DESCRIPTION

APP Synthetic Macrofibres are a unique form of high-strength, high-modulus synthetic macro reinforcement that is evenly distributed throughout the concrete matrix.

It consists of synthetic macro fibres 38-54 mm in length, with an aspect ratio of 85, that have been specifically designed to ensure ease of use and rapid dispersion in concrete.

APP macro fibres are used in concrete to improve material properties, including toughness, post-crack energy absorption, impact and fatigue resistance, residual strength and durability.

HIGHLIGHTS & ADVANTAGES

- Enhanced Safety: The use of macro fibres eliminates the need for handling steel fibres, welded wire reinforcement, and rebar, improving overall safety and reducing the risk of injury.
- Improved Durability: Macro fibres enhance the durability, ductility, energy absorption, shatter resistance, fatigue resistance, and flexural toughness of the concrete.
- Cost-Effective: The use of macro fibres reduces material and storage costs, resulting in overall cost savings.
- Efficient Application: Macro fibres arrive pre-mixed with the concrete, enabling a quick, easy, and safe application process that requires no additional storage space for secondary reinforcement materials.
- Streamlined Process: Macro fibres are easily pumped, reduce wear on the equipment associated with steel fibres, and help to reduce shotcrete rebound and improve cohesion, making for a more efficient and streamlined reinforcement process.

SPECIFICATIONS AND CHARACTERISTICS

Material	100% Virgin Polypropylene
Appearance	Transparent or White, Patterned
Specific Gravity	0.91
Typical Dosage Rate	1-1.5 kg/m³ of concrete
Available Length	Customised
Melt Point	160°C
Ignition Point	570°C
Electrical/Thermal Conductivity	Low
Water Absorption	Negligible
Acid and Alkali Resistance	Excellent
Nominal length	38-54mm
Tensile Strength	580-600 MPa

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Aspect Ratio	85
Modulus of Elasticity	8.5 GPa
Melt Flow	3.5

COMPLIANCE AND CERTIFICATION

- ASTM C1116 / C1116M.
- ASTM D7508 / D7508M.

ADDITION RATES

APP macro fibre addition rates depend on the specific application and desired properties, and will typically vary between 1 and 1.5 kg/m³ of concrete.

APPLICATION

- Shotcrete
- Mass concrete
- Mining
- Water Resources and Hydropower Engineering

HOW TO USE

To effectively use macro fibres in concrete, it is typically necessary to incorporate a superplasticizer to restore the desired workability of the material. Additionally, there may be a need to slightly increase the amount of fine aggregate used. The superplasticizer can be added to the concrete mixture at any stage during batching or mixing, but it should be added at a maximum rate of one bag per 30 seconds. Once the fibres have been added, the concrete should be mixed at the recommended speed for a minimum of 70 revolutions to ensure that the fibres are evenly dispersed throughout the mixture. It is important to note that the mechanical action of the fibres in the concrete will not have any impact on the hydration process of the cement or the compressive strength of the material. Each liquid admixture should be added separately to the concrete mix for optimal results.

PACKAGING & STORAGE

- 0.08-0.1kg per bundle
- Customised packaging, including:
- Water-soluble film bag
- Water-soluble paper bag
- Plastic bag
- Plastic bucket

SHELF LIFE

36 months in the original, sealed package

This information is based on our present state of knowledge and is intended to provide general notes about our products and their use only. It should not therefore be construed as guaranteeing the consistency or permanency of the products or specific properties of the products described or their suitability for a particular application. Any existing industrial property rights must be observed.

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