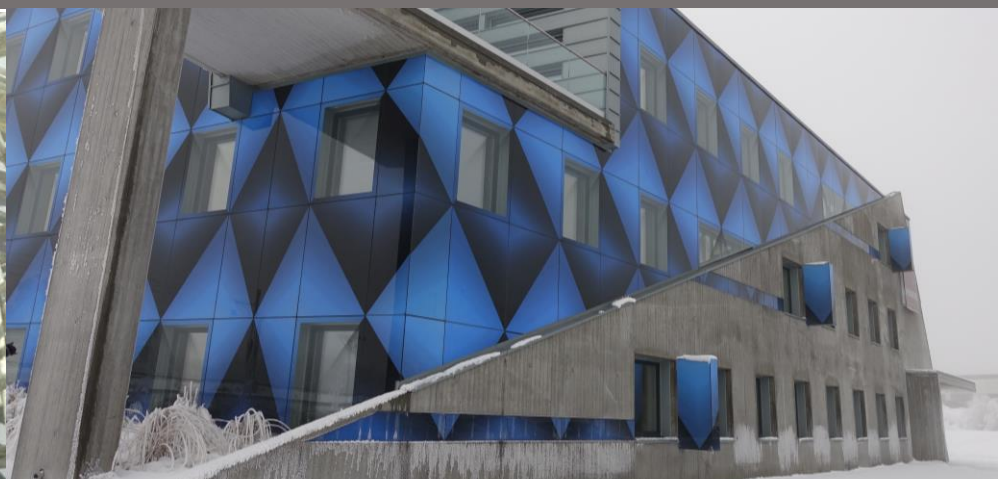
ReforceTech™
Creating Greener Opportunities

PRODUCT DATA SHEET

MiniBars™

HIGH PERFORMANCE COMPOSITE MACROFIBER FOR CONCRETE REINFORCEMENT





DESCRIPTION

MiniBars™ solution is a high-performance composite macrofiber, based on an alkali-resistant glass or basalt fiber and engineered to provide high post-cracking strength to concrete while at the same time increasing toughness, impact and fatigue resistance of concrete. In this way, 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 demand
- Easy to handle

APPLICATIONS

MiniBars™ solution has been specifically designed to reduce or replace secondary and/or primary steel reinforcement in many structural applications requiring flexural tensile and post-crack performance (wall panels, pipes, water tanks, tunnel segments, marine structures, raft foundations, etc.)

HOW TO USE

MiniBars™ fibers 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 and not to mix too long. Dosage rates are dependent on the application and desired performance levels.

PACKAGING AND STORAGE

MiniBars™ fibers in the 43mm length are packed in 10 kg (22 lbs) cardboard boxes. Cem-FIL MiniBars™ solution should be stored away from heat and moisture in their original packaging. Optimum conditions are temperatures between 10°C (50°F) and 35°C (95°F) and relative humidity between 25% and 65%.

QUALITY STANDARDS – CERTIFICATION

MiniBar™ fibers are manufactured Under a quality Management System approved to ISO 9001.

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TECHNICAL CHARACTERISTICS

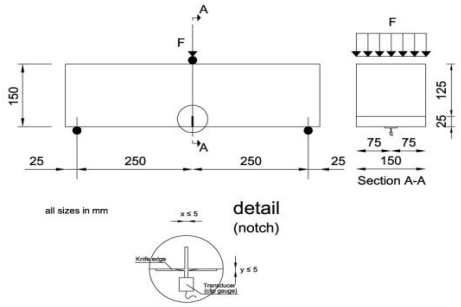
Material	Fiber Length	Fiber Diameter	Specific Gravity	Modulus of Elasticity	Tensile Strength
Basalt or Alkali-resistent glass fiber+ thermoset resin	43 +/-2 mm* 1.7 +/- 0.08 in.	0.70 mm 0.03 in.	2.1 ± 0.1	42 GPa 6,091,585 psi	> 1400 MPa / 200,000 psi

* Shorter or longer fibers are available on request

MECHANICAL PERFORMANCE

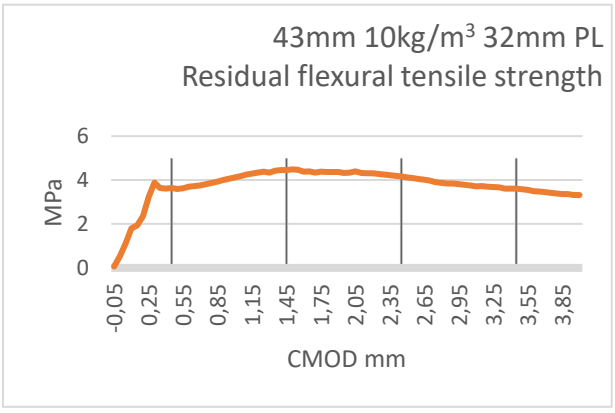
The fundamental mechanical performance of fibre reinforced concrete can be obtained from a three-point bending test performed on a prismatic beam of 150×150×550mm (6×6×22in.) including a notch at mid-span (EN 14651). The displacement-controlled testing system introduces a specific deflection or CMOD (Crack Mouth Opening Displacement) rate, and records load and displacement up to a CMOD limit of 3.5 mm (0.14 in). The fibre 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 f_{R1}, f_{R2}, f_{R3} and f_{R4}, respectively.

According to the fib Model Code 2010, the constitutive law of the material in tension is defined by means of the tensile stresses f_{Fts} and f_{Ftu}, calculated from f_{R1} and f_{R3} for service and ultimate limit state, respectively.



The sketch shows the basic configuration of the test.

The following curve shows a typical Load-CMOD response of a B35 concrete reinforced with 10 kg/m³ (17 lbs/yd³) of MiniBars™. The table presents the mean values of residual strength.



Mean flexural performance (prism 150x150x600mm)	MPa (mean)	psi (mean)
f_c (100 mm / 4 in cube)	56	8122
f_L	3,89	564
f_{R1}	3,61	523
f_{R2}	4,49	651
f_{R3}	4,13	599
f_{R4}	3.56	516
ARS= (f_{R1}+ f_{R2}+f_{R3}+ f_{R4})/4	3.95	572

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