

# MasterFiber® 141

**Polypropylene fiber for reinforcement in sprayed concrete and cast concrete applications as alternative and/or supplement to existing concrete reinforcement products**

## DESCRIPTION

**MasterFiber 141** is extruded from polypropylene and formed into an embossed fiber that can be used in concrete mixes for both spray and cast in-situ applications. 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 141** 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

Recommended for use in:

- Wet shotcrete applications in tunneling or mining applications
- Any subsurface construction
- Any structure where impact toughness shall be increased

## ADVANTAGES

- Easy to dose either at the batch plant or on site concrete mixer truck prior to application
- Only minor impact on flow & slump properties of fresh concrete
- 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 141** is wrapped in water-soluble PVA to form bundles. Bundles are packed in 5 kg cardboard boxes; other pack sizes are available on request.

## TYPICAL PROPERTIES\*

Properties	Values
Polymer type	Polypropylene
Color	Colourless
Density	910 kg/m <sup>3</sup>
Fiber sectional shape	Rectangular
Fiber longitudinal shape	Straight
Surface	Embossed
Equivalent diameter (mm)	1.0 mm ± 5 %
Fiber length	65 mm ± 5 %
Aspect ratio L/diameter	65 ± 5 %
Tensile strength (EN 14889-2)	500 MPa ± 7.5 %
Young's Modulus	10.0 GPa ± 10 %
Melting point (°C)	160-165 °C
Acid/Alkali resistance	High
N° of fiber per kg	≈ 22,000

## APPLICATION GUIDELINES

### DOSAGE AND 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 if a slight slump loss is experienced after the addition of the fibers – the mix design should be reviewed as such to allow for fiber inclusion and the addition of extra water avoided.

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.

Master Builders Solutions provide a range of support services which includes operator training and underground audits. Each service package is developed to suit individual site requirements.

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

### STORAGE AND SHELF LIFE

Material is very stable, no foreseen hazards. To ensure maximum packaging shelf life the pallets of fibers should be stored in a dry place away from direct sun. The shelf life is 48 months.

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## HEALTH AND SAFETY

**MasterFiber 141** is extremely stable, presenting little hazard to health. However, in fire conditions, carbon monoxide, carbon dioxide and other gases or fumes may be evolved.

The usual precautions and measures should be taken for handling any chemical substance. For example, use protective gloves and glasses. Wash hands before a break and on finishing work. Do not eat, drink or smoke during application.

The disposal of the product and its packaging is the responsibility of the end user and should be carried out according to current legislation.

## 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

The technical information and application advice given in this Master Builders Solutions publication are based on the present state of our best scientific and practical knowledge. As the information herein is of a general nature, no assumption can be made as to a product's suitability for a particular use or application and no warranty as to its accuracy, reliability or completeness either expressed or implied is given other than those required by law. The user is responsible for checking the suitability of products for their intended use.

### NOTE

Field service where provided does not constitute supervisory responsibility. Suggestions made by Master Builders Solutions either orally or in writing may be followed, modified or rejected by the owner, engineer or contractor since they, and not Master Builders Solutions, are responsible for carrying out procedures appropriate to a specific application.

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