MiniBars™

High Performance Composite Macrofiber for Concrete Reinforcement

MiniBars™ solution is a high-performance composite macrofiber, based on an alkali-resistant basalt and engineered to provide high post-cracking strength to concrete while at the same time increasing toughness, impact, and fatigue resistance of concrete. MiniBars™ macrofiber can be used as secondary and/or as primary reinforcement. MiniBars™ fiber disperses quickly and evenly throughout the concrete matrix, due to their specific gravity being similar to concrete. This promotes uniform performance throughout the concrete mass.

Benefits

- Improves post-cracking mechanical properties of hardened concrete.
- Fast and uniform dispersion during mixing.
- Does not affect concrete pumpability when following recommended practices.
- Allows for high dosages with minimum effect on processability. (mix dependent)
- Does not corrode.
- No additional water demands.
- Easy to handle.

Technical Characteristics

Material	Fiber Length	Fiber Diameter	Specific Gravity	Modulus of Elasticity	Tensile Strength
Basalt + thermoset resin	55 mm* 2.16 in.	0.70 mm 0.03 in.	2.1	43 GPa	> 1200 MPa /

Mechanical Performance

The fundamental mechanical performance of fiber reinforced concrete can be obtained from a three-point bending test performed on a prismatic beam of 150×150×550mm (6×6×22in.) including a notch at mid-span (EN 14651). The displacement-controlled testing system introduces a specific deflection rate, and records load and displacement up to a CMOD limit of 3.5 mm (0.14 in). The fiber reinforced concrete performance is evaluated by means of residual flexural strength values at 0.5, 1.5, 2.5, and 3.5mm (0.02, 0.06, 0.10, and 0.14in.) of CMOD, namely fR1, fR2, fR3 and fR4, respectively.

According to the fib Model Code 2010, the constitutive law of the material in tension is defined by means of the tensile stresses fFts and fFtu, calculated from fR1 and fR3 for service and ultimate limit state, respectively.

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Directions for Use

MiniBars™ can be added to the wet mix at the batching plant or into the concrete truck at site. For optimum dispersion and performance, it is recommended to add the fiber gradually. Dosage rates (kg/m3) are dependent on the application and desired performance levels. Dosing informational and instructional videos will be provide by your sales representative.

Storage

MiniBars™ fibers are packed in 8kg (17,6 lbs) cardboard boxes. MiniBars™ should be stored away from heat and moisture in their original packaging. Optimum conditions are temperatures between 10°C (50ºF) and 35°C (95ºF) and relative humidity between 25% and 65%

Certification/Design Codes

- MiniBars™ are CE marked.
- **ACI committee 544 - Fiber-Reinforced Concrete**
    - **544.4R-18: Guide to Design with Fiber-Reinforced Concrete**
    - **References and incorporates *fib* Model Code theory**
- FRC Design Theory
    - *fib* Model Code for Concrete Structures 2010 – now 2020
        - Considered the preeminent authority for FRC design
        - Adopted and used in Europe and Worldwide
- TR 34, NB 38, NB 15
- Swedish fiber code, SS 812310:2014, Singapore Standard SS 674:2021, NF P 18-710 French National annex to EC2 for UHPFRC, NF P 18-470 UHPFRC- Specifications, performance, production and validity
- MiniBars™ are manufactured under a quality management system approved to ISO 9001 and tested with IBAC at Aachen University, University of Akron and NTNU Gjovik
- MiniBars™ ETA-20/0599, Environmental Product Declaration (EPD) available.