

MasterFiber[®] 151

Structural macrosynthetic polypropylene fibre for reinforcement in sprayed concrete and cast concrete applications

DESCRIPTION

MasterFiber 151 is a fiber extruded from polyolefin polymers in compliance with ASTM C1116 / C1116M “Standard Specification for Fiber- Reinforced Concrete” and EN 14889-2 “Fibres for concrete – Part 2: Polymer Fibres-Definitions, specifications and conformity.” The inclusion of fibers in a concrete mix will contribute to improving the durability of concrete by increased crack propagation resistance and by its energy absorption characteristics. The fibers will disperse uniformly throughout the concrete mix and effectively act as an anchoring mechanism within the cement matrix thereby improving the toughness and ductility of the material.

MasterFiber 151 can maximize concrete service life by providing superior resistance to attack from damaging environmental elements such as water, chlorides and corrosive environments such as sewerage conduits and/or saline water.



TYPICAL APPLICATIONS

- Wet shotcrete
- Subsurface construction
- Industrial and warehouse floors
- Residential and commercial floors
- Precast elements

ADVANTAGES

- Easy to dose either at the batch plant or on-site concrete mixer truck prior to application
- High resistance to acid/alkalis attack suitable for use in wet underground conditions and subsurface constructions exposed to damp conditions
- Reduces construction time compared to a solution with conventional reinforcement

PACKAGING

MasterFiber 151 is wrapped in water-soluble PVA to form bundles. Bundles are pre-weighed and filled either in 6 kg transparent bags or in big bags of 450 kg.

PERFORMANCE CHARACTERISTICS PHYSICAL PROPERTIES*

Properties	Values
Material	Polypropylene 100% (colourless, flat)
Design	Monofilament
Specific gravity	0.91 g/cm ³
Equivalent diameter	0.75 mm
Length	50 mm
Aspect ratio	67
Alkali resistance	Excellent
Absorption	Nil
Tensile Strength	448 MPa
Modulus of elasticity	3643 MPa
Chemical resistance	Excellent
Melting point	160°C
Ignition point	590°C

DOSAGE & BATCHING

Add fibers to the concrete mixer after water and admixtures. After addition of the fibers mix for at least 2-3 minutes to ensure even distribution of fibers within the concrete mix. Note that in the event that a slight slump loss is experienced after the addition of the fibers – the mix design should be reviewed such to allow for fiber inclusion and avoidance of addition of extra water.

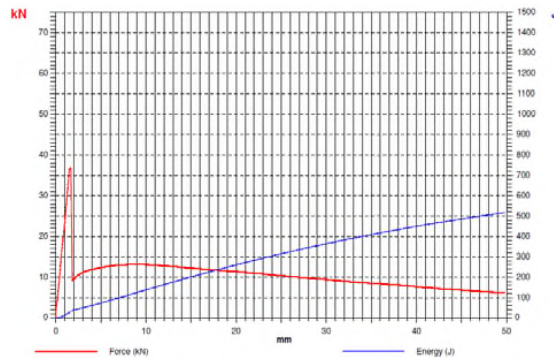
Site trials with the intended concrete mix design must be conducted to verify and determine the performance of the fiber with the proposed sprayed concrete mix.

It is recommended that where automated fiber dosing systems are utilized, that they be checked for suitability and calibrated accordingly.

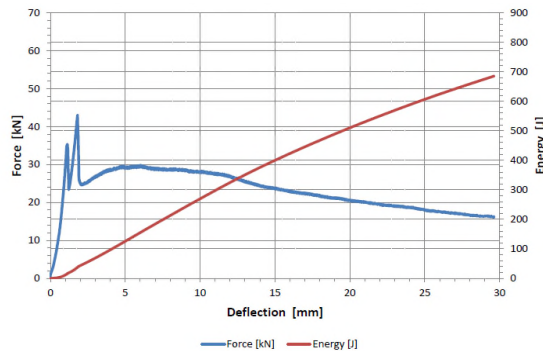
MasterFiber® 151

TYPICAL PERFORMANCE DATA

With 8 kg/m³ **MasterFiber 151** more than 280 J at 25 mm deflection and 400 J at 40 mm deflection determined according to ASTM C1550 have been achieved in a C40 concrete.



8 kg/m³ **MasterFiber 151**, ASTM C1550 test EFNARC panel tests have shown that for a 30 MPa sprayed concrete with 5 kg/m³ **MasterFiber 151** an energy absorption value of 600 J can be achieved.



5kg/m³ **MasterFiber 151**, 425kg/m³ CEM II/A-LL 42.5N, w/c = 0.47, 4.4 % **MasterRoc SA 167**, 1,20 % **MasterRheobuild UG 3**, EFNARC test

STORAGE AND SHELF LIFE

Material should be stored at temperatures below 60°C. Avoid storing near strong oxidizers and avoid sources of ignition. Opened bags shall be protected from humidity. Big-bags should be kept dry in case of longer storage on side.

Shelf life is 24 months when stored as above.

HEALTH AND SAFETY

Material is extremely stable, presenting little hazard to health. In the event of fire it should be noted that the product may produce carbon monoxide, carbon dioxide and other gases.

QUALITY AND CARE

All products originating from Master Builders Solutions Dubai, UAE facility are manufactured under a management system independently certified to conform to the requirements of the quality, environmental and occupational health & safety standards ISO 9001 and ISO 14001.

* Properties listed are based on laboratory controlled tests.

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STATEMENT OF RESPONSIBILITY

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NOTE

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