

# STRUX<sup>®</sup> BT50 Synthetic Macro-Fiber

Synthetic Macro Fiber for reinforcement of concrete

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## Product Description

STRUX<sup>®</sup> BT50 synthetic macro fiber reinforcement is a high strength, high modulus synthetic macro reinforcement that imparts toughness, impact and fatigue properties to concrete. STRUX<sup>®</sup> BT50 is a patented engineered design providing superior post-crack control performance with a broad range of applications.

STRUX<sup>®</sup> BT50 Synthetic Macro Fiber reinforced concrete reliably achieves residual strength values in excess of 145 psi for every 4.5 lbs/yd<sup>3</sup> (1 MPa for every 2.7 kg/m<sup>3</sup>). STRUX<sup>®</sup> BT50 fibers are 2 in. (50 mm) in length with an aspect ratio of 75 and are primarily designed to replace steel fibers, welded wire fabric, light rebar and other select secondary reinforcement. STRUX<sup>®</sup> BT50 is a user friendly fiber reinforcement which is easier and safer to use, compared to other types of reinforcement.

## Compliance and Certification

- ASTM C11116 / C11116M, 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
- CSA B66-16, Design, material and manufacturing requirements for prefabricated septic tanks and sewage holding tanks

## Product Advantages

- Unique packaging provides superior dispersion
- Savings from reduced labor, material and storage costs and shorter construction time compared to secondary reinforcement
- Enhances safety by eliminating handling of steel fibers, welded wire fabric or rebar
- Eliminates proper reinforcement positioning concerns
- Provides superior crack control due to the geometry and elastic modulus
- Non corrosive
- Controls both plastic and drying shrinkage
- Increased crack resistance, ductility and energy absorption and toughness
- Improved impact resistance
- May be used to provide effective crack width control

## Primary Applications

STRUX® BT50 Synthetic Macro Fibers are engineered for ease of use, excellent dispersion and finishability in slab-on-ground flooring applications. STRUX® BT50 can be used in commercial, industrial and manufacturing floors, along with other select flat and form work applications. STRUX® BT50 is also ideal for use in precast tunnel segments and other select precast applications, pavements and soil stabilization projects, shotcrete and blast resistance. Please consult your GCP sales representative to discuss your specific application.

## Addition Rates

STRUX® BT50 Synthetic Macro Fibers addition rates are dependent on the specific application and desired properties and will typically vary between 7 to 15 lbs/yd<sup>3</sup> (4 to 9 kg/m<sup>3</sup>). Please consult your GCP Applied Technologies sales representative for the proper addition rate of STRUX® BT50 macro fibers for your application. Always consult local building codes.

## Guidelines for Usage and Compatibility with Other Admixtures

Slight mix design modifications including increases in fine aggregate contents and high range water reducer dosage rates may be required when incorporating STRUX® BT50 Synthetic macro fibers into a mix design. Each additional 3 – 4 lbs/yd<sup>3</sup> (1.8 – 2.4 kg/m<sup>3</sup>) of STRUX® BT50 may reduce the slump of the concrete approximately 1 in. (25 mm). Up front addition of STRUX® BT50 into empty drums prior to batching provides optimal STRUX® BT50 dispersion in the concrete mixture. However, STRUX® BT50 may be added to the concrete at any point during the batching or mixing process. STRUX® BT50 should be mixed a minimum of 70 revolutions as specified in ASTM C94. Please consult with your GCP representative.

## STRUX® BT50 Macro Fibers Physical Properties

Specific gravity	0.91
Absorption	None
Modulus of elasticity	1,000 ksi (7 GPa)
Tensile strength	80 ksi (550 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	75
Nominal Equivalent Diameter	0.0267 in (0.679 mm)
Nominal Fiber Count	27,240 per lb (60,000 per kg)

## Packaging

STRUX® BT50 Macro Fibers are available in 10 lb (4.5 kg) 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. 7,462,392

U.S. Patent No. 7,749,352

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