F macro
synthetic fiber

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High Performance Synthetic Fiber Reinforcement For Concrete Application

Description

F Macro is a three - dimensional macro synthetic reinforcement fiber that eliminates the need for steel. F Macro is chemically inert, does not corrode like steel mesh or steel fiber. F Macro fibers are lightweight and will save time and labor costs. F macro fibers, made of 100% virgin copolymer/polypropylene consisting of twisted - bundles of monofilament fiber.

Composition	100% Virgin Copolymer/Polypropylene
Geometric Shape	Macro synthetic fiber with twisted bundle
Standard	EN 14889-2 Type II, ASTM C1116 Type III, ASTM D7508, ICC AC383
Length	54 mm (min tolerance ± 2%)
Equivalent diameter	0.48-0.50 mm (min tolerance ± 5%)
Aspect Ratio	112
Color	Grey
Specific weight	0.91 grams / cm^3
Elastic modulus	7.2 - 8.5 GPa
Tensile Strength	560 - 650 MPa
Fiber Filament Amount	200.000+ / kg
Corrosion	Non-corrosive
Water absorption	N/A
Chemical resistance	Excellent alkali/acid resistance
Magnetism	Non-magnetic
Melting point	165°C
Ignition point	> 360°C

Application area

Mainly used in concrete applications for residual flexural strength and ductility such as;

Slab On Grade

Composite Steel Deck

Toppings

Overlays

Concrete Pavements

Bridge Decks

Shotcrete

Precast Products

anywhere that steel reinforcement reduction or replacement is the objective and cut the costs down.

***Provides ductility, high energy absorption and flexural toughness.**
***Provides long term durability without risk of corrosion.**

Dosing

Depending on the project requirements, recommended dosages vary between 2 kg/m^3 and 4½ kg/m^3. Homogeneous mixture is obtained by addition of F Macro fiber to the aggregate band at the concrete batching plant or by mixing in a high-speed concrete mixer for at least 5 minutes in the field.

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Technical Specifications

- Multidimensional distribution within concrete increases reliability by surrounding the aggregate.
- Significantly reduces application times compared to traditional steel mesh.
- Significantly saves labor costs in large-scale projects.
- Increased shatter, impact and abrasion resistance.
- Prevents shrinkage cracks and eliminates thermal expansion and contraction impacts.
- Supports concrete structure exposed to extreme levels of freeze/thaw.
- Supports the flexural structure of concrete exposed to acid and salty environments.
- Increases ductility and improves energy absorption capacity.
- Eliminates the need for steel mesh and steel fibers by giving structural flexural strength to concrete.

Recommended way to use

Addition

F Macro Fiber is packaged in mixer-ready bags that can be added directly into the concrete mixing system. The fiber should be added during or after batching of the other ingredients – not as the first mix ingredient.

Mixing

When possible, add fibers to a rotating drum. Once all fibers have been added to the batch, mix four to five minutes at standard mixing speed. Road-revolution speed should not be counted as part of the required fiber mixing time.

Slump

Fibers will reduce the visual slump measured by the slump-cone test but has a lesser effect on flow-ability and workability.
To regain any loss of workability or slump, the use of appropriate admixtures is recommended – avoid the addition of water.

Pumping

If the fiber reinforced concrete is to be pumped, it is HIGHLY recommended that the grate on the hopper of the pump truck be a round-bar grate. The use of a vibrator attached directly to the grate is also recommended to aid in movement of the concrete through the grate.