GR FIBER

TECHNICAL DATA SHEET

Feb 2020 Edition

GR Micro Synthetic Fiber

GR FIBER, Micro-reinforcement system for concrete—100 percent virgin Homopolymer Polypropylene / Polyester fibers containing no reprocessed materials. Specifically engineered and certified manufacturing facility for use as concrete reinforcement as per Standard: **ASTM C 1116.**

TECHNICAL INFORMATION:

Material	:	Polypropylene	Polyester
Specific Gravity	:	0.91	1.3
Typical dosage	:	0.9 kg/m3	0.6 kg/m3
Available lengths	:	6mm, 12mm (Other lengths on request)	6mm, 12mm
Tenacity cN/dtex	:	4-5	7-8
Melt point	:	165^{O}C	260^{O}C
Electrical Conductivity	:	Low	Low
Water absorption	:	Negligible	Negligible
Acid & Alkali Resistance	:	Excellent	Excellent
Fiber count 12mm	:	Avg. 90 million/ 1 Kg approx.	Avg.150 million/ 1 Kg approx.

Packing : Packaged in 600 gms & 900 gms water soluble film pouches or PE pouches.

GR Macro Synthetic Fiber

GR Macro Synthetic Fiber is a product of Polypropylene / Polyethylene. Macro synthetic fiber successfully used to replace steel fibers, welded wire mesh and conventional reinforcing bars in a wide variety of applications. GR Macro Synthetic Fibers are specifically designed to provide equivalent tensile and bending resistance to conventional reinforcement requirements.

TECHNICAL INFORMATION:

Aspect Ratio	: 50-90
Tenacity cN/dtex	: 6-7
Length	: Minimum 40mm and also as per Customer request
Fiber	: Coloured and Natural and Mix
Pouch	: Package weight as required
Pouch Film	: PE or Water Soluble film

FEATURES & BENEFITS:

A 3-dimensional reinforcement works better than wire mesh in the following ways:

- Reduces permeability
- Modifies micro-macro cracking of the hardened concrete
- Reduces plastic settlement and plastic shrinkage cracking
- Increases surface abrasion resistance
- Increases impact resistance
- Eliminates need for wire mesh for secondary reinforcement
- Increases fatigue strength
- All of the above adds up to less maintenance and longer life
- Fiber reinforcement begins working the minute it is placed and lasts as long as the concrete itself does. It will not corrode, rot or rust. If you choose Fiber reinforcement, you're going with the new generation of concrete reinforcement.

SHELF LIFE: 2 years in original, unopened package. Stored in dry & cooler state and protected from sunlight under covered condition.

SHARJAH CEMENT & INDUSTRIAL DEVELOPMENT CO. (SCIDC)

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PRIMARY APPLICATIONS:

Applicable to all types of concrete which demonstrate a need for resistance to intrinsic cracking and improved water tightness and an aesthetic finish.

- Slabs-on-ground
- Stucco
- Slope paving
- Sidewalks
- Curbs
- Exposed aggregate
- Driveways
- Overlays & toppings

ADVANTAGES:

- Non-magnetic
- Rustproof
- Alkali proof
- Requires no minimum amount of concrete cover
- Is always positioned in compliance with codes
- Safe and easy to use
- Saves time and hassle.

DIRECTIONS FOR USE: **GR FIBERS** can be added to the concrete mixture at any time prior to placement of the concrete. It is generally recommended to add any fiber material at the ready-mix concrete plant during batching. Fibers must be mixed with concrete for a minimum of three (3) to five (5) minutes at maximum mixing speed, depending on the mixer type, to ensure complete dispersion and uniformity.

The next generation of concrete reinforcement: Fiber concrete reinforcement has a few advantages over wire mesh. For starters, wire mesh provides reinforcement for a single plane of the concrete. Fibers provide reinforcement across all three dimensions throughout the concrete. Fiber reinforcements are a much better option when it comes to long term concrete durability.

CRACKS DUE TO CURING STRESSES: FIBER WOULD HAVE LIMITED THEM GREATLY

Cracks also occur due to excessive flexural stresses brought on by bending when spanning distances. These cracks are considered structural failure cracks and are wider and predictable (not random). These cracks rarely occur in slabs-on-grade but will always occur on elevated slabs if not reinforced with rebar or welded wire fabric. If flexural cracks do develop in slabs-on-grade, there is a problem with the subgrade.

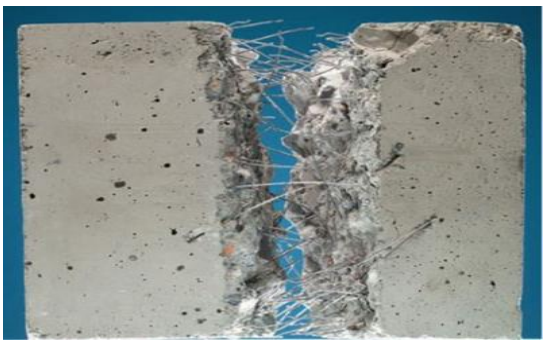
Fiber reinforcing is very good in restricting the initial shrinkage cracking that occurs in the initial stages. Several types of fiber exist. They include steel, glass, synthetic and natural fibers. Their selection depends on the usage and environment of the finished slab. Consult with the design engineer in selecting the correct type. In all cases, the fiber is considered another admixture and should be submitted with the concrete mix submittal for approval.

Fiber reinforcing has no impact on the air content of concrete compared to the same sample of non-fiber concrete, but the impact on slump is significant. The use of fiber generally will decrease the same sample by 2 inches. In some cases, the use of a high-range water-reducing admixture (HRWRA) may be needed to improve workability.

FIBER MATRIX IN CURED CONCRETE

Getting back to the initial question of whether fiber can replace mesh, we typically say yes–with exceptions. The exceptions are as follows:

- **Elevated cast-in-place slabs**
- **Elevated slabs on metal deck**
- **Structural slabs-on-grade (mats)**
- **Where poor subgrade conditions are expected**



Keep in mind that if fiber is only used, the subgrade must be properly compacted and prepared in accordance with the geotechnical engineer's recommendations. Once any differential settlement occurs, the fiber will not prevent cracks from developing and increasing in width.

The dosage will vary based on the type of fiber and end usage of the slab. In all cases, follow the ACI recommendations for spacing of control joints. If sawn, they should be done between 8 and 24 hours after placement.
These are general recommendations. Make sure you consult with a *structural engineer* for your specific conditions before proceeding.

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