

THE BEST DEFENSE AGAINST CONCRETE FISSURES

MULTI FIBRAS – NYLON

PRODUCT

The **NYLON FIBERS** are made with 100% purity provided as a filament fiber for secondary reinforcement of concrete. The three-dimensional reinforcement provided by the nylon fibers intercepts the fissures that occur during plastic retraction of the concrete in the stage when micro-fissures occur without fibers. The nylon fibers also reinforce the impact resistance, reducing permeability and can substitute for a steel screen when used for control of plastic reduction and does not need maintenance.

The **NYLON FIBERS** meet the requirements ASTM C-1116-89.

SEGMENTS OF USE

The principal application of **NYLON FIBERS** is for reduction of fissuring, due to plastic contraction of concrete, including: slabs, elevated decks, pavements, sports arenas, roads, parking lots, façades, etc. Other applications include repair of pre-cast walls, pools and mortars for walls.

APPLICATIONS

The **NYLON FIBERS** typically have ¾" of length and are added using an average of 350 g/m³ of concrete. When mixed inside the concrete, the fibers disperse, separating themselves in 88 million filaments per kg. The ability of the nylon fibers to absorb water (4.5% by weight) permits the nylon fibers to develop a chemical and physical adhesion inside the concrete matrix. This level of adhesion is not reached with synthetic fibers that do not absorb water.

The nylon fibers are resistant to: alkali, magnetism and corrosion.

How to use: The **NYLON FIBERS** are available in packages of 600 g and 1.2 kg and can be added manually or mechanically, being measured in the concrete plant or at the worksite in the cement truck.

The fibers can be added in the proportion requested by the project, being dispersed manually and mixed inside the cement truck for at least 5 minutes.

CHARACTERISTICS AND PERFORMANCE

PERMEABILITY: Tests conducted by ATEC (American Testing and Engineering Corp) Associates Inc. in Indianapolis, IN, USA confirm that 350 g/m³ of nylon fibers reduce the permeability of concrete by approximately 41%, when compared with concrete without reinforcement.

IMPACT RESISTANCE: Tests by ACI (American Concrete Institute) concluded that a cylindrical concrete disk that is subjected to an impact load of 4.5 kg falling from a height of 5 meters resulted in various fissures and breaks.

The tests established that the addition of 350 g/m³ of nylon fibers increased the number of blows required for the first fissure to occur by 55% and the number of blows required for total fracture increased by 100% when compared to concrete without reinforcement. The difference between the first fissure up to the point of breaking proves that the union of the fibers with the matrix of concrete has occurred.

PHYSICAL PROPERTIES

CHARACTERISTICS	RESULTS
Filament diameter	23 microns
Filaments per kg	88 million
Specific gravity	1.16
Length of the fiber	¾ inch
Tension force	130 KSI
UV resistance	High
Resistance to acids and salts	Good
Resistance to alkali	Excellent
Electrical conductivity	Low
Thermal conductivity	Low
Incorporation of air into the concrete	No effect
Elongation	20%

PACKAGE: Bag, 600 g and 1.2 kg.

STORAGE

The **NYLON FIBERS** should be stored in a dry and ventilated location at a temperature below 77 F (25 C).

Expiration: Indefinite if kept in unopened package.

Limitations of Application: The **NYLON FIBERS** should not be used with structural elements of concrete but just with secondary reinforcement.

The engineer should confirm that if the steel screen is being used for structural capacity; if so, then the **NYLON FIBERS** can be added, but not as a substitute for the steel screens.

When used in elevated slabs the nylon fibers, if used by themselves, cannot guarantee the absence of fissures. The steel screen should be incorporated together with the fibers.

NOTE

The data confirm that 350 g of nylon fibers per m³ of concrete reduces fissuring by plastic shrinkage 83% compared to concrete without reinforcement.

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