

# ENDURO™ 600

## PRODUCT DATA SHEET

### ENDURO™ 600 MACRO-SYNTHETIC FIBER

ENDURO 600, formerly HPP S-152, is the latest high performance macro-synthetic fiber developed from the innovative HPP technology which was pioneered and patented by SI® Concrete Systems. ENDURO 600 has been specifically designed to satisfy the demanding requirements of modern day shotcrete reinforcement and equipment.

#### FEATURES & BENEFITS

- Geometrically engineered to resist matrix pull-out
- Increases flexural toughness
- Reduces rebound
- Increases cohesion and reduces segregation
- Increases impact and shatter resistance
- Non-magnetic
- Rustproof
- Chemically inert and alkali proof
- Reduced wear on concrete pumps and hoses
- Safe and easy to handle
- Simplified logistics
- Economical alternative to steel wire mesh and/or steel fibers

#### PRIMARY APPLICATIONS

- Protection against fire spalling
- Ground support and stabilization
- Marine structure repair and rehabilitation
- Retaining walls and soil nailing
- Lining large underground cavities
- Aqueduct rehabilitation
- Mining
- Tunnel segmental linings
- Structural rehabilitation
- Seismic retrofits
- Channel linings
- Slope stabilization
- Pools
- Tanks

#### COMPLIANCE

Complies with ASTM C III6 Type III 4.1.3

#### CHEMICAL AND PHYSICAL PROPERTIES:

Absorption	Nil	Melt Point	328°F (164°C)
Specific Gravity	0.91	Ignition Point	1022°F (>550°C)
Fiber Length	2.0 in. (50 mm)	Thermal Conductivity	Low
Electrical Conductivity	Low	Alkali Resistance	Alkali Proof
Acid & Salt Resistance	High		

#### DO SPECIFY ENDURO 600 FIBERS:

- Reduced plastic shrinkage cracking
- Alternative to traditional reinforcement
- Improved impact, shatter and abrasion resistance
- Improved residual strength
- Reduced water migration and damage from freeze/thaw
- Improved durability
- Areas requiring non-metallic materials

#### DO NOT SPECIFY ENDURO 600 FIBERS:

- Replacing any moment or structural steel



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## PRODUCT USE

**MIXING DESIGNS AND PROCEDURES:** The specified dosage per cubic meter should be added to the mixer after batching the other concrete materials. After the addition of the fibers, the concrete should be mixed for sufficient time (minimum 5 minutes) to ensure uniform distribution of the fibers throughout the concrete mix. ENDURO 600 macro-synthetic polypropylene fibers can be pumped, shot or placed using conventional equipment as with other fibrous concrete.

**FINISHING:** Conventional techniques and equipment can be used when finishing ENDURO 600 fiber concrete.

**APPLICATION RATE:** The application rate for ENDURO 600 macro-synthetic fibers will vary depending on the application, mix design and the toughness requirements of each particular project. Typically, ENDURO 600 macro-synthetic fibers dosage will be in the range of 8 lbs to 15 lbs (5kg to 9kg per cubic meter) of concrete. When used in conjunction with Fibermesh® 150 fibers the dosage rate and the performance of the sprayed concrete can be optimized economically. SI® Concrete Systems technical staff can offer advice on dosage requirements once performance requirements have been established by the project designer/engineer.

## COMPATIBILITY

ENDURO 600 macro-synthetic fibers are compatible with all curing compounds, superplasticizers, water reducers, hardeners and coatings.

## SAFETY

No special handling is required with ENDURO 600 macro-synthetic fibers. Full Material Safety Data Sheets are available on request.

## PACKAGING

ENDURO 600 macro-synthetic fibers are collated in degradable paper wrapped bundles or pucks to aid rapid dispersion and mixing. The fiber bundles are packaged in 7kg cartons. Store materials in a cool dry place. Do not store in direct sunlight.

## TECHNICAL SERVICES

SI Concrete Systems is backed by our team of reinforced concrete specialists who can carefully analyze each project and provide fiber reinforced concrete design solutions to ensure maximum project performance and cost efficiency.

## REFERENCES

- ASTM C1436 Standard Specification for Materials for Shotcrete.
- ASTM C1116 Standard Specification for Fiber-Reinforced Concrete and Shotcrete.
- ASTM C1550 Standard Test Method for Flexural Toughness of Fiber Reinforced Concrete (Using Centrally Loaded Round Panel).
- ACI 304 Guide for Measuring, Mixing, Transporting and Placing Concrete.
- ACI 506 Guide for Shotcrete.

## SPECIFICATION CLAUSE

Fibers for concrete shall be ENDURO 600 polypropylene/polyethylene high performance macro-monofilament fiber and manufactured specifically for the reinforcement of concrete. ENDURO 600 macro-synthetic fibers shall be mixed at the batch plant, at the recommended rate of .....kg per cubic meter, and mixed for sufficient time (minimum 5 minutes) to ensure uniform distribution of the fibers throughout the concrete mix. Fibrous concrete reinforcement shall be manufactured by SI Concrete Systems, 4019 Industry Drive, Chattanooga TN, 37416. Telephone: (423) 892-8080, Fax: (423) 892-0157, e-mail: [fibermesh@sind.com](mailto:fibermesh@sind.com)



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