ONLINE CERTIFICATIONS DIRECTORY

CBXQ.R25676
Fiber Reinforcement and Concrete Additives

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Fiber Reinforcement and Concrete Additives

See General Information for Fiber Reinforcement and Concrete Additives

POLYTORX L L C R25676
SUITE 130
300 N 5TH AVE
ANN ARBOR, MI 48104 USA

Type Helix 5-25 steel fibers for use as an alternate or in addition to the welded wire fabric used in Floor-Ceiling D700, D800 and D900 Series Designs. Fiber may also be used in Design Nos. G256 and G514. Fibers added to concrete mix at a maximum rate of 66 lb of fiber for each cu yard of concrete.

Last Updated on 2012-09-17

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ONLINE DIRECTORIES

CBXQC.R25676
Fibre Reinforcement and Concrete Additives

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Fibre Reinforcement and Concrete Additives

See General Information for Fibre Reinforcement and Concrete Additives

POLYTORX L L C R25676
SUITE 130
300 N 5TH AVE
ANN ARBOR, MI 48104 USA

Type Helix 5-25 steel fibres for use as an alternate or in addition to the welded wire fabric used in Floor-Ceiling D700, D800, F700 and F800 Series Designs. Fibres added to concrete mix at a maximum rate of 39.16 kilograms of fiber for each cubic meter of concrete.

Last Updated on 2012-10-30

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Classification Marking Data Page

(FILE IMMEDIATELY AFTER AUTHORIZATION PAGE)

CLASSIFICATION MARK

COMPOSITION AND ELEMENT:

The Classification Marking shall consist of the following and shall appear on the product.

FIBER REINFORCEMENT
FIRE RESISTANCE CLASSIFICATION
SEE PRODUCT CATEGORY
IN UL FIRE RESISTANCE DIRECTORY
3NPD

MARKING:

The following symbol must be located adjacent to (left side of text), and as part of, the regular Classification Marking.

The minimum height of the registered trademark symbol ® shall be 3/64 of an inch. When the overall diameter of the UL Mark is less than 3/8 of an inch, the trademark symbol may be omitted if it is not legible to the naked eye.

PROCUREMENT:

The manufacturer may reproduce the mark or obtain it from a UL authorized supplier.

THIS PAGE IS TO BE REVISED BY FUS DEPARTMENT ONLY

File R25676 Vol 1 Issued: 2007-11-27
Revised:

FOLLOW-UP SERVICE PROCEDURE
(TYPE R)

FIBER REINFORCEMENT
(CBXQ)

Manufacturer: (100220-791)
POLYTORX L L C
713 W ELLSWORTH RD
ANN ARBOR MI 48108

Applicant: (100220-791)
SAME AS MANUFACTURER

Classified Company: (100220-791)
SAME AS MANUFACTURER

This Procedure authorizes the above manufacturer to use the marking specified by Underwriters Laboratories Inc.(UL), or any authorized licensee of UL, only on products covered by this Procedure, in accordance with the applicable UL Services Agreement.

The prescribed Mark or Marking shall be used only at the above manufacturing location on such products which comply with this Procedure and any other applicable requirements.

The Procedure contains information for the use of the above named Manufacturer and representatives of Underwriters Laboratories Inc. and is not to be used for any other purpose. It is lent to the Manufacturer with the understanding that it is not to be copied, either wholly or in part, and that it will be returned to Underwriters Laboratories Inc. (UL) or any authorized licensee of UL, upon request.

This PROCEDURE, and any subsequent revision, is the property of Underwriters Laboratories Inc.(UL) and the authorized licensee of UL and is not transferable.

Underwriters Laboratories Inc.

Stephen Hewson
Senior Vice President
Global Follow-Up Service Operations

William R. Carney
Director
North American Certification Program

APPENDIX A

SPECIAL INSTRUCTIONS

FIELD REPRESENTATIVE:

GENERAL

During each regular plant visit, the Field Representative shall review the manufacturer's records pertaining to material that had the Classification Markings applied since the last plant visit to determine compliance with the Procedure specifications. When possible, the Field Representative shall witness the production of material and accomplish the following:

1. Observe the manufacturing process and verify that it conforms with the description in the corresponding Procedure section.

2. Verify the results of or witness the manufacturer's quality control personnel conduct the following tests:

   a. Fiber Length
   b. Fiber Diameter

3. Determine that the quality control tests are in compliance with the Procedure specifications.

SAMPLES FOR REGULAR INSPECTION

The Field Representative shall randomly select five samples from the current production or Classified stock, and check to see that it conforms to the specifications outlined in Sec. 1 of the Procedure.

SAMPLES FOR NORTHBROOK OFFICE

No samples are required.

PROCEDURE IN CASE OF FAILURE

If one of the selected samples for regular examination fails one test specification, five additional samples shall be selected at random and subjected to tests for the failing characteristics. If the additional five samples are acceptable, the entire lot submitted for labeling is acceptable.

If a sample for regular examination fails more than one test specification, or if one of the additional samples fails, the entire lot submitted for labeling shall be rejected and the Classification Marking shall be removed. The manufacturer may then make a careful review of the entire lot and resubmit any portion for retest and relabeling.

FIBER LENGTH

Samples

Approximately ten samples of the finished product. Approximately two fibers to be collected per pallet.

Apparatus

Steel ruler accurate to 1.0 mm.

Method

1. The length of the fibers are determined to the nearest 1.0 mm.

2. The length of the fibers are recorded and compared to the specified lengths.

FIBER DIAMETER

Samples

Approximately ten samples of the in-process half product.

Apparatus

Micrometer accurate to 0.01 mm.

Method

1. The diameter of the fibers are measured to the nearest 0.01 mm.

2. The diameter of the fibers are recorded and compared to the specified diameter.

Note: In-process, the fiber diameter is measured once for each spool of half product. This record is maintained in the Quality Assurance database and is associated with each spool’s serial number.

APPENDIX B

RESERVED FOR FUTURE USE

APPENDIX C

RESERVED FOR FUTURE USE

APPENDIX D

RESPONSIBILITIES OF THE MANUFACTURER

The manufacturer's responsibilities include, but are not limited to:

1. Restricting the use of the Classification Markings to those products that are found by the manufacturer's own inspection to comply with the Follow-Up Service Procedure description.

2. Providing the equipment to conduct the tests and checks detailed in this Procedure.

3. Conducting the tests and checks detailed in this Procedure.

4. Determining that the test equipment is functioning properly and have it calibrated annually. Calibration may be conducted by the manufacturer or an outside laboratory. In either case, it shall be by comparison with a standard that is traceable to the National Standard. Certification of calibration shall be maintained by the manufacturer until the next succeeding certification, and shall be readily available for review by the Field Representative.

5. Maintaining records of tests conducted. The records shall include material manufacturer's name and type designation, tests performed, test results and the disposition of any nonconforming material.

DESCRIPTION

PRODUCT COVERED:

The product covered in this Procedure is steel fibers for fiber-reinforced concrete produced in nominal 1-in. lengths and designated "Helix 5-25."

MANUFACTURING PROCESS:

The Helix 5-25 fibers are produced from high tensile strength, cold drawn, steel wire, zinc galvanized.

Wire is fed off spools into proprietary machines that form, twist and cut fibers.

The Helix 5-25 Steel Fibers are then discharged from the machine into paper bags.

The bags are stacked, palletized and shrink-wrapped for shipping.

FINISHED PRODUCT SPECIFICATIONS:

Fiber Type	Length (in./mm)	Diameter (in./mm)
Helix 5-25	0.79-1.77/20-45	0.012-0.028/0.3-0.7

UL MARKING:

Each bag of material complying with all details contained in this Section of the Procedure shall be eligible to bear the Classification Marking of Underwriters Laboratories Inc. Each bag of material that bears the Classification Marking shall also bear the following information:

1. Classified company's name or "R25676."

2. Helix 5-25

3. "Fibers to be added to the concrete mix at a maximum ratio of 66 lb of fiber for each cu yard of concrete."

TEST RECORD NO. 1

PRODUCT COVERED:

The “Helix 5-25” consists of steel fibers produced from cold drawn steel wire, zinc galvanized, for use as fiber-reinforcement in concrete floors used in Fire Resistant Rated Designs. Based on a review of data from previously conducted small-scale fire tests as well existing data on full-scale fire tests on concrete floor fire resistant designs it is considered unnecessary to conduct further fire testing.

CONCLUSION:

Classification will be established on the steel fibers under the category Fiber Reinforcement (CBXQ) as an alternate or in addition to the welded wire fabric shown in the D700, D800 and D900 Series Floor-Ceiling Designs as well as Design Nos. G256 and G514 at a maximum concrete mix rate of 66 lb/yd^3.

Samples of the product covered by this Report are judged to be eligible for Classification and Follow-Up Service. The manufacturer is authorized to use the UL Mark on such products which comply with the Follow-Up Procedure and any other applicable requirements of Underwriters Laboratories Inc. Only those products which properly bear the UL Mark are considered as Classified by Underwriters Laboratories Inc. Any information and documentation involving UL Mark services are provided on behalf of Underwriters Laboratories Inc. (UL) or any authorized licensee of UL.

The Classification Mark to be used for the CBXQ category is illustrated below:

FIBER REINFORCEMENT
FIRE RESISTANCE CLASSIFICATION
SEE PRODUCT CATEGORY
IN UL FIRE RESISTANCE DIRECTORY

Report By:
Kenneth Rhodes
Senior Staff Engineer

Reviewed by:
Frederick Hervey
Staff Engineer

File R25676
Project 07CA43163

October 15, 2007

REPORT

On

FIBER REINFORCEMENT FOR USE IN CONCRETE FLOOR ASSEMBLIES

Polytorx L L C
Ann Arbor, MI

GENERAL

The subject of this Report is the investigation of the effect on fire performance when steel fiber reinforcement is used in concrete floors used in Fire Resistant Rated Designs. The steel fibers are manufactured by Polytorx L L C and identified as “Helix 5-25” steel fibers for fiber-reinforced concrete.

The object of this investigation was to determine if reinforcing concrete floors with the steel fibers would adversely affect the heat transfer through the concrete or cause excessive cracking.

The investigation consisted of a review of previously conducted small-scale fire tests on 48 in. by 48 in. by 4-1/2 in. thick concrete floor slabs. The slabs were constructed of normal weight concrete of 3000 psi.

The fire exposure tests were supplemented with a review of other tests and examinations that provided additional information relative to the physical and chemical properties of the materials used.

USE:

The products are intended for use as building material as permitted by authorities having jurisdiction.