

## OPTIMET® STEEL FIBERS

*The Most Advanced Steel Fiber Reinforcement  
for Concrete Pavements, Slabs on Grade, Precast...*

### Optimet® Steel Fibers defines concrete's efficiency

Optimet® Steel Fibers have been engineered to meet the high demand for optimized Steel Fibers characteristics. The optimized Fiber configuration, in combination with the tensile strength enhancement of the wire drawing operation, enable to build up the necessary strength required to resist stresses induced by the concrete. The ultimate result is a Fiber that meets your criteria;

- ▶ **Optimized Designs / Performances**
- ▶ **Cost Efficiency / User Friendly**

### Optimet® Steel Fiber is fully optimized

Engineered by some of the most prestigious researchers in the concrete industry, Optimet® patented design with high Pull Out resistance will meet the highest performance requirements in the industry.

### Optimet® fibers meet ASTM A-820 Type 1

Optimet® Fibers are made from high tensile cold drawn steel wire with a minimum Ultimate Tensile Strength of 150,000 psi to 170,000 (1,000 to 1,200 MPa) and are available in the following configurations.

Fiber Denomination	Length inch (mm)	Diameter inch (mm)	Aspect Ratio
Optimet® 9550	2 (50)	0.037 (0.92)	55
Optimet® 11050	2. (50)	0.043 (1.10)	45
Optimet® 6530**	1¼ (30)	0.27 (0.65)	46
Optimet® 9530**	1¼(30)	0.37 (0.92)	32

\*\* Special Order

### 3- D Reinforcement = Toughness

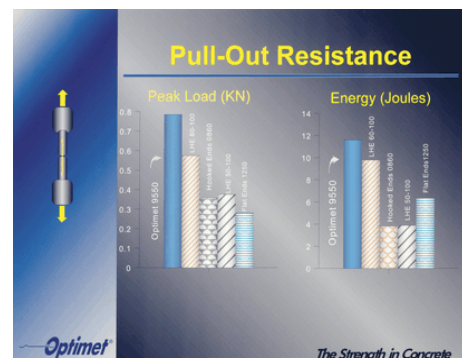
Steel fibers are used as a 3 dimensional concrete reinforcement because of their ability to increase the energy absorption capability of an already brittle concrete matrix. Optimet has undergone a thorough optimization program enabling end users to benefit from a true cost/ performance ratio and a user friendly product resulting in ultimate strength, ductility and performance.



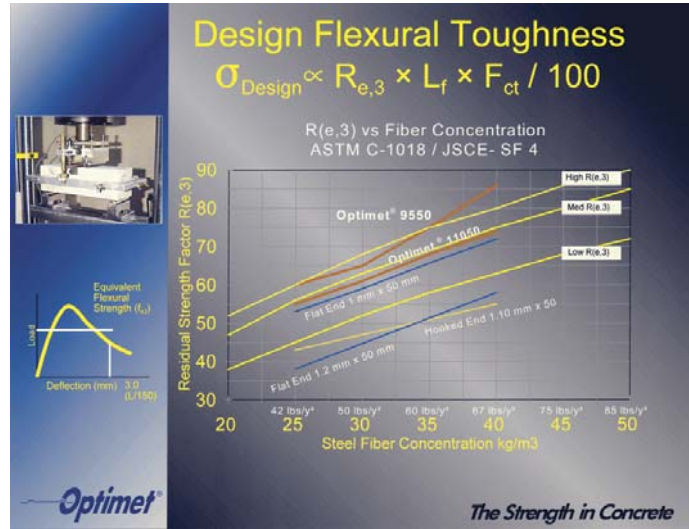
### Tough

Flexural Toughness is the most commonly used property while designing SFRC Slabs on Ground, Highway Pavements, Shotcrete and etc. It is measured by testing concrete beams using ASTM C-1609 and C1399. The above figure represents the true 3-D dispersion obtained with Optimet compared to a 2-D obtained with a conventional reinforcement.

In addition, the Pull-Out Strength and Pull-Out Energy of Optimet® Steel Fibers clearly demonstrate their superiority in resisting tensile movement and therefore transferring to the concrete matrix maximum post crack tensile strength.



Load Deflection curves generated when testing SFRC with ASTM C-1018 demonstrate **Optimet®**'s superiority in flexural toughness performance with no finishing constraints compared to other steel fibers which were considered, up to this date as effective fibers. Using load deflection data obtained from ASTM C-1018 testing, Residual Flexural Toughness  $R(e,3)$  values are calculated following the JSCE SF4 Standard. Results presented in Figure 3 show that in equal concentration, **Optimet® 9550** has superior Flexural Toughness capacity compared to other fibers in its category. **Optimet® 9550** will provide a concrete composite with very high Toughness Strength, allowing designers to design with great confidence using higher Allowable Flexural Strength in their designs.



### Application

The usefulness of fibers in civil engineering construction is indisputable. For more than forty years, Fiber Reinforced Concrete has so far been successfully used in;



- Slabs on Grade - Extended Joint Slabs on Grade*
- Highway Pavements - Bridge Deck Overlays*
- Airport Pavements - Mining*
- Thin and Thick Overlays - Shotcrete*
- Precast - Offshore Structures*
- Footings Hydraulic Structures - Seismic Structures*
- Crash Barriers - Machine, Equipment Foundations*



### Specification

Concrete shall be reinforced with **Optimet®** Steel Fibers, in concentrations mentioned in the Specifications or on the Engineering drawings. Steel Fibers must conform to ASTM A-820 Type 1 Cold Drawn Wire and must have Undulated Ends Deformation to maximize the fiber performance. Steel Fiber Reinforced Concrete performance shall be measured in accordance to ASTM C-78, C-1018 and if applicable to C-1399. For additional information or for design information, please contact your **Optimet** Representative

**Optimet** Steel Fibers can be added before, during or after the concrete batching process. It is recommended to add fibers using a scaffold system or a conveyor system adequately designed and adapted for this applications. Please consult us for details.



### Packaging

Box Size: 55 lbs (25 kg)

## **Optimet® Concrete Products** USA / CANADA

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