



GREEN UMBRELLA™ Spec Data Sheet

durafore fiber^{d4}

Performance Meets Durability

Technical Data Sheet

Green Umbrella™ Durafore is a highly effective acrylic fiber that assists the concrete matrix to control plastic shrinkage. It provides a secondary reinforcement to help eliminate crack formation. With Green Umbrella™ Durafore fibers, the concrete is more durable, has a smoother surface, and provides added impact resistance.

FEATURES

- Enhances performance & durability
- Provides secondary reinforcement
- Eliminates plastic shrinkage cracking (up to 100%)
- Alkali resistant & non-corrosive
- Insoluble in water
- No fiber protrusion for easy finishing
- High impact resistance
- Excellent bond with concrete paste

BENEFITS

Green Umbrella™ Durafore Fiber added to concrete mechanically locks in the fresh concrete matrix, controlling plastic shrinkage. Green Umbrella™ Durafore Fiber helps with secondary reinforcement which helps eliminate crack formation that causes permanent weakening of the resultant concrete. With Green Umbrella™ Durafore Fiber, concrete is less permeable, has a smooth surface, is highly impact resistant and improves your bottom Line.

APPLICATIONS

Green Umbrella™ Durafore Fiber's characteristics lend itself to a variety of concrete applications including: slab-on-grade, precast concrete, shot-crete, stucco, decorative and other specialty concrete applications.

MIXING

Follow ASTM C-94 guidelines. Green Umbrella™ Durafore Fiber can be added directly to the mix at the jobsite or during batching of ingredients, but not as the first ingredient and should be mixed for a minimum of 5 minutes at full mixing speed.

DOSAGE RATES

For general applications such as slab-on-grade, a standard dosage of (1) bag/yd³ is recommended. Other fibers require higher dosage rates to achieve similar performance.



PHYSICAL PROPERTIES

Material: Modified Acrylic
Specific Gravity (g/m³): 1.17
Elastic Modulus (GPa): >5.5
Tenacity (MPa): >500
Decomposition Temperature: 330°C / 626°F
(Green Umbrella™ Durafore Fiber does not melt)
Acid & Alkali Resistance: Excellent
Color: White
Dispersity Rate: Excellent
Filament Diameter: 12-15
Fiber Count (fiber/kg) aprx: **400,000,000**
Fiber Length inch(mm): 1/4" (6mm)

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PACKAGING

1 Carton/50 Bags; 36 Cartons/Pallet; Truckloads available.

FINISHING

There is NO surface protrusion when using Green Umbrella™ Durafore Fiber. Green Umbrella™ Durafore Fiber can be pumped or placed using conventional equipment and Green Umbrella™ Durafore Fiber can be used with all finishing techniques including power and hand troweling, broom finished and colored concrete.

TESTING

This document presents the summary of the laboratory testing performed by an Independent Third Party DOT certified lab on samples of concrete containing Green Umbrella™ Durafore Fiber fiber at an application rate of 0.5 lb/cy. The scope of the testing was as follows:

Perform laboratory batching of concrete with and without fibers according to Section 4.0 of ICC-ES Acceptance Criteria for Concrete with Synthetic Fibers (AC32-2002) for:

A. Plastic Shrinkage Cracking Annex A (ICC-ES AC32, Annex A)

Regarding Test Results:

All information, recommendations and advice provided by Green Umbrella™ regarding fiber products and their use and application is based on Green Umbrella's™ experience with such products when properly stored, handled and applied under normal conditions.

Summary of Test Results:

The following is a summary of the tests results:

<u>Test</u>	<u>Control</u>	<u>Test-Fibers</u>	<u>% of Control</u>
Plastic Shrinkage Cracking	<u>Crack Area</u> 0.0775	<u>Crack Area</u> 0.01175	84.84%
Bond Strength	N/A	N/A	N/A
Impact Resistance			
7 days	N/A	N/A	N/A
28 days	N/A	N/A	N/A

(1) 40% difference from the control sample to test sample is the minimum ICC-ES AC32 requirement for reduction of plastic shrinkage.

Conclusion:

Based on the test results, Green Umbrella™ Durafore fiber, used at a dosage rate of 0.5 lb/yd³ exceeded the test parameters required by ICC-ES AC32.

Warranty & Limitations

Green Umbrella™ Companies (GU) solely and expressly warrants that its fiber products shall be free from defects in materials and workmanship upon delivery. Unless authorized in writing by an officer of Green Umbrella™, no other representations or statements made by Green Umbrella™ or its representatives in writing or orally, shall alter this warranty. GREEN UMBRELLA™ MAKES NO WARRANTIES, IMPLIED OR OTHERWISE, AS TO THE MERCHANTABILITY OR FITNESS FOR ORDINARY OR PARTICULAR PURPOSES OF ITS PRODUCTS AND EXCLUDES THE SAME. GREEN UMBRELLA™ APPLIED TO SUBSTANDARD CONCRETE IS EXCLUDED FROM ANY KIND OF WARRANTY.

If any Green Umbrella™ product fails to conform to this warranty, Green Umbrella™ at its discretion will replace Green Umbrella™ product at no cost to the Buyer. Replacement of any product shall be the sole and exclusive remedy available and the buyer shall have no claim for incidental or consequential damages. Any installation of Green Umbrella™ products that fails to conform to such installation on information and instructions shall void this warranty. Product demonstrations, if any are done for illustrative purposes only and do not constitute a warranty or warranty alteration of any kind. Buyer shall be solely responsible for determining suitability of Green Umbrella™ products for the Buyers intended purposes.