

KraTos Macro PP 54

Technical Data Sheet



DESCRIPTION

KraTos Macro PP 54 is a high-performance polymer-based monofilament synthetic fiber reinforcement that can be utilized in concrete by directly replacing steel mesh or steel wire applications in infrastructure projects requiring high structural concrete strength.

Produced locally according to EN 14889-2 Class 2 and ASTM C-1116 standards with Kordsa engineering from 100% virgin polypropylene, KraTos Macro PP 54 increases the toughness of concrete against structural design loads and provides effective crack control with its 3-dimensional homogeneous distribution property in concrete.

APPLICATION AREAS

- Slab-on-ground Applications
- Railway Systems and Slab Track Concretes
- Tunnel Linings and Shotcrete Applications
- Mining Applications
- Prefabricated Structural Concrete Elements
- Dams and Hydroelectric Power Plants
- Concrete Roads, Highway Pavements and Bridges

PHYSICAL PROPERTIES

Property	Unit	Value	Technical Specification
Specific Gravity/Density	g/cm ³	0.91	EN 14889-2
Length	mm	54	
Filament Diameter	mm	0.72	
Aspect Ratio	-	75	
Tensile Strength	MPa	550	
Elastic Modulus	GPa	8.5	
Acid and Alkaline Resistance	High		
Melting Point	°C	160	
Num. of Fibers	~# / kg	50000	
Raw Material	Virgin Polypropylene		
Electrical Conductivity	NA		
Water Absorbtion	NA		
Fiber Surface	Embossed		
CE Certificate	2055-CPR-169		
ISO9001-2015			

PACKAGING

KraTos Macro PP 54 is produced in special water-soluble packages. The standard package amount is 3.0 kgs (±1.5%). 330 kgs of product is shipped in one palette.

SHELF LIFE AND STORAGE

The suitable shelf life for unopened packages is 2 years. It is recommended to store the product in its original packaging in a closed environment, protected from moisture, water and direct sunlight.

FEATURES & BENEFITS

- Fully homogeneous mixture in concrete with its special surface design
- Effective crack control at every point of concrete
- 3-dimensional concrete reinforcement
- Easy mixing and fast application
- Easy handling compared to steel reinforcement
- Less labor and equipment costs
- High concrete toughness and impact resistance
- Increased load bearing capacity
- High durability against corrosive, alkaline and acidic environments
- Does not affect magnetic fields with its polymer structure
- Lower carbon footprint compared to steel reinforcements
- Easy to store, advantageous logistic costs
- Increased concrete resistance and long-term durability against freeze-thaw
- No damage to machinery and equipment in shotcrete applications compared to steel fibers
- Reducing general project costs by minimizing rebound up to 40% in shotcrete applications

DOSAGE

KraTos Macro PP 54 has varying dosages between 2.00-8.00 kg/m³ in different types of applications.

DIRECTIONS FOR USE / MIXING

KraTos Macro PP 54 is produced in special water-soluble packages. It provides speed and convenience by mixing with concrete together with its pack during plant and on-site mixing. KraTos Macro fibers are compatible with all types of concrete additives and classes.

KraTos Macro PP 54 is specially produced to provide maximum homogeneity during plant mixing. The mixing is done by adding the packed fibers on to the conveyor belt during concrete production.

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CONFORMITY / COMPLIANCE

In line with the project needs, EN 14651 – ASTM C-1609 – EN 14488-5 tests can be done and reported in accredited test and university laboratories and / or Kordsa Technology Center with samples taken from the project jobsites.

GRAPHS AND TABLES

1) EN 14488-5: Determination of Energy Absorption Capacity of Fiber Reinforced Concrete Plate Samples / EFNARC

	Joule	Classification
3 kg/m ³	500-700	a
4 kg/m ³	700-1000	b
5 kg/m ³	1000+	c

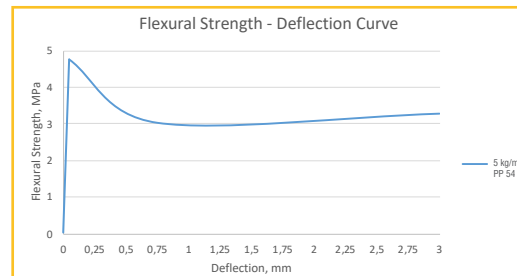
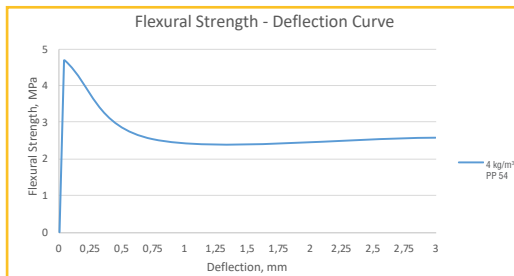
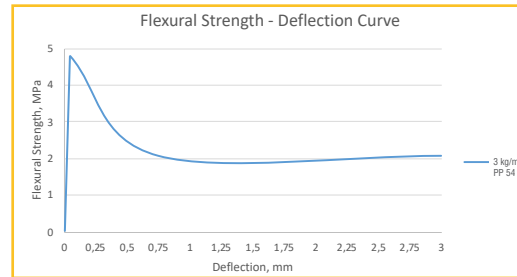
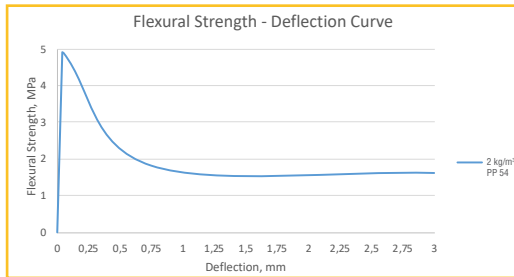
600 x 600 x 100 mm slab samples are used on the above concrete samples according to EN 14488-5/EFNARC standards. Test results may vary according to concrete mix design.

2) ASTM C-1609: Third-Point Loading Beam Test

	f150 (MPa)	Re3 (%)
2 kg/m ³	1.6	38
3 kg/m ³	2.1	45
4 kg/m ³	2.6	56
5 kg/m ³	3.3	67

*R_{e3} = Equivalent Flexural Strength Ratio

ASTM C-1609 tests were performed with 150 x 150 x 500 mm beam samples.



LEGAL DISCLAIMER

The recommendations regarding the use of KraTos Macro PP 54 product presented by Kordsa Teknik Tekstil A.Ş. under the document are only recommendations and may vary according to the customer's purpose of using the product and technical data. Since the customer has the expertise and knowledge regarding the intended use of the product and the products made from the product in question, regardless of whether the product is used alone or with other materials, the customer undertakes all the risks and responsibilities arising from the use of the product. Kordsa Teknik Tekstil A.Ş. expressly declares that it is not liable for any loss and / or expense that may arise in the eye of the customer, regardless of whether it is used in accordance with the usage recommendation offered to the customer.