

SINTA™ F19

Fibre reinforcement

Product Description

SINTA™ F19 are synthetic fibres for concrete, manufactured from 100% virgin polypropylene in collated, fibrillated form. Designed specifically for use in concrete, they are alkali-resistant, non-absorptive and completely non-corrosive. Their use provides secondary reinforcement and protects concrete from stresses which cause cracking while it is most vulnerable during the first 24 hours after placement. SINTA F19 comply with ASTM Designation C 1116 Standard Specification for Fibre-Reinforced Concrete and Shotcrete, Type III Synthetic Fibre-Reinforced Concrete or Shotcrete. They are available in 19mm length.

Applications

SINTA F19 may be used in any application where decreased cracking and improved durability are desired. Specifically such applications include but are not limited to, slabs on grade, elevated slabs, pavements, overlays, sloped walls, pools, shotcrete, stucco, precast and prestressed concrete products. As secondary reinforcement for crack protection and control SINTA F19 are a superior alternative to, and can eliminate the need for welded wire fabric. SINTA F19 are not recommended to increase joint spacing or as a substitute for any reinforcement required by the Model Building Codes and Standards.

Advantages

SINTA F19 uniformly distribute multi-dimensionally throughout the concrete mixture. The small fibrillated fibres mechanically lock in the fresh concrete matrix providing reinforcement for the mixture while its tensile strength is the weakest. This reinforcement reduces the formation of all types of early cracking. This cracking caused by plastic shrinkage, settlement, and other internal stresses would otherwise permanently weaken the resulting concretes. The concrete permeability is decreased, while the surface characteristics, impact, and toughness properties are improved. Together these effects work synergistically to produce a long-term, better quality, more durable and serviceable concrete.

Typical Properties

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



Mixing Requirements and Addition Rates

SINTA F19 may be added to concrete at any point during the batching or mixing process. SINTA F19 may be added to the aggregate during weighing or charging, or to the central mixer or truck before, during, or after charging. The load must be mixed at high speed for 5 minutes, or 70 revolutions, after the addition of SINTA F19 to ensure uniform distribution. The standard range of addition for SINTA F19 is 450 to 1,800g / m³ of concrete. Typically, 900g / m³ of SINTA F19 provides excellent results. Higher addition rates may be used to produce concrete when special properties are required.

Compatibility with Other Admixtures

SINTA F19 are compatible with all admixtures from GCP Applied Technologies. Their action in concrete is purely mechanical and will not affect the hydration process. Each admixture should be added separately.

Packaging

SINTA F19 are available in convenient CONCRETE-READY™ Bags which are added, unopened, to the truck drum or central mixer. The specially designed cellulose fibre bag disintegrates and disperses its contents, 900g of SINTA F19, throughout the mix.

Architects' Specifications

SINTA F19 shall be 19mm collated, fibrillated polypropylene fibres as supplied by GCP Applied Technologies. Required dosage rate shall be as specified by the design engineer or architect. SINTA F19 shall be used in strict accordance with the supplier's recommendations and within time as specified in ASTM C 94. The fibres shall comply with ASTM Designation C 1116 Type III 4.1.3 and with applicable building codes. Certification of compliance shall be made available on request. Standard ACI 302 procedures for placing, finishing and curing shall be followed when using SINTA F19.

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 (U.L.) on Series D700 and D800 metal deck assemblies

American Concrete Institute (ACI):

ACI 544 "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"

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