

BOUNDLESS ARK

Concrete Fiber Reinforcement Solutions

Polypropylene Fiber | Macro Synthetic Fiber | Specialty
Fibers

Professional product reference for concrete, shotcrete, mining,
tunneling, flooring and precast applications.



TECHNICAL PRODUCT CATALOG

Polypropylene Monofilament Fiber



PRODUCT OVERVIEW

A polypropylene fiber produced through specialized extrusion and surface treatment. The source catalog describes easy dispersion, strong bonding with the cementitious matrix, resistance to acid and alkali environments, and no damage to mixing equipment.

KEY FEATURES

- Concrete crack control
- Improved fire resistance
- Improved toughness and mechanical performance
- Improved freeze-thaw resistance
- Improved concrete durability
- Applicable to UHPC

TECHNICAL PARAMETERS

Parameter	Value
Density	0.91 g/cm ³
Form	Bundle-linked
Equivalent Diameter	0.6 ± 0.05 mm
Acid and Alkali Resistance	≥95 %
Length	40 mm, 50 mm, 56 mm; customizable
Tensile Strength	2500 MPa
Melting Point	160-170 °C
Elastic Modulus	>4500 MPa
Elongation at Break	20 ± 5 %
Water Absorption	Does not absorb water

APPLICATIONS

- Concrete pavements, bridge decks, airport pavements and industrial floors
- Tunnels, mining and shotcrete works
- Hydraulic structures, channels, dams and reservoirs
- Precast concrete elements, pipes and panels
- Pumped concrete and cementitious mortars

Polypropylene Mesh Fiber



PRODUCT OVERVIEW

Manufactured from polypropylene in an interconnected mesh structure. During concrete mixing, friction and kneading separate the transverse links so the filaments or mesh can open and disperse throughout the mixture.

KEY FEATURES

- Improves impermeability and wear resistance
- Supports protection of reinforcing steel
- Improves crack resistance and fire behavior
- Improves impact and fatigue resistance
- Improves flexural tensile and flexural performance
- Supports plastic deformation capacity

TECHNICAL PARAMETERS

Parameter	Value
Density	0.91 g/cm ³
Form	Bundled mesh
Equivalent Diameter	100μm
Acid and Alkali Resistance	≥95 %
Length	12mm 19mm 24mm 30mm
Tensile Strength	≥460Mpa
Melting Point	160-170 °C
Elastic Modulus	>4800 MPa
Elongation at Break	20 ± 5 %
Water Absorption	Does not absorb water

APPLICATIONS

- Concrete pavements, bridge decks, airport pavements and industrial floors
- Tunnels, mining and shotcrete works
- Hydraulic structures, channels, dams and reservoirs
- Precast concrete elements, pipes and panels

Polypropylene Twisted Bundle Fiber



PRODUCT OVERVIEW

A bundled polypropylene fiber produced through specialized processing, extrusion and surface treatment. The source catalog highlights break resistance, concrete dispersion, bonding ability, acid and alkali resistance, and practical handling without damaging mixing equipment.

KEY FEATURES

- High breaking resistance
- Good dispersion in concrete
- Strong bonding capacity
- Acid and alkali corrosion resistance
- Supports crack, permeability and aging resistance

TECHNICAL PARAMETERS

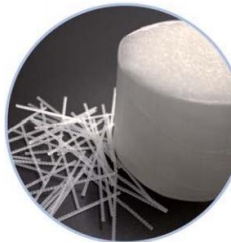
Parameter	Value
Density	0.91 g/cm ³
Form	Bundle-linked
Equivalent Diameter	0.6 ± 0.05 mm
Acid and Alkali Resistance	≥95 %
Length	40 mm, 50 mm, 56 mm; customizable
Tensile Strength	2500 MPa
Melting Point	160-170 °C
Elastic Modulus	>4500 MPa
Elongation at Break	20 ± 5 %
Water Absorption	Does not absorb water

APPLICATIONS

- Mass concrete placements for wharves, transfer beams, columns and high-rise slabs
- Wear-resistant industrial floors
- Industrial and civil roofs and basements
- Roads, bridges, dams, reservoirs and parking areas
- Precast elements, pipes and panels
- Shotcrete for tunnels, mines, culverts and slope stabilization

Structural and Specialty Synthetic Fibers

Polypropylene Macro Synthetic Fiber



PRODUCT OVERVIEW

A coarse polypropylene fiber developed for selected applications where a synthetic alternative to steel fiber may be considered, subject to project design requirements and performance validation.

TECHNICAL PARAMETERS

Parameter	Value
Density	0.91 g/cm ³
Form	Cylindrical
Equivalent Diameter	0.2-1.5 mm
Acid and Alkali Resistance	≥95 %
Length	30/40/50/60 mm
Tensile Strength	≥450 MPa
Melting Point	160-170 °C
Elastic Modulus	≥5500 MPa
Elongation at Break	15 ± 5 %
Water Absorption	Does not absorb water

KEY FEATURES

- Corrosion resistance
- Easy dispersion and application
- Does not damage mixing equipment
- Crack, fatigue and toughness support

APPLICATIONS

- Construction works
- Roads and bridges
- Hydraulic engineering

Polyacrylonitrile (PAN) Fiber



PRODUCT OVERVIEW

A reinforcement material for cement concrete and asphalt concrete. The source catalog describes contributions to tensile, fatigue and flexural-tensile performance, early-age cracking behavior and asphalt-mixture stability.

TECHNICAL PARAMETERS

Parameter	Value
Composition	100 % polyacrylonitrile (PAN)
Form	Bundled monofilaments
Equivalent Diameter	13–20 μm
Color	White or light yellow
Length	0.5 mm, 3 mm, 6 mm, 12 mm, 19 mm; customizable
Tensile Strength	≥ 900 MPa
Density	1.18 g/cm ³
Elongation at Break	15 ± 5 %
Elastic Modulus	213 GPa
Acid and Alkali Resistance	≥ 95 %
Thermal Resistance	≥ 220 °C
Water Absorption	Does not absorb water

KEY FEATURES

- Supports tensile and fatigue resistance
- Supports early-age crack resistance
- Supports asphalt cohesion and high-temperature stability
- Supports low-temperature crack resistance

APPLICATIONS

- Cement concrete
- Asphalt concrete
- Road and pavement materials

Polyester and PVA Fibers

Polyester Fiber



PRODUCT OVERVIEW

A short-cut fiber made from modified polyester copolymers through a specialized process. It is intended for asphalt-concrete reinforcement and is described as fine, strong, easy to disperse and thermally stable from -40 °C to 220 °C.

TECHNICAL PARAMETERS

Parameter	Value
Fiber Form	Bundled monofilaments
Melting Point	257 °C
Diameter	6–35 µm
Density	1.36 g/cm ³
Length	0.5 mm, 3 mm, 6 mm, 9 mm, 12 mm; customizable
Ignition Point	554 °C
Tensile Strength	≥ 600 MPa
Acid and Alkali Resistance	≥ 95 %
Elastic Modulus	≥ 4000 MPa
Safety	Non-toxic material
Elongation at Break	25 ± 5 %

KEY FEATURES

- UV-protection treatment
- Aging resistance
- Fine fiber with easy dispersion
- Thermal stability and asphalt compatibility

APPLICATIONS

- Asphalt concrete
- Road paving mixtures
- Crack-control reinforcement

Polyvinyl Alcohol (PVA) Fiber



PRODUCT OVERVIEW

A cement reinforcement fiber with molecular affinity to cement and resistance to alkalis and weathering. The source describes crack-control, flexural and impact benefits for concrete-related applications.

TECHNICAL PARAMETERS

Parameter	Value
Melting Point	> 240 °C
Tensile Strength	≥ 1200 MPa
Elastic Modulus	≥ 30 GPa
Elongation at Break	≤ 15 %
Length	4 mm, 6 mm, 12 mm
Equivalent Linear Density	2 Dtex
Alkali Resistance	≥ 90 %
Safety	Non-toxic material

KEY FEATURES

- Cement affinity
- Alkali and weather resistance
- Supports flexural, impact and crack resistance
- Non-toxic material

APPLICATIONS

- Industrial and civil walls, roofs and floors
- Roads and bridges
- Tunnels and slopes

Lignin and Cellulose Fibers

Lignin Fiber



PRODUCT OVERVIEW

A fibrous, sponge-like organic material obtained from renewable natural wood through chemical and mechanical processing.

TECHNICAL PARAMETERS

Parameter	Value
Length	< 6 mm
Ash Content	13–23 %
pH Value	7.0 ± 1.0
Oil Absorption	Not less than 5–8 times the fiber’s own weight
Moisture Content	< 5 %
Thermal Resistance	230 °C

KEY FEATURES

- Renewable wood-derived material
- Fibrous and sponge-like structure
- High oil-absorption capacity
- Thermal resistance

APPLICATIONS

- Asphalt roads
- Concrete mortar
- Gypsum products

Cellulose Fiber



PRODUCT OVERVIEW

A plant-derived concrete fiber produced through chemical and mechanical treatments. The source catalog describes a bond-active surface, high strength and elastic modulus, and contributions to crack, freeze-thaw and permeability performance.

TECHNICAL PARAMETERS

Parameter	Value
Density (g/cm ³)	1.0–1.2
Equivalent Diameter (μm)	15–25
Length (mm)	≥ 2
Breaking Strength (MPa)	≥ 600
Initial Modulus (GPa)	≥ 7
Elongation at Break (%)	5–20
Hydrophilicity	Good
Specific Surface Area (cm ² /g)	20,000–30,000
Safety	Non-toxic and odorless
Acid and Alkali Resistance	≥ 95 %

KEY FEATURES

- Plant-derived fiber
- High strength and initial modulus
- Bond-active surface
- Non-toxic and odorless

APPLICATIONS

- Concrete reinforcement
- Crack control
- Freeze-thaw and permeability applications

Alkali-Resistant Glass Fiber



PRODUCT OVERVIEW

An inorganic reinforcing material for glass fiber reinforced concrete (GRC). Its alkali resistance is intended to withstand the highly alkaline cement environment, while its bonding, elastic, impact, tensile and flexural characteristics support non-load-bearing concrete components.

KEY FEATURES

- Alkali resistance for cement environments
- Non-combustible
- Freeze resistance
- Supports impact, tensile and flexural performance
- Flexible design and molding

TECHNICAL PARAMETERS

Parameter	Value
Fiber Length	12 mm, 24 mm, 36 mm
Material	Alkali-resistant glass (AR)
Loss on Ignition (%)	2.00 ± 0.4
Fiber Diameter	19 μm ± 20 %
Moisture Content (%)	≤ 0.5
Softening Point	860 °C
Elastic Modulus	> 72 GPa
Density	2.68 g/cm ³
Electrical Conductivity	Very low
Chemical Resistance	Very high
Tensile Strength	1000–1700 MPa
Zirconium Oxide Content (ZrO ₂)	16.7 %

APPLICATIONS

- GRC products
- Non-load-bearing concrete elements
- High-performance fiber-reinforced concrete

Alkali-Free E-Glass Fiber



PRODUCT OVERVIEW

An inorganic fiber described for improving impermeability and crack resistance in concrete and mortar. The source catalog also identifies use in asphalt concrete to support high-temperature stability, low-temperature crack resistance and fatigue resistance.

KEY FEATURES

- Good dispersion in concrete
- Strong bond with the concrete matrix
- Supports crack and permeability resistance
- Supports freeze and impact resistance

TECHNICAL PARAMETERS

Parameter	Value
Material	E-glass fiber (alkali-free)
Length / Particle Size	Powder: mesh 80–1500; chopped fiber: 3–100 mm
Tensile Strength	600–1500 MPa
Density	2.7 g/cm ³
Combustible Matter Content	1.75 %
Moisture Content	≤ 1 %

APPLICATIONS

- Concrete and mortar
- Asphalt concrete
- Road pavement applications

Basalt Fiber



PRODUCT OVERVIEW

A chopped fiber made from continuous basalt fiber with specialized surface treatment to promote bonding with asphalt or cement concrete. The source describes use as an additive for asphalt concrete and as secondary reinforcement for concrete.

KEY FEATURES

- Bonding with asphalt or cement concrete
- Supports high-temperature stability
- Supports low-temperature crack and water-damage resistance
- Supports fatigue resistance
- Supports concrete toughness and impermeability

TECHNICAL PARAMETERS

Parameter	Value
Tensile Strength ^a (MPa)	≥ 1200
Density (g/m ³)	2.6–2.8
Elastic Modulus ^b (GPa)	≥ 75
Alkali Resistance (%)	≥ 75
Elongation at Break ^c (%)	≤ 3.1
Moisture Content (%)	≤ 0.2

APPLICATIONS

- Asphalt concrete
- Road pavements
- Cement concrete as secondary reinforcement

Carbon and Aramid Fibers

Carbon Fiber



PRODUCT OVERVIEW

A high-strength, high-modulus fiber with carbon content above 90 %. The source catalog describes high-temperature resistance and production through oxidation and high-temperature carbonization.

TECHNICAL PARAMETERS

Parameter	Value
Density	1.78 ± 0.02 g/cm ³
Length	Mesh 300, mesh 800, 6 mm, 9 mm, 12 mm, 18 mm, 24 mm (customizable)
Equivalent Diameter	5–10 μm
Tensile Strength	> 4000 MPa
Tensile Modulus	> 255 GPa
Elongation at Break	≥ 1.3 %

KEY FEATURES

- High tensile strength
- High tensile modulus
- High-temperature resistance
- Available in mesh and chopped lengths

APPLICATIONS

- High-technology equipment
- Aerospace-related materials
- Specialty reinforcement applications

Aramid Fiber



PRODUCT OVERVIEW

Also known as aromatic nylon, aramid is described as a high-technology synthetic fiber with very high mechanical strength, high elastic modulus, temperature resistance, acid and alkali resistance, low weight and aging resistance.

TECHNICAL PARAMETERS

Parameter	Value
Full Name	Poly(p-phenylene terephthalamide)
Properties	Electrical insulation and aging resistance
Characteristic	Fiber with more than 85 % aramid units in the chain
Elastic Modulus	125–135 GPa
Density	1.44–1.45 Mg/m ³
Yield Strength	2250–2750 GPa
Elongation at Break	2.7–2.9 %
Specific Heat	1350–1450 J/(kg·K)
Service Temperature	200–300 °C
Thermal Expansion Coefficient	(-4)–(-2) × 10 ⁻⁶ /K
Thermal Conductivity	0.2–0.3 W/(m·K)

KEY FEATURES

- High mechanical strength
- High elastic modulus
- Temperature and chemical resistance
- Electrical insulation and aging resistance

APPLICATIONS

- Specialty engineering materials
- High-performance reinforcement
- Thermal and electrical applications

Ultra-High-Molecular-Weight Polyethylene Fiber



PRODUCT OVERVIEW

UHMWPE fiber is described in the source as a linear, unbranched polyethylene with a molecular weight above 1.5 million. The source further characterizes it as a very strong and tough fiber, with strength stated as 15 times that of steel.

KEY FEATURES

- High tensile strength and modulus
- Low density
- Acid and alkali resistance
- No water absorption
- Multiple diameter and length options

TECHNICAL PARAMETERS

Parameter	Value
Density	0.95 g/cm ³
Tensile Strength	> 3800 MPa
Equivalent Diameter	22 μm, 43 μm
Elastic Modulus	> 130 GPa
Length	12 mm, 18 mm, 24 mm, 30 mm
Acid and Alkali Resistance	≥ 95 %
Melting Point	135 °C
Water Absorption	Does not absorb water
Elongation at Break	< 4 %

APPLICATIONS

- High-performance reinforcement
- Specialty composite materials

Glued Steel Fiber



PRODUCT OVERVIEW

A high-tensile steel-wire fiber produced by cold drawing and then assembled in rows using a water-soluble adhesive.

KEY FEATURES

- Cold-drawn high-tensile steel wire
- Water-soluble adhesive assembly
- Bundled format for handling and dispersion

TECHNICAL PARAMETERS

Parameter	Value
J-65/60	0.92 60 65 > 1100 MPa
J-80/60	0.75 60 80 > 1100 MPa
J-65/50	0.77 50 65 > 1100 MPa
J-65/35	0.54 35 65 > 1100 MPa
J-45/35	0.77 35 45 > 1100 MPa
J-55/30	0.54 30 55 > 1100 MPa
J-55/30	0.50 30 60 > 1100 MPa

APPLICATIONS

- Concrete reinforcement applications

Hooked-End Steel Fiber



PRODUCT OVERVIEW

Produced by cutting fine steel wire of specified strength and diameter. The fiber is straight through the center, with both ends bent into hooks, and has a smooth, uniform appearance.

KEY FEATURES

- Hooked ends
- Smooth and uniform appearance
- Multiple aspect ratios and sizes
- Common steel-fiber form

TECHNICAL PARAMETERS

Parameter	Value
J-50/50	1.0 50 50 ≥ 1000 MPa
J-65/60	0.92 50 65 ≥ 1000 MPa
J-55/50	0.9 50 55 ≥ 1000 MPa
J-80/60	0.75 60 80 ≥ 1000 MPa
J-65/50	0.77 50 65 ≥1000 MPa
J-45/35	0.77 35 45 ≥ 1000 MPa
J-55/30	0.54 30 55 ≥ 1000 MPa
J-60/30	0.5 30 60 ≥ 1000 MPa
J-50/25	0.5 25 50 ≥ 1000 MPa
J-60/25	0.4 25 50 ≥ 1000 MPa

APPLICATIONS

- Concrete reinforcement applications

Milled and Cut Steel Fibers

Milled Steel Fiber



PRODUCT OVERVIEW

Produced by milling thick steel plate or steel ingots. The surface is wavy and the cross-section is crescent-shaped.

TECHNICAL PARAMETERS

Parameter	Value
Length	32 mm, 45 mm, 50 mm
Diameter	1.1 mm
Tensile Strength	> 600 MPa

KEY FEATURES

- Wavy surface
- Crescent-shaped cross-section
- Produced by milling steel plate or ingots

APPLICATIONS

- Concrete reinforcement applications

Cut Steel Fiber



PRODUCT OVERVIEW

Produced from thin steel plate or steel strip by cutting. The surface is wavy and the cross-section is rectangular.

TECHNICAL PARAMETERS

Not specified in the source document.

KEY FEATURES

- Wavy surface
- Rectangular cross-section
- Produced from thin steel plate or strip

APPLICATIONS

- Concrete reinforcement applications

Copper-Coated Micro Steel Fiber



PRODUCT OVERVIEW

Produced from ultra-fine copper-coated steel wire and cut to length. The fibers may be straight or bent into hooked shapes at both ends.

KEY FEATURES

- Ultra-fine steel wire
- Copper-coated surface
- Straight or hooked-end forms
- Customizable length stated in the source

TECHNICAL PARAMETERS

Parameter	Value
Length	13 mm, customizable
Diameter	0.1–0.3 mm
Tensile Strength	> 2850 MPa

APPLICATIONS

- Specialty cementitious and concrete reinforcement applications