

SINTA™ M3019

Synthetic fiber for concrete ASTM C1116, ASTM C94

Product Description

SINTA™ M3019 are synthetic micro fibers for concrete made from 100% virgin polypropylene. Designed specifically for use in concrete, they are alkali resistant, non-absorptive and completely non-corrosive. Their use protects concrete from stresses which cause cracking during the first 24 hours after placement while it is most vulnerable. SINTA™ M3019 comply with ASTM Designation C1116, *Standard Specification for Fiber-Reinforced Concrete and Shotcrete*, Type III Synthetic Fiber Reinforced Concrete or Shotcrete. They are available in ¾ in (19 mm) length.

Uses

SINTA™ M3019 may be used in any application where decreased plastic shrinkage cracking and improved durability are desired. Specifically, such applications include but are not limited to, slabs on grade, pavements, overlays, sloped walls, pools, shotcrete, stucco, precast and prestressed products. It is suggested that this product be used in conjunction with properly compacted base materials and jointing in accordance with ACI guidelines and standards.

SINTA™ M3019 may be used as an alternative to welded wire fabric, depending on the application. SINTA™ M3019 may not be used as a replacement for structural or post-crack control steel reinforcement. For temperature or shrinkage post-crack control, please consult a GCP Applied Technologies representative regarding our STRUX® synthetic macro fibers.

Product Advantages

SINTA™ M3019 uniformly distribute multi-dimensionally throughout the concrete. The fibers in the fresh concrete matrix provide reinforcement for the mixture while its tensile strength is weakest. The reinforcement reduces the formation of all types of early age cracking. This cracking caused by plastic shrinkage, settlement and other internal stresses would otherwise permanently weaken the resultant concrete. The concrete permeability is decreased, while the surface characteristics, impact and toughness properties are slightly improved. Together these effects work synergistically to produce a long-term, better quality, more durable and serviceable concrete.

Product Advantages

- Reduces plastic shrinkage cracking and improves durability
- Protects concrete from stresses that cause cracking
- Provides cost effective control of plastic shrinkage
- Provides overall higher quality of concrete

Typical Properties

Specific gravity	0.91
Absorption	None
Length	¾ in (19 mm)
Modulus of elasticity	500 ksi (3.45 GPa)
Melt point	320°F (160°C)
Ignition point	1094°F (590°C)
Alkali, acid and salt resistance	High

Addition Rates

SINTA™ M3019 may be added to concrete at any point during the batching or mixing process. SINTA™ M3019 may be added to the aggregate during weighing or charging, or to the central mixer or transit mixer before, during, or after charging. The load must be mixed at mixing speed for 5 minutes, or 70 revolutions, after the addition of the fibers to ensure uniform distribution. The standard range of addition for SINTA™ M3019 is ¾ to 1½ lb/yd³ (450 to 900 g/m³) of concrete. Typically, 1 lb/yd³ (600 g/m³) of SINTA™ M3019 provides excellent results when tested according to ASTM C1579. Higher addition rates may be used to produce concrete when special properties are required.

Compatibility with Other Admixtures

SINTA™ M3019 are compatible with all GCP admixtures. Their action in concrete is purely mechanical and will not affect the hydration process. Each admixture should be added separately.

Packaging & Handling

SINTA™ M3019 are available in convenient Concrete-Ready™ bags, which are added, unopened, to the truck drum or central mixer. The specially designed cellulose fiber bag disintegrates and disperses its contents of SINTA™ M3019 may be used in any application where decreased plastic shrinkage cracking and improved durability are desired. throughout the mix.

Specifications

Fibers shall be ¾ in. (19 mm) monofilament polypropylene fibers as supplied by GCP Applied Technologies, Cambridge, MA 02140. Required dosage rate shall be as specified by the design engineer or architect. SINTA™ M3019 may be used in any application where decreased plastic shrinkage cracking and improved durability are desired. shall be used in strict accordance with the supplier's recommendations and within time as specified in ASTM C94. The fibers shall comply with ASTM Designation C1116 Type III 4.1.3 and with applicable building codes. Certification of compliance shall be made available upon request. Standard ACI 302 procedures for placing, finishing and curing shall be followed when using SINTA™ M3019 may be used in any application where decreased plastic shrinkage cracking and improved durability are desired..

References

Building Codes

BOCA National Building Codes, SBCCI Standard Building Code, ICBO Uniform Building Code and all supplements as adopted by the Council of American Building Officials

Fire Classifications

Underwriters Laboratories (UL) on Series D700 and D800 metal deck assemblies

American Concrete Institute (ACI)

ACI 544 State of the Art Report of Fiber Reinforced Concrete ACI 302 Guide for Concrete Floor and Slab Construction

ASTM International

ASTM C1116 Standard Specification for Fiber-Reinforced Concrete and Shotcrete

ASTM C1579 Standard Test Method for Evaluating Plastic Shrinkage Cracking of Restrained Fiber Reinforced Concrete (Using a Steel Form Insert)

ASTM C94 Standard Specification for Ready-Mixed Concrete

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