STRUX® 85/50 Synthetic Macro-Fiber Data Sheet

Synthetic Macro Fiber for reinforcement of concrete

Product Description

STRUX® 85/50 synthetic macro fibers are a unique form of high strength, high modulus synthetic macro reinforcement that is evenly distributed throughout the concrete matrix. It consists of synthetic macro fibers 50 mm (2 in.) in length with an aspect ratio of 85 that have specifically been designed to ensure ease of use and rapid dispersion in concrete. STRUX® 85/50 is used in concrete to improve the material properties including toughness (post crack energy absorption), impact and fatigue resistance, residual strength and durability.

Compliance and Certification

- ASTM C1116 / C1116M, Standard Specification for Fiber-Reinforced Concrete, Type III Synthetic Fiber-Reinforced Concrete
- ASTM D7508 / D7508M, Standard Specification for Polyolefin Chopped Strands for Use in Concrete
- ANSI/SDI C-2017, Composite Steel Floor Deck Slabs (Section 2.4.B.15.a.3)
- CSA B66-16, Design, material and manufacturing requirements for prefabricated septic tanks and sewage holding tanks

Product Advantages

STRUX® 85/50 macro fibers have been designed to:

- Eliminates the need for welded wire reinforcement (WWR) and small diameter bars used as secondary reinforcement
- Enhances safety by eliminating handling of steel fibers, welded wire reinforcement and rebar
- Improved durability, ductility, energy absorption, shatter resistance, fatigue resistance and flexural toughness
- Improves control of both plastic and drying shrinkage
- Quick, easy and safe application; arrives at the jobsite mixed into the concrete and ready to place
- Savings from reduced labor, material and storage costs and shorter construction time compared to secondary reinforcement
- Easily pumped; reduces wear on pump equipment associated with steel fibers
- Reduces shotcrete rebound and improves cohesion

Primary Applications

STRUX® 85/50 macro fibers may be used in a variety of ready mix, precast and shotcrete applications including: bridge decks, overlays, whitetopping, pipes, vaults, septic tanks, tunnel linings, slope stabilization, and swimming pools.

When added to shotcrete and concrete, the primary benefit of STRUX® 85/50 macro fiber is a significant improvement in flexural toughness.

Addition Rates

STRUX® 85/50 macro fibers addition rates are dependent on the specific application and desired properties and will typically vary between 5 to 15 lb/yd^3 (3 to 9 kg/m^3). Please consult your GCP Applied Technologies sales representative for the proper addition rate of STRUX® 85/50 macro fibers for your application. Always consult local building codes.

Guidelines for Usage and Compatibility with Other Admixtures

The utilization of STRUX 85/50 macro fibers generally requires the use of a superplasticizer such as ADVA® to restore the required workability to fiber reinforced concrete. In addition, slight increases in fine aggregate contents may be needed. STRUX® 85/50 may be added to concrete at any point during the batching or mixing process. STRUX® 85/50 should be added at a maximum rate of one bag every 30 seconds. After fiber addition the concrete should be mixed at the recommended mixing speed for a minimum of 70 revolutions to ensure adequate fiber dispersion. Please contact your GCP representative with any questions.

STRUX® 85/50 macro fibers are compatible with all GCP admixtures. Their action in concrete is mechanical and will not affect the hydration process of the cement or the compressive strength. Each liquid admixture should be added separately to the concrete mix.

STRUX® 85/50 Macro Fibers Physical Properties

Specific gravity	0.92
Absorption	None
Modulus of elasticity	1,235 ksi (8.5 GPa)
Tensile strength	81 ksi (560 MPa)
Melting point	320°F (160°C)
Ignition point	1,050°F (570°C)
Alkali, acid & salt resistance	High
Material	100% virgin polypropylene and polyethylene blend
Electrical and Thermal Conductivity	Low
Nominal Length	2 in. (51 mm)
Nominal Aspect Ratio	85
Nominal Equivalent Diameter	0.023 in. (0.59 mm)
Nominal Fiber Count	37,500 per lb (82,600 per kg)

Packaging

STRUX® 85/50 macro fibers are available in 2.3 kg (5 lb) bags.

Safety and Handling:

Read and understand the product label and Safety Data Sheet (SDS). All users should acquaint themselves with this information prior to working with the products and follow the precautionary statements. SDSs can be obtained by contacting your local GCP representative or office.

U.S. Patent No. 6,569,525
U.S. Patent No. 6,569,526
U.S. Patent No. 6,758,897
U.S. Patent No. 6,863,969

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