POLYPROPYLENE®

Monofilament Polypropylene Fiber

RAMKA
CONSTRUCTION
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POLYPROPYLENE® is a monofilament polypropylene additive fiber to reduce the occurrence of plastic shrinkage and plastic settlement cracking, whilst enhancing the surface properties and durability of hardened cementitious products. The fibers are extremely fine, single filaments cut to lengths of ٣, ۶, ١٢ and ١٨ mm, in accordance with maximum aggregate size considerations and surface appearance requirements. The fibers are coated with surfactant to improve initial dispersion and bond.

Applications

- Internal floor slabs
- Water retaining structures
- Concrete buildings
- Repair materials
- External hard standings
- Pattern imprinted concrete
- Bridges
- Precast concrete
- Fire resistance
- Extruded concrete
- Agricultural areas
- Piling concrete
- Shotcrete/Gunite
- Tunnels
- Floors
- Walkways
- Parking
- Decorative concretes

Approvals / Standards

- ASTM C١١١۶/C١١١۶M
- EN ١۴٨٨٩-٢

Advantages / Benefits

- Reduced plastic shrinkage cracks
- Reduced plastic settlement
- Reduced bleeding
- Alternative to crack control mesh
- Reduced water & chemical permeability
- Reduced explosive spalling in Fire
- Increased abrasion properties
- Increased impact resistance
- Improved freeze/thaw resistance

Guideline for Use

Mixing

Plant mixing: POLYPROPYLENE should be added to the mixer after all other ingredients and water. Use a mixing time that ensures uniform dispersion of the fiber.

Truck mixing: POLYPROPYLENE is best added in the batching plant mixer; although in cases where this may not be possible addition in the truck can be done. The fiber should be added first with ٣٠ % of the mixing water. Add the other ingredients, the remaining mixing water and continue mixing for a further few minutes at full speed to ensure uniform dispersion of the fiber.

Dosage

The recommended dosage rate is ١kg per cubic meter of concrete. Other dosages may be used depending on the mix design, raw materials, climatic conditions and concrete requirements in which case trial mixes must be performed to establish the exact dosage rate required.

Product Information

Raw Material	100% Virgin Polypropylene
Melting Point	160°C-170°C
Density	0.91 g/cm^3
Fiber Length	3-6-12-18(mm)
Thickness	3 Denier
Shape	Monofilament Fiber
Surface	Coated for Dispersion
Tensile Strength	≥۴۰۰ MPa
Water Absorption	No
Acid Resistance	High
Alkali Resistance	100%
Thermal Conductivity	Low
Electrical Conductivity	Low
Modulus of Elasticity	≥۳۵۰۰ MPa
Packaging	25KG Bags
From / Color	White Monofilament fibers
Shelf Life	12 months from date of production if stored properly
Storage Condition	Store in undamaged, unopened, original sealed packaging in dry conditions at temperatures between +۵°C and +۴۰°C. Protect from direct sunlight and frost.
Recommended Dosage	0.5 – 3 kg per cubic meter of concrete

POLYPROPYLENE may be combined with all types of Portland cement, concretes containing pozzolanic materials such as; GGBS, PFA, micro-silica.

Effects

The addition of PP fibers in concrete leads to a reduction in tensile strength during the age of ۲۸ d. Whereas, after ۲۸ days, there is a notable effect in tensile strength due to PP fibers restraining the formation and growth of microcracks in concrete, which improves the continuity and integrality of concrete structure. Thus, a low volume fraction of PP fibers is beneficial to enhancing the long-term tensile strength of concrete materials and improving the durability of concrete structures.

Storage

This product must be stored in original sealed packaging at above +۵ °C under cover, out of direct sunlight and protect from extremes of temperature. If frozen, gradually thaw and agitate until completely reconstituted. Failure to comply with the recommended storage conditions may result in premature deterioration of the product or packaging. For specific storage condition contact RAMKA Technical Services Department.

Basis Of Data

All technical data stated in this Product Data Sheet are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control.

Precautions

Health and Safety

POLYPROPYLENE does not fall into the hazard classifications of current regulations. However, it should not be swallowed or allowed to come into contact with skin and eyes. Suitable protective gloves and goggles should be worn. Splashes on the skin should be removed with water. In case of contact with eyes rinse immediately with plenty of water and seek medical advice. If swallowed seek medical attention immediately - do not induce vomiting.

Additional Information

For additional information on POLYPROPYLENE fibers, consult to our Technical Services Department.

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