TUF-STRAND PX54
MACRO SYNTHETIC FIBER

DESCRIPTION

TUF-STRAND PX54 is a macro synthetic fiber engineered for use as an alternate to steel fibers and welded wire mesh for precast concrete and shotcrete reinforcement applications. TUF-STRAND PX54 fibers comply with ASTM C1116, Standard Specification for Fiber Reinforced Concrete and Shotcrete, and are specifically used to improve impact, shatter and abrasion resistance, to increase fatigue resistance, to increase toughness of concrete and provide long term durability of concrete and cement based building products. Dosage rates will vary depending upon the reinforcing requirements and can range typically from 3.0 to 15 lb/yd³ (1.8 to 9 kg/m³). TUF-STRAND PX54 synthetic macro-fibers comply with applicable portions of the International Code Council (ICC) Acceptance Criteria AC32 for synthetic fibers and can save time and money on construction projects by eliminating the purchase, storage, handling, cutting, placing and waste of welded wire mesh. These fibers are chemically inert and will not corrode.

PRIMARY APPLICATIONS

- Precast Concrete (septic tanks, vaults, walls, etc.)
- Shotcrete for tunnel linings, pool construction and slope stabilization
- Wall Systems
- Mass Concrete

FEATURES/BENEFITS

- Equivalent strengths to WWM and rebar provided by engineering calculations
- Provides three-dimensional reinforcement against micro and macro-cracking
- Reduces equipment wear, fiber rebound and increases build-up thickness compared to steel fibers for shotcrete applications
- Increases overall durability, fatigue resistance and flexural toughness
- Reduction of in-place cost versus wire mesh for temperature / shrinkage crack control
- Easily added to concrete mixture at any time prior to placement
- Tested in accordance with ASTM C 1550, C 1609
- Applicable for design by ACI 360 R-10

TECHNICAL INFORMATION

Typical Engineering Data

<table>
<thead>
<tr>
<th>Material</th>
<th>100% virgin polyolefin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific Gravity</td>
<td>0.91</td>
</tr>
<tr>
<td>Typical dosage rates</td>
<td>3 to 15 lbs/yd³ (1.8 to 9 kg/m³)</td>
</tr>
<tr>
<td>Available lengths</td>
<td>2 1/8&quot; (54 mm)</td>
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<tr>
<td>Aspect Ratio</td>
<td>79</td>
</tr>
<tr>
<td>Tensile Strength</td>
<td>78 ksi (538 GPa)</td>
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<tr>
<td>Modulus of Elasticity</td>
<td>1200 ksi (8.27 GPa)</td>
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<tr>
<td>Melt Point</td>
<td>320°F (160°C)</td>
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<tr>
<td>Electrical and Thermal Conductivity</td>
<td>low</td>
</tr>
<tr>
<td>Water Absorption</td>
<td>negligible</td>
</tr>
<tr>
<td>Acid and Alkali Resistance</td>
<td>excellent</td>
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<tr>
<td>Color</td>
<td>white</td>
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</tbody>
</table>

PACKAGING

TUF-STRAND PX54 fibers are packaged in 5.0 lb (2.27 kg) water soluble bags.

SHELF LIFE

3 years in original, unopened package.
**DIRECTIONS FOR USE**

TUF-STRAND PX54 fibers can be added to the concrete mixture at any time prior to placement of the concrete. It is generally recommended to add any fiber material at the ready-mix concrete plant during batching. Fibers must be mixed with concrete for a minimum of three (3) to five (5) minutes at maximum mixing speed, depending on the mixer type, to ensure complete dispersion and uniformity. When adding 3 to 5 lbs/yd³ (1.8 to 3 kg/m³), a slump loss of up to 2” (50 mm) can be expected for a typical ready-mix concrete design. For dosages of 6 to 12 lbs/yd³ (4 to 7 kg/m³), a slump loss of 3 to 5 in (75 to 125 mm) can be expected. The use of water reducers and/or superplasticizers, such as Eucon 1037, the Eucon series or the Plastol series of admixtures may be necessary to maintain desired workability.

Add other admixtures independently from fiber addition. TUF-STRAND PX54 is compatible with all Euclid Chemical admixtures. When used properly, and placed in a concrete mix of sufficient workability, the fibers will not adversely alter the compressive or flexural strength of concrete or shotcrete.

Fiber-reinforced concrete (FRC) is characterized by standard test methods such as ASTM C1609, and C1550 or RILEM TC162 (EN14651). The flexural residual strength of FRC is measured using these beam tests and is used for design purposes with proper conversion factors. Typical test results for ASTM C1609 (FRC beam) and C1550 (FRC round panel) are shown for TUF-STRAND PX54 macro synthetic fiber tested at different dosage rates. These test results could vary with mix design and curing conditions.

![Graph](Typical Data)

**Clean-up**

Loose fiber material may be disposed in proper receptacles for refuse. Finishing equipment with fibers embedded in concrete should be thoroughly cleaned.

**Precautions/Limitations**

- Use of fibers may cause an apparent loss in measured slump of concrete. This may be offset with the use of a water reducing admixture if necessary.
- Fibers should never be added to a “zero-slump” concrete. Ensure a minimum concrete slump of 3” (80 mm) prior to addition of any fiber material. Fibers may also be added in loose form to aggregate charging devices.
- In all cases, consult the Safety Data Sheet before use.

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**WARRANTY:** The Euclid Chemical Company (“Euclid”) solely and expressly warrants that its products shall be free from defects in materials and workmanship for one (1) year from the date of purchase. Unless authorized in writing by an officer of Euclid, no other representations or statements made by Euclid or its representatives, in writing or orally, shall alter this warranty. EUCLID MAKES NO WARRANTIES, IMPLIED OR OTHERWISE, AS TO THE MERCHANTABILITY OR FITNESS FOR ORDINARY OR PARTICULAR PURPOSES OF ITS PRODUCTS AND EXCLUDES THE SAME. If any Euclid product fails to conform with this warranty, Euclid will replace the product at no cost to Buyer. Replacement of any product shall be the sole and exclusive remedy available and buyer shall have no claim for incidental or consequential damages. Any warranty claim must be made within one (1) year from the date of the claimed breach. Euclid does not authorize anyone on its behalf to make any written or oral statements which in any way alter Euclid’s installation information or instructions in its product literature or on its packaging labels. Any installation of Euclid products which fails to conform with such installation information or instructions shall void this warranty. Product demonstrations, if any, are done for illustrative purposes only and do not constitute a warranty or warranty alteration of any kind. Buyer shall be solely responsible for determining the suitability of Euclid’s products for the Buyer’s intended purposes.