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03 30 00	Cast-in-Place Concrete
03 37 13	Shotcrete
03 40 00	Precast Concrete
03 70 00	Mass Concrete

MasterFiber[®] M 100

Monofilament Microsynthetic Fiber

Description

MasterFiber M 100 product is a high-tensile strength, high modulus of elasticity, ultra-thin monofilament homopolymer polypropylene fiber designed to quickly distribute uniformly throughout the concrete matrix. At the engineered dosage level of 0.50 lb/yd³ (0.3 kg/m³) MasterFiber M 100 product outperforms all other plastic shrinkage fiber reinforcements at their typical dosage of 1.0 lb/yd³ (0.6 kg/m³).

Applications

Recommended for use in:

- Residential slabs-on-ground
- Commercial slabs-on-ground
- Stucco
- Dry-packaged cement based products
- Precast products
- Pools and pool decks
- Water tanks
- Shotcrete

Features

- 225 million 0.75 in. (19 mm) fibers in one pound (0.45 kg) of product
- Uniform distribution throughout the concrete matrix
- Excellent finishability

Benefits

- Excellent reduction in plastic shrinkage cracking
- Transforms macro-cracks into micro-cracks
- Measurably reduces plastic settlement
- Measurably reduces the concrete permeability, thus increasing the durability and service life of the concrete
- Performs as an excellent companion in blends with macrosynthetic fibers and steel fibers

Performance Characteristics

Physical Properties

Specific Gravity	0.91
Melting Point	320 °F (160 °C)
Ignition Point	1,094 °F (590 °C)
Absorption	Nil
Alkali Resistance	Excellent
Tensile Strength	70 ksi (480 MPa)
Modulus of Elasticity	1,230 ksi (8.48 GPa)
Available Lengths	0.5 in. (13 mm) and 0.75 in. (19 mm)
Equivalent Diameter	0.00047 in. (12 microns)
Denier	1 dpf

Guidelines for Use

Dosage: The recommended dosage of MasterFiber M 100 product is 0.50 lb/yd³ (0.3 kg/m³).

Mixing: Typically no modifications to the mixture proportions are required when the product is used at the engineered dosage of 0.50 lb/yd³ (0.3 kg/m³). MasterFiber M 100 product fibers can be introduced into the mixing system at any time except when the cement is being introduced. Mixing time will vary based on when the fibers are introduced to the mixer. The normal range is 3-5 minutes of mixing with the higher number preferred when the fibers are added after all of the standard ingredients have been introduced and mixed.

Engineering Specifications

MasterFiber M 100 product is a uniquely developed fiber to minimize plastic shrinkage cracking in concrete. With 112.5 million fibers in the engineered dosage of 0.50 lb/yd³ (0.3 kg/m³), MasterFiber M 100 product is capable of reducing plastic shrinkage cracking by approximately 85%. Conventional monofilament polypropylene fibers at 1.0 lb/yd³ (0.6 kg/m³) typically do not achieve 70% reduction in plastic shrinkage cracking.

MasterFiber M 100 product meets the requirements of ASTM D 7508/D 7508M, ASTM C 1116/C 1116M, Section 4.1.3, Type III and Note 2 as well as ICC ES AC32, Section 3.1.1 when used at the engineered dosage of 0.50 lb/yd³ (0.3 kg/m³).

Product Notes

MasterFiber M 100 product is not a replacement for structural steel reinforcement and therefore, should not be used to replace any of the load-carrying steel reinforcement in a concrete element.

Packaging

MasterFiber M 100 product is packaged in pre-weighed 0.50 lb (0.23 kg) and 2.5 lb (1.13 kg) degradable bags to ensure optimum dosing and homogeneous distribution of the product.

Related Documents

Safety Data Sheets: MasterFiber M 100 product

Additional Information

For additional information on MasterFiber M 100 product, contact your local sales representative.

Master Builders Solutions, a brand of MBCC Group, is a global leader of innovative chemistry systems and formulations for construction, maintenance, repair and restoration of structures. The Admixture Systems business provides advanced products, solutions and expertise that improve durability, water resistance, energy efficiency, safety, sustainability and aesthetics of concrete structures, above and below ground, helping customers to achieve reduced operating costs, improved efficiency and enhanced finished products.

Utilizing worldwide resources, the Master Builders Solutions community of experts are passionate about providing solutions to challenges within all stages of construction, as well as the life cycle of a structure. At Master Builders Solutions we create sustainable solutions for construction around the globe.

Limited Warranty Notice

Master Builders Solutions warrants this product to be free from manufacturing defects and to meet the technical properties on the current Technical Data Guide, if used as directed within shelf life. Satisfactory results depend not only on quality products but also upon many factors beyond our control. MASTER BUILDERS SOLUTIONS MAKES NO OTHER WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO ITS PRODUCTS. The sole and exclusive remedy of Purchaser for any claim concerning this product, including but not limited to, claims alleging breach of warranty, negligence, strict liability or otherwise, is shipment to purchaser of product equal to the amount of product that fails to meet this warranty or refund of the original purchase price of product that fails to meet this warranty, at the sole option of Master Builders Solutions. Any claims concerning this product must be received in writing within one (1) year from the date of shipment and any claims not presented within that period are waived by Purchaser. MASTER BUILDERS SOLUTIONS WILL NOT BE RESPONSIBLE FOR ANY SPECIAL, INCIDENTAL, CONSEQUENTIAL (INCLUDING LOST PROFITS) OR PUNITIVE DAMAGES OF ANY KIND.

Purchaser must determine the suitability of the products for the intended use and assumes all risks and liabilities in connection therewith. This information and all further technical advice are based on Master Builders Solutions' present knowledge and experience. However, Master Builders Solutions assumes no liability for providing such information and advice including the extent to which such information and advice may relate to existing third party intellectual property rights, especially patent rights, nor shall any legal relationship be created by or arise from the provision of such information and advice. Master Builders Solutions reserves the right to make any changes according to technological progress or further developments. The Purchaser of the Product(s) must test the product(s) for suitability for the intended application and purpose before proceeding with a full application of the product(s). Performance of the product described herein should be verified by testing and carried out by qualified experts.

MasterFiber[®] MAC 2200 CB

Synthetic Macrofiber with Chemical Bond for Low Deflection Applications

Description

MasterFiber MAC 2200 CB product is a chemically-enhanced synthetic macrofiber that exhibits superior bonding to cementitious matrices, thus increasing the post-crack load-carrying capacity and toughness of fiber-reinforced concrete. The superior performance of MasterFiber MAC 2200 CB product results from a novel polymer resin technology that provides engineered chemical bonding, a technology breakthrough from Master Builders Solutions. Through this advanced technology and a highly engineered fiber architecture, the bonding capabilities of MasterFiber MAC 2200 CB product far exceed that of the other commercially available polyolefin-based synthetic macrofibers.

Applications

Recommended for use in:

- Cast-in-place and wet precast concrete
- Slab-on-ground
- Bridge decks
- Concrete pavements
- White topping and overlays

Features

MasterFiber MAC 2200 CB product is chemically enhanced to provide superior performance as compared to typical high performing synthetic macrofibers. MasterFiber MAC 2200 CB product is engineered for use as secondary reinforcement to control shrinkage and temperature cracking and to provide performance equivalent to that of other commercially available synthetic macrofibers, at a reduced dosage. This reduced dosage will result in improved handling properties in the fresh state, as well as, improved finishability.

MasterFiber MAC 2200 CB product is created specifically to replace welded-wire reinforcement and No. 3 and No. 4 (10 mm and 13 mm) reinforcing bars that are typically used as temperature and shrinkage reinforcement.

Benefits

- Provides post-crack performance equal to that obtained with typical, commercially available synthetic macrofibers at a reduced dosage
- Improves placement and finishing characteristics compared to traditional synthetic macrofibers
- Eliminates the need for welded-wire reinforcement (WWR) and conventional steel bars as secondary reinforcement, depending on the application
- Utilizes an advanced packaging system that improves dispersion, reduces storage footprint and increases bags per pallet, thus optimizing pallet's capacity
- Reduces construction time and overall labor and material costs

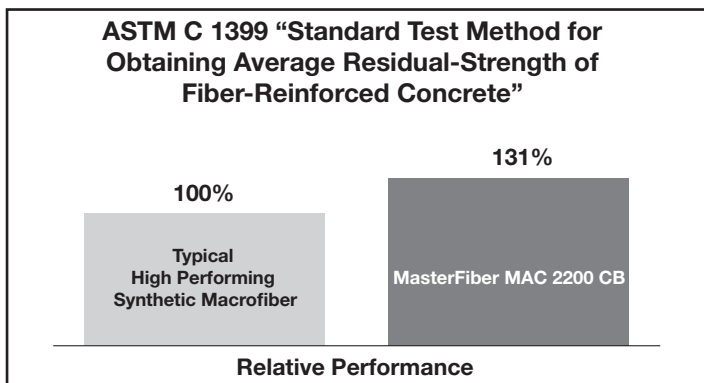
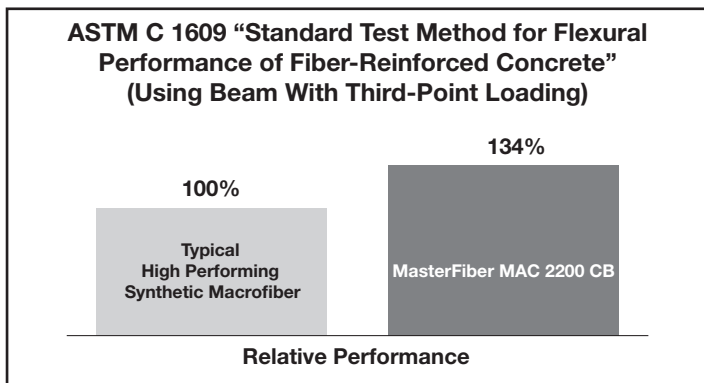
For use only in slab-on-ground and the other applications listed in the Applications section of this data sheet. Consult your local Master Builders Solutions representative if the use of MasterFiber MAC 2200 CB product in applications other than those listed on this data sheet are being considered. This product may not be mixed with other synthetic macrofibers or used for any other application.

Performance Characteristics

Physical Properties

Specific Gravity	0.91
Melting Point	320 °F (160 °C)
Water Absorption	Nil
Alkali Resistance	Excellent
Tensile Strength	85 ksi (585 MPa)
Length	2.1 in. (54 mm)
Fiber Type	Embossed
Color	White, translucent
Configuration	Semi Rigid Fiber

Product Notes



The new technology of MasterFiber MAC 2200 CB product has a unique combination of architecture and chemistry that provides superior performance compared to other commercially available synthetic macrofibers at an equal dosage. Alternatively, a lower dosage of MasterFiber MAC 2200 CB product can be used to achieve the specified properties, compared to typical synthetic macrofibers available commercially. The graphs above show the comparison between the performance of a typical high-performing synthetic

macrofiber and MasterFiber MAC 2200 CB product, based on the ASTM C 1399/C1399M and C1609/C1609M test methods.

Depending on the application, MasterFiber MAC 2200 CB product may be used as a partial or full replacement for primary/structural steel reinforcement. To explore the use of MasterFiber MAC 2200 CB product for such purpose, contact the Engineering Department at Master Builders Solutions in Beachwood, OH.

Placement and Finishing: Master Builders Solutions recommends that the standard practices detailed in ACI 302.1R, ACI 506.1R and ACI 544.3R for placing, finishing and curing concrete be followed when using MasterFiber MAC 2200 CB product.

Guidelines for Use

Dosage: The recommended dosage range of MasterFiber MAC 2200 CB product is 2.5 lb/yd³ to 12 lb/yd³ (1.5 to 7.2 kg/m³) depending on the application. The recommended dosage range for slab-on-ground applications is typically 3 to 5 lb/yd³ (1.8 to 3 kg/m³). Because of variations in concrete materials, job site conditions and/or applications, dosages outside of the recommended range may be required. In such cases, contact your local sales representative.

Mixing: MasterFiber MAC 2200 CB product is most efficiently dispersed when introduced with the coarse aggregate prior to the addition of cement, or if this is not possible, after the batching cycle has been completed. Mixing time will vary based on when the fibers are introduced into the mixer. The normal range of mixing time is 3 to 5 minutes, but no less than 70 mixing revolutions. The longer mixing time is preferred when the fibers are added after all of the standard ingredients have been introduced and mixed.

Engineering Specifications

MasterFiber MAC 2200 CB product is an option for the replacement of WWR and other secondary reinforcement, as a safe and easy-to-use reinforcing system that is rust proof, alkali resistant, and compliant with industry standards when mixed in accordance with ASTM C 1116/C 1116M. MasterFiber MAC 2200 CB product should be specified for use in applications requiring:

- Increased flexural toughness
- Increased cohesion
- Increased impact and shatter resistance
- Replacement of WWR and other secondary reinforcement
- Improved residual strength
- Improved durability
- Areas requiring no metal

Storage and Handling

Storage Temperature: MasterFiber MAC 2200 CB product should be stored at temperatures below 140 °F (60 °C). Avoid storing near strong oxidizers and avoid sources of ignition. Use caution when stacking to avoid unstable conditions. Store in a sprinkled warehouse.

Packaging

MasterFiber MAC 2200 CB product is packaged in pre-weighed 5.0 lb (2.3 kg) shreddable bags to ensure optimum dosing and homogeneous distribution of the product.

Related Documents

Safety Data Sheet: MasterFiber MAC 2200 CB product

Additional Information

For additional information on MasterFiber MAC 2200 CB product, contact your local sales representative.

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Limited Warranty Notice

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Purchaser must determine the suitability of the products for the intended use and assumes all risks and liabilities in connection therewith. This information and all further technical advice are based on Master Builders Solutions' present knowledge and experience. However, Master Builders Solutions assumes no liability for providing such information and advice including the extent to which such information and advice may relate to existing third party intellectual property rights, especially patent rights, nor shall any legal relationship be created by or arise from the provision of such information and advice. Master Builders Solutions reserves the right to make any changes according to technological progress or further developments. The Purchaser of the Product(s) must test the product(s) for suitability for the intended application and purpose before proceeding with a full application of the product(s). Performance of the product described herein should be verified by testing and carried out by qualified experts.



MasterFiber MAC 2200 CB fiber, as marketed by Master Builders Solutions, is classified by Underwriters Laboratories Inc. for use in the following fire rated assemblies: UL D700, D800 and D900 Series Designs. Fibers to be added to the concrete mix at a maximum rate of 5.0 lb of fiber for each cubic yard (3.0 kg/m³) of concrete.