

SINTA™ M

Synthetic fibre for concrete

Product Description

SINTA™ M is a synthetic fibre for concrete, manufactured from 100% virgin polypropylene in a monofilament form. Sinta M is produced on a state-of-the-art production line which is specifically designed to yield an ultra thin concrete reinforcing fibre. 600g of Sinta M contains approximately 135 million individual fibres. Engineered specifically for use in concrete, it is alkali-resistant, non-absorptive and completely non-corrosive. Sinta M provides secondary reinforcement and protects concrete from stresses which cause cracking while the concrete is most vulnerable — during the first 24 hours after placement. Sinta M complies with European Standard BS EN 14889-2:2006 and ASTM Designation C 1116 Standard Specification for Fibre-Reinforced Concrete and Shotcrete, Type III Synthetic Fibre Reinforced Concrete or Shotcrete. Sinta M is available in 12mm or 19mm in length. It is also available in 6mm length for mortar mixes, to be used in plastering, screeding and patching.

Applications

Sinta M may be used in any application where the following benefits are desired:

- Decreased plastic shrinkage and cracking
- Improved concrete durability
- Increased fire resistance to explosive spalling
- As secondary reinforcement for crack protection and control
- Where extended finishing operations are required
- Where reduced use/ non-use of welded wire fabric is needed

Specifically applications include, but are not limited to, slabs on grade, elevated slabs, pavements, overlays, sloped walls, pools, shotcrete, stucco, precast and prestressed concrete products. Sinta M is not recommended to increase joint spacing or as a substitute for any reinforcement required by the Model Building Codes and Standards.

Advantages

Sinta M uniformly distributes multi-dimensionally throughout the concrete mixture. The extremely high number of fibres in the fresh concrete matrix provides a high degree of secondary reinforcement. This reinforcement reduces the formation of all types of early cracking, protecting the concrete when its tensile strength is lowest. This cracking caused by plastic shrinkage, settlement, and other internal stresses would otherwise permanently weaken the resulting concrete. The concrete permeability is decreased, while surface characteristics, impact, and toughness properties are improved.

Mixing Requirements and Addition Rates

Sinta M may be added to concrete at any point during the batching or mixing process. Sinta M may be added to the aggregate during weighing or charging, or to the central mixer or truck before, during, or after charging. The concrete must be mixed at high speed for 5 minutes, or 70 revolutions, after the addition of Sinta M to ensure uniform distribution.

The standard range of addition for Sinta M is 300 to 1,800g / m³ of concrete. Typically 600g / m³ of Sinta M provides excellent results. Higher addition rates may be used when special properties are required.

Compatibility with Other Admixtures

Sinta M is compatible with all GCP admixtures. Its action in concrete is purely mechanical and will not affect the hydration process. Each admixture should be added separately.

Packaging

Sinta M is available in convenient biodegradable ConcreteReady™ Bags which are added to the truck drum or central mixer. The specially designed cellulose fibre bags disintegrate and disperse the fibres throughout the mix.

Health and Safety

See Sinta M Material Safety Data Sheet or consult GCP Applied Technologies.



Typical Properties

Specific Gravity	0.91
Absorption	None
Modulus of Elasticity	3,445 MPa (500 ksi)
Melt Point	160°C
Alkali, Acid and Salt Resistance	High

Technically advanced production techniques make Sinta M a highly durable fibre that is virtually invisible in fresh and hardened concrete. This minimises fibre-reinforced concrete finishing concerns while providing the highest level of crack protection available.

References

American Concrete Institute (ACI):

ACI 544.1 R “State of the Art Report of Fibre Reinforced Concrete”

ACI 302 “Guide for Concrete Floor and Slab Construction”

American Society of Testing and Materials (ASTM):

ASTM C 1116 “Standard Specification for Fibre-Reinforced Concrete and Shotcrete”

ASTM C 94 “Standard Specification for Ready-Mixed Concrete”

European Standard:

BS EN 14889-2:2006 Fibres for Concrete – Part 2: Polymer fibres – Definitions, specifications and conformity

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