

**Description**

BASF introduces MasterFiber MAC Matrix, a "best-in-class" synthetic polymeric fiber for use in the most stringent secondary reinforcement applications. MasterFiber MAC Matrix fiber was designed with the contractor in mind - whether they are slab-on-ground contractors or shotcrete contractors.

MasterFiber MAC Matrix is a macrosynthetic fiber and is specifically engineered for use as secondary reinforcement to provide excellent control of plastic shrinkage and settlement cracking. It is specifically designed to provide excellent finishability in shotcrete and slab-on-ground applications, and it gives optimum performance in highly corrosive environments. MasterFiber MAC Matrix provides excellent flexural performance in concrete and is a true replacement for welded-wire reinforcement (WWR), conventional light gauge steel reinforcement and steel fiber. MasterFiber MAC Matrix provides increased flexural toughness and increased impact, shatter and abrasion resistance to help improve the long-term durability and integrity of concrete.

**Applications**

Recommended for use in:

- Shotcrete
- Composite metal decks
- Industrial and warehouse floors
- Pavement
- Precast
- Residential & commercial slabs-on-ground
- Thin-wall precast
- Tunnel linings
- Wall systems
- Whitetopping/overlays (dosage will vary based on application)

# MasterFiber™ MAC Matrix

## Macrosynthetic Fiber

**Features**

- Excellent bond with mortar
- Excellent distribution
- Excellent finishability

**Benefits**

- Eliminates the need for welded-wire reinforcement (WWR) and conventional steel bars as secondary reinforcement, depending on the application
- Effective tight crack control
- Provides excellent control of plastic shrinkage and settlement cracking
- Reduces production time and overall labor and material costs
- Improves green strengths and permits earlier stripping of forms with less rejection
- Reduces the effects of handling and transportation stresses



**Performance Characteristics**

*Physical Properties*

Configuration:	Stick-like fiber
Fiber Type:	Embossed
Material:	100% virgin polypropylene
Specific Gravity:	0.91
Melt Point:	320 °F (160 °C)
Ignition Point:	1094 °F (590 °C)
Available Lengths:	1.9 – 2.1 in. (48 - 54 mm)
Water Absorption:	Nil
Tensile Strength:	85 ksi (586 MPa) min
Alkali Resistance:	Excellent
Chemical Resistance:	Excellent
Color:	White, translucent
Electrical Conductivity:	Low
Average of 20,430 fibers per lb (44,950 fibers per kg) {assuming a 50-mm fiber length, 4000 denier}	

# Product Data: MasterFiber™ MAC Matrix

## Guidelines for Use

**Dosage:** The recommended dosage rate of MasterFiber MAC Matrix for slab-on-ground applications is typically 3 – 5 lb/yc<sup>3</sup> (1.8 – 3 kg/m<sup>3</sup>). For shotcrete, the typical dosage range is 10 – 11 lb/yc<sup>3</sup> (6 – 7 kg/m<sup>3</sup>).

**Mixing:** MasterFiber MAC Matrix can be introduced at any time during the mixing cycle, but not at the same time as the cement. For slab-on-ground applications, the entire bag should be thrown into the mix to allow for easy handling while leaving no waste on site. For shotcrete, the bag should be opened so the fibers can be dumped out into the mix. Three to five minutes will be required to disperse the fibers depending on when the product is added to the mixer. BASF recommends utilizing good concrete mixing practice as outlined in ASTM C 94/C 94M.

## Packaging

MasterFiber MAC Matrix product is packaged in pre-weighed degradable 3-lb (1.4-kg), 4-lb (1.8-kg) and 5-lb (2.3-kg) bags that can be added directly to the mixing system. For shotcrete, the fibers are packaged in 11-lb (5-kg) & 15.4-lb (7-kg) bags which should be opened prior to dumping the fibers into the mix.

## Engineering Specifications

MasterFiber MAC Matrix is an option for the replacement of WWR and is a safe and easy-to-use secondary reinforcing system that is rust proof, alkali resistant, and compliant with industry codes when mixed in accordance to ASTM C 94/C 94M. MasterFiber MAC Matrix should be specified for use in applications for:

- Increased flexural toughness
- Reduced rebound
- Increased cohesion
- Increased impact and shatter resistance
- Extended pump life
- Replacement of WWR and other secondary reinforcement
- Improved residual strength
- Improved durability
- Use in areas requiring no metal

## Storage and Handling

MasterFiber MAC Matrix should be stored protected from the weather and stored at temperatures below 140 °F (60 °C). Avoid storing near strong oxidizers and avoid sources of ignition. Use caution when stacking to avoid unstable conditions. Store in a sprinkled warehouse.

## Product Notes

MasterFiber MAC Matrix is not a replacement for primary/ structural steel and should not be used to replace reinforcing steel where the area of the steel is used in the calculation of the load-carrying capacity of the concrete member.

**Placement and Finishing:** BASF recommends that the standard practices detailed in ACI 302 for placing, finishing and curing concrete be followed when using MasterFiber MAC Matrix fibers.

## Related Documents

Material Safety Data Sheets: MasterFiber MAC Matrix

## Additional Information

For additional information on MasterFiber MAC Matrix, contact your local sales representative.

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