

Mapefibre ST 50 Twisted

Twisted, Macro-Synthetic Fiber Reinforcement for Concrete



FOR PROFESSIONAL USE ONLY

DESCRIPTION

Mapefibre ST 50 Twisted is a macro-synthetic fiber composed of a blend of polypropylene and polyethylene resins, to improve the performance characteristics of conventional concrete, pre-cast concrete and shotcrete.

APPLICABLE STANDARDS

- ASTM C1116-03, Standard Specification for Fiber-Reinforced Concrete and Shotcrete (Type III)
- ASTM D7508/D7508M-20, Standard Specification for Polyolefin Chopped Strands for Use in Concrete
- ACI 360 R-10, Guide for Slabs-On-Ground

WHERE TO USE

- Industrial interior/exterior slabs-on-ground
- Warehouse slabs-on-ground
- Composite metal decks
- Bridge decks
- Concrete pavement
- Overlays
- Shotcrete

- Precast septic tanks and burial vaults
- Precast pipes and panels

ADVANTAGES

- *Mapefibre ST 50 Twisted* fibers are resistant to alkalis and do not corrode or increase corrosion potential, even in aggressive environments.
- *Mapefibre ST 50 Twisted* offers ease of handling and loading into mixers and a low specific weight per cubic yard/meter.
- *Mapefibre ST 50 Twisted* increases the ductility, tensile strength and residual strength of the concrete after the formation of the first crack.
- *Mapefibre ST 50 Twisted* fibers are characterized by a special surface treatment that guarantees excellent grip to the cementitious paste and an even distribution within the concrete mix.
- Reduced in-place cost when compared to the use of WWM and/or some rebar
- Reduced expansion/contraction from thermal and moisture changes
- Extension of control joints
- A more homogeneous concrete reinforcement from the top to the bottom of concrete slabs
- Reduced plastic shrinkage and cracking
- In shotcrete applications, reduced equipment wear, rebound and waste when compared to steel fibers

DOSAGE

Typical recommended dosages of *Mapefibre ST 50 Twisted* will vary from 3 to 11 lbs. per cubic yard (1.8 to 6.5 kg per cubic meter). However, the specific rate should be selected by the engineer for a given application, based on project specifications.

MAPEI's Technical Services Department can provide support in selecting the appropriate *Mapefibre ST 50 Twisted* dosage.

MIXING

Mapefibre ST 50 Twisted fibers are packaged in pulpable bags that can be added directly into the concrete mix. For better dispersion, it is recommended that *Mapefibre ST 50 Twisted* be introduced into the mixer during the batching process and mixed with the concrete for 3 to 5 minutes at maximum speed. It is permissible to add the *Mapefibre ST 50 Twisted* into mixing drums already loaded with concrete.

Mapefibre ST 50 Twisted may decrease slump when used at higher dosages. Plus, it may be required to increase the dosage of the high-range water-reducing agent from the *Dynamon* or *Mapefluid* line.

FINISHING

A vibrating screed or laser screed will promote uniformed density of the concrete and ensure fiber encapsulation at the slab surface.

COMPATIBILITY WITH OTHER PRODUCTS

Mapefibre ST 50 Twisted fibers are compatible with other admixtures used in the production of high-quality concrete, and especially with:

- Water reducers from the *Dynamon* and *Mapeplast* lines.
- *Mapecure* curing surface films.
- *Mapecrete* systems, innovative technology used in the production of concrete with volumetric stability.
- Form-release agents from the *Mapeform* line.

PACKAGING

Mapefibre ST 50 Twisted fibers are packaged in 5-lb. (2.27-kg) pulvable bags.

The shelf life of *Mapefibre ST 50 Twisted* is 2 years in unopened packaging when protected from moisture.

LIMITATIONS

- The product must be stored in a dry place that is free of moisture.
- Product dosage is based on engineered mixture designs and overall intention of use. Contact your MAPEI sales representative for design recommendations.

Technical Data

Length	1.97" (50 mm)
Equivalent diameter	0.02" (0.4 mm)
Aspect ratio	98.5
Density	56.8 lbs./ft ³ (0.91 g/cm ³)
Number of fibers per kg	> 150,000
Melting point	311°F to 329°F (155°C to 165°C)
Water absorption (%)	Nil
Resistance to alkalis, acids and salts	Excellent
Tensile strength	> 90 ksi (> 620.5 MPa)
Elastic modulus	> 700 ksi (> 4,826 MPa)

ADDITIONAL INFORMATION

For information on MAPEI's commitment to sustainability and transparency, as well as how MAPEI products may contribute to green building standards and certification systems, contact sustainability_USA@mapei.com (USA).

LEGAL NOTICE

The contents of this Technical Data Sheet ("TDS") may be copied into another project-related document, but the resulting document shall not supplement nor replace requirements per the TDS in effect at the time of the MAPEI product installation. For the most up-to-date TDS and warranty information, please visit our website at www.mapei.com. **ANY ALTERATIONS TO THE WORDING OR REQUIREMENTS CONTAINED IN OR DERIVED FROM THIS TDS SHALL VOID ALL RELATED MAPEI WARRANTIES.**

Before using, the user must determine the suitability of our products for the intended use, and the user alone assumes all risks and liability. **ANY CLAIM SHALL BE DEEMED WAIVED UNLESS MADE IN WRITING TO US WITHIN FIFTEEN (15) DAYS FROM DATE IT WAS, OR REASONABLY SHOULD HAVE BEEN, DISCOVERED.**

CONTACT INFORMATION

MAPEI Headquarters of North America

1144 East Newport Center Drive
Deerfield Beach, Florida 33442
1-888-US-MAPEI (1-888-876-2734) / (954) 246-8888

Technical Services

U.S. and Puerto Rico:

Flooring: 1-800-992-6273

Concrete and heavy construction: 1-888-365-0614

Canada:

1-800-361-9309

Customer Service

1-800-42-MAPEI (1-800-426-2734)

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For the most current product data and BEST-BACKEDSM warranty information,
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