FORTA®
REINFORCEMENT THAT LASTS™

FORTA-FERRO®
FACT DATA



MACRO SYNTHETIC

Description

FORTA-FERRO®is an easy to finish, color-blended macro synthetic fiber made of 100% virgin copolymer/polypropylene. Its twisted-bundle monofilament and fibrillated fibers yield a high-performance concrete reinforcement. This heavy-duty macro synthetic fiber offers maximum long-term durability, structural enhancements, and effective temperature/shrinkage crack control. FORTA-FERRO is non-corrosive, non-magnetic, and 100% acid and alkali proof.

Reinforcement Objective

To inhibit plastic and settlement shrinkage cracking prior to the initial set, and to reduce hardened concrete shrinkage cracking, improve impact resistance, and enhance concrete toughness and durability as an alternate temperature/shrinkage reinforcement.

Physical Properties

Specific Gravity	0.91
Tensile Strength	83-96 ksi (570-660 MPa)
Length	2.25 in (54 mm), 1.5 in (38 mm)
Melting Point	319°F (160°C)
Material	Virgin Copolymer / Polypropylene
Form	Monofilament / Fibrillated
Color	Gray
Acid / Alkali Resistance	Excellent
Absorption	Nil

Compliance & Certification

- ASTM C1116 / C1116M-10a, Standard Specification for Fiber-Reinforced Concrete, "Type III Synthetic Fiber-Reinforced Concrete"
- ASTM D7508 / D7508M-10(2015), Standard Specification for Polyolefin Chopped Strands for Use in Concrete
- ANSI/SDI SD-2022, Standard for Steel Deck (Section F9.2)
- Evaluated by ICC-ES, see Evaluation Report No. ESR-2522
- UL Listed: CBXQ.R18552 and CBXQ7.R18552
- DUNS: 094214129
- CAGE Code: 0AFN8
- NAICS: 325220
- CE 0749-CPD EN 14889-2

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Applications

FORTA-FERRO is mainly used in concrete applications such as slabs-on-ground, composite steel decks, overlays, pavements, bridge decks, shotcrete, and precast products – anywhere that steel reinforcement reduction or replacement is the objective. Contact FORTA for design assistance and dosage recommendations.

Performance Benefits

- Enhance durability
- Reduce plastic shrinkage cracking
- Reduce crack width opening
- Improve flexural toughness and fatigue resistance
- Increase impact and shear resistance
- Increase post-cracking residual strength

Reinforcement Dosage

This product is typically used at a dosage of 3.0 lb/cu yd of concrete, and higher, depending on application and desired performance. Contact FORTA for design assistance and dosage recommendations.

Dosage by Volume (%)	Dosage by Weight	
	Imperial (lb/cu yd)	Metric (kg/cu m)
0.20	3.0	1.8
0.27	4.0	2.4
0.33	5.0	3.0
0.40	6.0	3.6
0.50	7.5	4.5
1.00	15.0	8.9

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Packaging

FORTA-FERRO is available in convenient degradable mixer-ready bags in 1.0 to 5.0 lb increments (1.0 and 2.0 kg).

Recommendations

Addition: FORTA-FERRO is packaged in mixer-ready bags that can be added directly into the concrete mixing system. The fiber should be added during or after batching of the other ingredients – not as the first mix ingredient.

Mixing: When possible, add fibers to a rotating drum. Once all fibers have been added to the batch, mix four to five minutes at standard mixing speed. Road-revolution speed should not be counted as part of the required fiber mixing time.

Slump: Fibers will reduce the visual slump measured by the slump-cone test, but has a lesser effect on flow-ability and workability. To regain any loss of workability or slump, the use of appropriate admixtures is recommended – avoid the addition of water.

Pumping: If the fiber reinforced concrete is to be pumped, it is HIGHLY recommended that the grate on the hopper of the pump truck be a round-bar grate. The use of a vibrator attached directly to the grate is also recommended to aid in movement of the concrete through the grate.

Additional Information

Additional information such as the Safety Data Sheet, Certifications, videos and other literature can be found on the fortacorp.com website. The website also features Project Profiles that show the many applications and benefits of FORTA-FERRO first-hand.



Slab-on-Ground



Composite Steel Deck

Limited Warranty

FORTA® Products are warranted to be free of defects in material and workmanship and will meet all published physical properties as set forth herein. FORTA DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. NO AGENT OR EMPLOYEE OF FORTA IS AUTHORIZED TO VARY THE TERMS OF THIS WARRANTY NOTICE.

The exclusive remedy for defective Product shall be a replacement of Product, a refund of the purchase price, or repair, at FORTA's sole discretion. CONSEQUENTIAL DAMAGES ARE SPECIFICALLY EXCLUDED.

FORTA reserves the right to change the specifications of its products without prior notice.

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