FyfeFRP LLC engineering staff may provide preliminary details based on the project requirements.

## INSTALLATION

Cut grooves for NSM Bars once the layout specified by the Engineer of Record is marked. The dimensions of the groove are typically 1.5 times the bar diameter in both the depth and width.

Note: Proper equipment such as diamond crack chasing blades, guide rails, and sufficient power tools will make cutting grooves easier. It is recommended to cut parallel saw cuts, then remove concrete rather than cut the groove in a single pass.

## CLEANING

No sharp points or rough edges of concrete should be left in the groove, use a chisel if needed. Clean the groove by using compressed air or a vacuum to remove any residual dust.

Note: No roughening to the concrete surface within the groove is necessary.

## TYFO NSM GEL

Mask the perimeter of the groove to ensure the surface remains clean when applying Tyfo NSM Gel. Fill the groove with Tyfo NSM Gel until it is approximately half-to three-quarters-way full.

## TYFO Ti NSM BAR

Press the Tyfo Ti NSM bar into the Tyfo NSM Gel that was applied in the previous step. The goal is to have the NSM bar fully coated by the NSM Gel with no air pockets.

## FINISHING

Finish the installation by applying a final coat of Tyfo NSM Gel to completely cover the groove. Use a trowel or putty knife to level the surface and remove the masking.

Note: Be sure to remove masking prior to the NSM Gel curing.

## CAUTION!

### HAZARDS

Consult the Safety Data Sheets (SDS) for associated hazards. SDS will be supplied upon request.

Consult safety data sheet  
(SDS) for more information.  
For industrial use only.

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