



EUCLID CHEMICAL

FIBER REINFORCED CONCRETE



PSI FIBERSTRAND MICRO SYNTHETIC FIBERS

TUF-STRAND MACRO SYNTHETIC FIBERS

PSI STEEL FIBERS AND BLENDED FIBERS

FIBER REINFORCED CONCRETE SOLUTIONS

The Euclid Chemical Company provides synthetic micro and macro fibers and steel fibers for concrete applications under the PSI Fiberstrand, TUF-STRAND and PSI Steel Fibers trade names.

All Euclid Chemical Company PSI Fiberstrand and TUF-STRAND fibers meet or exceed the requirements of ASTM C1116 which defines the use of synthetic fiber reinforced concrete or shotcrete. All PSI Steel Fibers also comply to ASTM C1116 and also meet the requirements of ASTM A820, Standard Specification for Steel Fibers for Fiber Reinforced Concrete.

SERVICE BEYOND EXPECTATION

Let our team of concrete and engineering professionals work with you to help deliver profitability and service through our fiber products and beyond. Our complete customer service capabilities include:

Concrete Mix Design – Euclid Chemical’s technical sales team is experienced in concrete mix design and how fibers work in concrete. Interactions of chemical admixtures, cement additives, air entrainment and other specialty products are included with each recommendation on fiber products.

Specification and Business Development – Let our team of specification experts make sure that the right fiber is called out for the right application. Our Business Development Group can also review full project specifications and recommend additional Euclid Chemical products.

Fiber Training – One-on-one training and educational materials are available from Euclid Chemical with a full Technical and Marketing package suited towards owners, engineers, contractors and ready-mix producers ensuring a successful fiber project.

Engineered Fiber Calculations – Design aids and other tools are available to all Euclid customers to help them correctly determine appropriate dosage rates for each individual application. Letters of certification and engineering support are included with each recommendation ensuring project compliance. The FiberCalc app is a TUF-STRAND SF fiber dosage calculator. The app is available for download through the app stores and can also be accessed via desktop by going to www.tufstrand.com

Industry Association Involvement – Euclid Chemical is a proud member of the Fiber Reinforced Concrete Association and is actively involved in promoting and advancing the state-of-the-art in FRC through participation in other trade associations such as ACI, NRMCA, ASA, NPCA and ASTM.

Testing and Quality Assurance – All of Euclid Chemical’s fiber products are tested to assure compliance to today’s standard requirements. State-of-the-art in-house testing equipment for fiber-reinforced concrete including ASTM C1399 and C1609 and RILEM EN14651.

APPLICATIONS

- Industrial floors
- Residential construction
- Highways, roads and bridges
- Pre-cast concrete products
- Shotcrete
- Composite steel decks
- Agricultural applications
- Tunnel Segments



FiberCalc
www.tufstrand.com





FIBER PRODUCTS FOR CONCRETE REINFORCEMENT

PSI FIBERSTRAND MICRO-SYNTHETIC FIBERS

PSI Fiberstrand Fibers are used for plastic shrinkage crack control and are ideally suited to secondary reinforcing applications for slabs and pre-cast concrete. They are available in various sizes and lengths of monofilament and fibrillated polypropylene, monofilament polyester and nylon.

- **PSI FIBERSTRAND MULTI-MIX 80**
- **PSI FIBERSTRAND 100**
- **PSI FIBERSTRAND 150**
- **PSI FIBERSTRAND F**
- **PSI FIBERSTRAND N**
- **PSI FIBERSTRAND P**

TUF-STRAND MACRO-SYNTHETIC FIBERS

TUF-STRAND Fibers can be used where an equivalent reinforcing option to steel fibers, wire mesh and light gage reinforcing bars are required in pre-cast concrete, slabs on grade, composite steel decks and shotcrete applications. Appropriate dosages are calculated by determining the engineering requirements of the existing design and providing an equivalent residual strength.

TUF-STRAND SF is a patented macro-synthetic fiber that is UL certified for composite steel deck construction and is used for replacement of limited structural steel in pre-cast, slabs on ground, pavements and shotcrete applications. Design Assistance can also be provided for determining appropriate fiber dosages for slab on ground projects designed in accordance with ACI 360 using our proprietary TUF-STRAND SF Software Program and accompanying Manual.

- **TUF-STRAND SF**
- **TUF-STRAND MaxTen**
- **TUF-STRAND SuperMix**

PSI STEEL AND BLENDED FIBERS

PSI Steel Fibers are used primarily for temperature and shrinkage crack control and limited structural applications in pre-cast concrete, slabs on grade, elevated structures and shotcrete applications. They are available in crimped (blended with or without synthetic micro-fibers) and hooked-end configurations.

- **PSI CRIMPED STEEL FIBER**
- **PSI STEEL FIBER C6560**


CUSTOMER SOLUTIONS & ENGINEERING SUPPORT


Euclid Chemical's fiber reinforced concrete products are just a part of the full service support that a ready-mix producer, precast manufacturer or shotcrete customer can expect when dealing with Euclid Chemical.

- Full-line micro and macro-synthetics and steel fibers
- Full-line admixtures, color, repair and construction products
- Available R&D laboratories
- Dedicated product line management
- Professional Engineers on staff
- Specification guides
- UL approved macro-fiber
- Design software package for floors
- Fully trained salesforce with concrete admixtures and fibers
- Active participation and membership in ACI, ASTM, NPCA, FRCA, NRMCA and more

Quick Reference Guide for Slab on Ground Design with TUF-STRAND macro-fibers, lbs/yd³ (kg/m³)

Slab Thickness	all 6" x 6" (150 x 150 mm)			4" x 4" (100 x 100mm)		#3 bar (3/8")		#4 bar (1/2")	
	10 gage (W1.4)	6 gage (W2.9)	4 gage (W4.0)	6 gage (W2.9)	4 gage (W4.0)	@16" (406 mm)	@12" (305 mm)	@16" (406 mm)	@12" (305 mm)
4	3.0 (1.8)	3.0 (1.8)	4.6 (2.7)	5.1 (3.0)	7.4 (4.4)	3.9 (2.3)	5.6 (3.3)	7.9 (4.7)	10.8 (6.4)
6	3.0 (1.8)	3.0 (1.8)	3.0 (1.8)	3.0 (1.8)	4.6 (2.7)	3.0 (1.8)	3.4 (2.0)	4.9 (2.9)	6.9 (4.1)
8	3.0 (1.8)	3.0 (1.8)	3.0 (1.8)	3.0 (1.8)	3.2 (1.9)	3.0 (1.8)	3.0 (1.8)	3.4 (2.0)	4.9 (2.9)
10	3.0 (1.8)	3.0 (1.8)	3.0 (1.8)	3.0 (1.8)	3.0 (1.8)	3.0 (1.8)	3.0 (1.8)	3.0 (1.8)	3.7 (2.2)





For single layer specified 70 ksi welded wire fabric and 60 ksi light steel as shown for temperature and shrinkage crack control only; 4000 psi concrete and for location of steel in **top half of slab only**. TUF-STRAND SF may also be used for replacement of WWM shown for TUF-STRAND MaxTen at same dosages. The values shown for pavement and floor construction are valid only for Euclid Chemical's TUF-STRAND fiber and have been derived from standardized testing.



TUF-STRAND SF SLAB ON GROUND SOFTWARE

Full design of fiber-reinforced concrete floors can be done using Euclid Chemical "Slab on Ground" online software according to ACI 360.

For dosing requirements in pre-cast concrete, shotcrete, structural floors or other applications, please contact your local Euclid Chemical engineering team.

INDUSTRY LEADERSHIP

For over 100 years, The Euclid Chemical Company has served as a leading supplier to the concrete and masonry industry offering a full line of engineered concrete admixture and construction products. These products include concrete admixtures, block and masonry additives, fibers, curing and sealing compounds, epoxy adhesives, floor and wall coatings, structural grouts for columns, equipment and machinery, joint fillers and repair products. The Euclid Chemical Company strives to bring innovative technologies and products to the concrete market with industry leading customer service.



Construction Products Group

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(Formerly known as "Flowcrete India Private Limited")

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