

ICC-ES Evaluation Report

ESR-1699*

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DIVISION: 03 00 00—CONCRETE
Section: 03 24 00—Fibrous Reinforcing**REPORT HOLDER:****ABC POLYMER INDUSTRIES, LLC**
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(205) 620-9889
www.abcpolymerindustries.com**EVALUATION SUBJECT:****ABC POLYMER'S FIBRIL-TUF, MONO-TUF AND MONO-
PRO POLYPROPYLENE FIBERS****1.0 EVALUATION SCOPE****Compliance with the following codes:**

- 2009 and 2006 *International Building Code*® (IBC)
- 2009 and 2006 *International Residential Code*® (IRC)

Properties evaluated:

- Durability
- Crack control in concrete

2.0 USES

ABC Polymer's Fibril-Tuf, Mono-Tuf and Mono-Pro Fibers are intended for use as concrete admixture to reduce plastic shrinkage cracking of reinforced concrete and structural plain concrete.

ABC Polymer's Fibril-Tuf and Mono-Tuf are also used as concrete admixtures to reduce shrinkage and temperature cracks in structural plain concrete slabs-on-ground and other applications.

3.0 DESCRIPTION**3.1 Fibril-Tuf and Mono-Tuf Fibers:**

The ABC Polymer's Fibril-Tuf and Mono-Tuf—Fibers are extruded from polypropylene resins. The fibers are ³/₄ inch (19.1 mm) long, are collated in small bundles that distribute upon mixing when added to a concrete mix, and are available as fibrillated or monofilament fibers. The Fibril-Tuf is a 1500 denier fibrillated polypropylene fiber. Mono-Tuf is a 15 denier monofilament polypropylene fiber. A denier is defined as the weight in grams of an individual filament or fiber that measures 9,000 meters (29,520 feet) in length.

Fibril-Tuf and Mono-Tuf are packaged in degradable bags suitable for adding directly to the concrete mixing system.

3.2 Mono-Pro:

ABC Polymer's Mono-Pro is extruded from polypropylene resins. Mono-Pro is a ¹/₂-inch- (12.7 mm) to ³/₄-inch-long (19.1 mm) long monofilament polypropylene fiber.

Mono-Pro is packaged in degradable bags suitable for adding directly to the concrete mixing system.

4.0 INSTALLATION

A copy of the manufacturer's published installation instructions must be available at all times at the concrete ready mix plant, with an additional copy of the installation instructions available at the jobsite during installation.

4.1 Fibril-Tuf and Mono-Tuf Fibers:

The ABC Polymer's Fibril-Tuf and Mono-Tuf Fibers must be added and blended into structural plain normal-weight concrete mixtures in accordance with ASTM C 1116 and the manufacturer's published installation instructions. The fibers must be used at a rate of 1.0 and 1.5 pounds per cubic yard (0.59 and 0.89 kg/m³) of concrete, for the monofilament and fibrillated fibers, respectively. The fibers must be dispersed uniformly into the mixer during the concrete batching process and mixed for a minimum of three minutes prior to concrete placement. Alternatively, the fibers can be added after the batching process, but the concrete mix with the fibers must be mixed at high speed for six to eight minutes to ensure uniform distribution of fibers. The concrete must be cured and finished in accordance with the applicable code.

4.2 Mono-Pro:

ABC Polymer's Mono-Pro fibers must be added to the concrete mixing system per ASTM C 1116 and the manufacturer's published installation instructions. Fibers must not be added to the mixing system at the same time as the cement. When fibers are added after all of the conventional ingredients have been thoroughly mixed, an additional four minutes of mixing time is required. The Mono-Pro must be added at the rate of 0.50 pound per cubic yard (0.30 kg/m³) of concrete as plastic shrinkage cracking reinforcement. The concrete must be cured and finished in accordance with the applicable code.

5.0 CONDITIONS OF USE

The ABC Polymer's Fibril-Tuf, Mono-Tuf and Mono-Pro Fibers described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

***Revised June 2011**

- 5.1 Design and construction of concrete utilizing the ABC Polymer's Fibril-Tuf, Mono-Tuf and Mono-Pro fibers must be in accordance with the requirements of the applicable codes and ACI 318, as applicable.
- 5.2 The fibers must be blended in accordance with the manufacturer's published installation instructions and Section 4.0 of this evaluation report. If there is a conflict between this report and the manufacturer's published installation instructions, this report governs.
- 5.3 Use of the fibers is limited to normal-weight concrete.
- 5.4 The fibers must not be used to replace any structural reinforcement. Structural reinforcement is described in Section 3.5 of ACI 318 (IBC).
- 5.5 For structural plain concrete, control joints, as required by Section 1909.3 of the IBC, must be provided.
- 5.6 For reinforced concrete, structural reinforcement and shrinkage and temperature reinforcement must be provided in accordance with Section 1907.12 of the IBC.

5.7 Use of fibers must be approved by a registered design professional, if applicable.

5.8 A batch or delivery ticket, signed by a ready-mix representative, must be available to the code official upon request. The delivery ticket must include, in addition to the items noted in ASTM C 94, the type and amount of fibers added to the concrete mix.

6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Concrete with Synthetic Fibers (AC32), dated October 2003 (editorially revised December 2010).

7.0 IDENTIFICATION

Each container of ABC Polymer's Fibril-Tuf, Mono-Tuf and Mono-Pro Fibers is identified with the ABC Polymer Industries name and address, the product name (Fibril-Tuf, Mono-Tuf or Mono-Pro), use instructions, the length of the fibers, the weight of the bags and the evaluation report number (ESR-1699).