

# STRUX® 75/32

Synthetic Macro Fiber

## DESCRIPTION

STRUX® 75/32 fiber is a synthetic macro fiber complying with ASTM C1116/C1116M Type III, which can be used in ready-mixed concrete for different applications such slab-on-ground flooring, composite steel floor deck assemblies, topping slabs, thin-walled precast overlays, and pavements. Unlike traditional microfiber reinforcement, STRUX® 75/32 macro fibers are specifically engineered to provide post-crack control performance. STRUX® 75/32 macro fibers are extruded from a virgin polypropylene and polyethylene polymer blend.

The geometry, strength and high modulus is specifically engineered to provide high post-crack control performance with excellent dispersion into the concrete matrix, reducing plastic and hardened concrete shrinkage cracking, and increasing fatigue resistance and concrete toughness. STRUX® 75/32 macro fibers have been specifically engineered to be a user-friendly fiber reinforcement to replace welded wire reinforcement, steel fibers and light rebar reinforcement. STRUX® 75/32 macro fibers are easier and safer to use, compared to other types of reinforcement.

## ADVANTAGES

- Can be used to completely or partially replace light rebar, welded wire reinforcement and steel fibers.
- Easy to mix and fast to disperse.
- Saves money through reduction or elimination of steel labor and material transportation, delivery and jobsite storage, and fewer construction days.
- Enhances safety by eliminating handling of steel fibers, welded wire reinforcement, and rebar.
- Enhances jobsite safety by eliminating tripping hazards commonly associated with welded wire fabrics and light rebar.
- Eliminates concerns of proper positioning of reinforcement.
- Due to unique fiber design and uniform three dimensional dispersion, both plastic as well as drying shrinkage cracking is reduced, improving the ductility and durability of the concrete.
- Provides superior crack control due to the geometry and elastic modulus, corrosion resistant properties (non-ferric).
- Ease of pumping, passes easily through pump grates.
- May be used to provide effective crack width control.
- Reduces shotcrete rebound and improves cohesion.

## FIELDS OF APPLICATION

STRUX® 75/32 macro fibers may be used in a variety of ready mix and precast applications including:

- Residential and commercial slab-on-ground flooring,
- Thin and conventional whitetoppings and overlays, pavements, composite steel deck floor assemblies, and thin-walled precast elements (septic tanks, vaults, walls, etc.).

## Method of Use

### Dosage

- STRUX® 75/32 macro fibers addition rates are dependent on the specific application and desired properties and will typically vary between 3 to 7.5 lbs./yd<sup>3</sup> (1.8 to 4.5 kg/m<sup>3</sup>), but could go higher. Please contact us for the proper addition rate of STRUX® 75/32 macro fibers for your application.
- Always consult local building codes.
- The addition rate of STRUX® 75/32 macro fibers can be easily calculated using Chryso's STRUX Slab Design Software (SDS), using several factors such as compressive strength of concrete, modulus of sub-grade reaction, strength and thickness of concrete and applied loads.

The information contained in this technical data sheet is given to the best of our knowledge and the result from extensive testing - which were conducted in order to remain as objective as possible. However, it cannot, in any case, be considered as a warranty involving our liability in case of misuse or any different use of our products, other than those from the "Application" paragraph of this technical data sheet. Some application tests should be carried out before using the product to ensure that the methods of use and conditions of application of the product are satisfactory. Our technical assistance is at the disposal of the users.

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- The addition rate of STRUX® 75/32 macro fibers as an alternative to specified steel reinforcement for temperature and shrinkage can be easily calculated using Chryso's STRUX® App available for both Android and Apple OS. Refer to the Uses section of this document for Code Compliance and UL/ULC Classification requirements.

### Additional Usage Recommendations

- STRUX® 75/32 macro fibers are specially designed for ease of use, rapid dispersion, excellent finishability and improved pumpability in slab-on-ground flooring and pavements for commercial, industrial, and residential construction, as well as other flat work and formwork applications.
- STRUX® 75/32 macro fibers can be used as a suitable alternative to WWF or light reinforcing steel specified for temperature and shrinkage reinforcement.
- STRUX® 75/32 macro fibers can be used as a replacement for secondary reinforcement of normal and lightweight precast concrete elements and structures. (e.g. staircases, cellars, manholes, pits, septic tanks, vaults, walls, etc.)
- STRUX® 75/32 macro fibers is ideal for whitetoppings and overlays. Due to its rapid dispersion into the mixture and ease of finishability, the overall project productivity and contractor's profitability is enhanced.
- STRUX® 75/32 macro fibers can be used as a suitable alternative to welded wire fabric or light reinforcing steel specified for temperature and shrinkage reinforcement for composite steel floor deck assemblies. STRUX® 75/32 macro fibers comply with American National Standards Institute/ Steel Deck Institute (ANSI/SDI C-1.0) design code provisions for minimum reinforcing at the minimum addition rate of 4 lb./yd<sup>3</sup> (2.4 kg/m<sup>3</sup>). STRUX® 75/32 macro fibers are UL (U.S.) and ULC (Canada) classified with fire ratings up to two hours for D700, F700, D800, F800, D900 and F900 series except for 909, at a maximum addition rate of 5 lb./yd<sup>3</sup> (3 kg/m<sup>3</sup>). To view UL and ULC Classification go online to [www.ul.com](http://www.ul.com), file #R13667.

### Complimentary Products

- The utilization of STRUX® 75/32 macro fibers generally requires the use of a mid or high range plasticizer solution such as: MIRA®, ADVA®, Optima®, Quad®, or Enviromix®, to restore the required workability to macro fiber reinforced concrete. In addition, slight increases in fine aggregate contents may be needed.
- STRUX® 75/32 macro fibers may be added to concrete at any point during the batching or mixing process. For more detailed instructions and information on the addition of STRUX® 75/32 macro fibers, refer to [Technical Bulletin TB-1200](#).
- STRUX® 75/32 macro fibers are compatible with all admixtures. Their action in concrete is mechanical and will not affect the hydration process of the cement or compressive strength. Each liquid admixture should be added separately to the concrete mixture.

### Process Component

- STRUX® 75/32 fibers reinforced concrete floors can be finished with most finishing techniques. Due to its characteristics, STRUX® 75/32 fibers are suitable to be used in power/hand troweled concrete, colored and broom finished concrete.

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## CHARACTERISTICS

<b>Product Nature</b>	Mix of polypropylene and polyethylene
<b>Apparent density</b>	0,920
<b>Fiber length</b>	1.25 in
<b>Ignition Point</b>	1094 °F
<b>Nominal diameter</b>	0.02 in
<b>Tensile strength</b>	90 ksi
<b>Elasticity module</b>	1389 ksi
<b>Melting Point</b>	320 °F
<b>Chemical resistance</b>	High

Nominal Fiber Count: 106,400 per lb; Nominal Aspect Ratio: 75; Absorption: none; Electrical & Thermal conductivity: low

## PACKAGING

- 1,8kg Bag (4 lb)
- 2.3 kg bag

## ADDITIONAL CERTIFICATIONS & MARKINGS

- 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)
- UL and ULC Classified; CBXQ.R13667 and CBXQ7.R13667
- CSA B66-16, Design, material and manufacturing requirements for prefabricated septic tanks and sewage holding tanks
- Patents
  - 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

## PRECAUTIONS

All users should acquaint themselves with this information prior to working with the products and follow the precautionary statements.

## SAFETY

Prior to any use, please read carefully the Safety data Sheet.