

MaxTen™ Specification

PART 1 - GENERAL

1.01 SUMMARY

This section specifies synthetic macro fiber reinforcement used in Fiber Reinforced Concrete and Shotcrete Applications. The Polypropylene/Polyethylene macro fibers have been specifically designed and engineered to inhibit plastic shrinkage and settlement cracking, reduce shrinkage cracking in hardened concrete, improve impact, shatter and abrasion resistance and enhance concrete toughness as an alternate secondary, temperature and structural reinforcement.

1.02 REFERENCE STANDARDS

- A. Except where shown or specified otherwise, the work of this section shall conform to the requirements of the American Concrete Institute (ACI) and the American Society for Testing and Materials (ASTM) documents.
1. ACI 302, Guide for Concrete Floor and Slab Construction
 2. ACI 305, Standard Practice for Hot Weather Concreting
 3. ACI 306, Standard Practice for Cold Weather Concreting
 4. ACI 308, Standard Practice for Curing Concrete
 5. ACI 318, Building Code Requirements for Reinforced Concrete
 6. ACI 544.2R, Measurement Properties of Fiber Reinforced Concrete
 7. ASTM C-94, Standard Specifications for Ready-Mixed Concrete
 8. ASTM C-494, Standard Specification for Chemical Admixtures for Concrete
 9. ASTM C-1116, Standard Specification for Fiber-Reinforced Concrete and Shotcrete

1.03 RELATED SECTIONS

- A. Other Sections that directly relate to the work of this Section include, but are not limited to the following:
- | | |
|---------------------------------|---------------|
| 1. Steel Concrete Reinforcement | Section 03210 |
| 2. Cast-in-Place Concrete | Section 03300 |

1.04 SUBMITALS

- A. Product Data: Submit Manufacturer's Product Data, using limitations and recommendations for each material.
- B. Performance Data: Submit independent test data for proposed mix design substantiating compliance with performance levels as specified herein.
- C. Certification: Submit certification from manufacturer indicating synthetic fibers meet the material specifications described in ASTM C-1116, Type III, Section 4.1.3 "Synthetic Fiber-Reinforced Concrete and Shotcrete".
- D. Samples: Submit samples of synthetic macro fiber.

1.05 QUALITY ASSURANCE

- A. Manufacturer: Must provide satisfactory performance data for specified synthetic fiber reinforcement.
- B. Pre-Construction Conference: A pre-construction conference shall be held at least two weeks prior to commencement of field operations to establish procedures to maintain optimum placement conditions for work specified in this section and to coordinate this work with related and adjacent work.

1.06 PROJECT CONDITIONS

- A. Perform work according to established ACI guidelines.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. PSI Packaging, Inc.
1129 S. Chattanooga Street
LaFayette, GA 30728
(706) 638-0055 (706) 638-0057 FAX

2.02 MATERIALS

- A. Synthetic Macro Fiber Reinforcement: Provide synthetic macro fibers complying with the following requirements:
 - 1. Synthetic macro fibers shall meet the material specifications described in ASTM C-1116, Type III, Section 4.1.3 "Synthetic Fiber-Reinforced Concrete and Shotcrete".
 - 2. Synthetic macro fibers shall be monofilament, non-fibrillating, fully oriented and be made from a blend of polypropylene and polyethylene.
 - 3. Minimum Length: 1 1/2" (38 mm)
 - 4. Maximum Length: 2 1/4" (57 mm)
 - 5. Alkali Resistance: 100% (Alkali Proof)
 - 6. Tensile Strength: 90 - 100 ksi (620 MPa - 685 MPa)
 - 7. Absorption: Nil
 - 8. Specific Gravity: .91
 - 9. Acid / Salt Resistance: High
 - 10. Thermal Conductivity: Low
 - 11. Synthetic Macro Fibers shall be: PSI MaxTen™ High Performance Fiber

2.03 MIXING AND DISPENSING

- A. PSI MaxTen™ High Performance Fibers can be added directly to the concrete mixing system, during or after the batching of the other ingredients and mixed at the time and speed recommended by the mixer manufacturer, usually four to five minutes or 70 revolutions at mixing speed. Additional mixing does not adversely affect the distribution or overall performance of PSI MaxTen™ Fibers. The addition of PSI MaxTen™ Fibers at the recommended dosage rates to a given mix will decrease the slump; however, additional water should not be added. A mid-range water reducer or super-plasticizer should be used to provide the desired workability for placement.

2.04 MATERIAL STORAGE AND HANDLING

- A. Fibers shall be supplied in pre-measured ready to use degradable bags.

PART 3 - EXECUTION

3.01 CONCRETE PLACING, FINISHING AND CURING

- A. Concrete Placing: PSI MaxTen™ High Performance Fibers can be batched, mixed, pumped and placed using conventional concreting equipment.
- B. Concrete Finishing: PSI MaxTen™ High Performance Fibers can be finished with conventional finishing techniques and equipment.
- C. Concrete Curing: Comply with ACI 308 "Standard Practice for Curing Concrete", ACI 305 "Standard Practice for Hot Weather Concreting" and ACI 306 "Standard Practice for Cold Weather Concreting".

3.02 PROTECTION

- A. Protect completed work from damage during construction operations.

END OF SECTION

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