RESISTANCE TO FRAYING OF TOP STITCHED DECORATIVE THREADS SEWN ON SEAT COVER COMPOSITES

Application

This test method determines the fraying resistance of top stitched decorative threads on seat cover composites.

This test uses a rotating platform to rub the test specimen against an abradant under a fixed weight. The platform rotates on a 19 mm radius at approximately 57 revolutions per minute.

Apparatus and Materials Required

Pilling Tester: The pilling tester is described in ASTM D3511 and modified to hold the abradant to the rotating platform.

Specimen Holder and Weight: Ten pound pilling sample holder with no additional weights.

Source for Pilling Tester, holder and weight:

Schap Specialty Machine, Inc.
17309 Taft Road
Spring Lake, MI 49456
Phone: (616) 846-6530
Fax: (616)-846-6675
Email: info1@schapmachine.com

Abradant
The abradant shall be Velcro brand hook 88 6 inch wide (152.4mm), black 330 sew-on 0199 and shall be tautly mounted on the pilling board. May be sold in a 6 inch wide roll, 25 yards (22.9 meters) long.

Source: Velcro USA Inc.
406 Brown Ave.
Manchester, NH 03103
www.velcro.com
Part Number: 158739 (See Fig 1)

TextolSystems Inc.
735 Commercial Avenue
Carlstadt, NJ 07072
http://textol1-px.rtrk.com

Glue or Adhesive
Any type of glue or adhesive that bonds to threads may be used. The following adhesive was used successfully and is listed here as a reference only. Hardman Double/Bubble D50 (Reorder #04022) Epoxy & urethane adhesive.

Source: Royal Adhesives & Sealants, LLC
2001 W. Washington Street
South Bend, IN 46628
Phone: 1-800-999-4583
Email: Generalinquiries@rascp.com

Chemicals, materials, parts, and equipment referenced in this document must be used and handled properly. Each party is responsible for determining proper use and handling in its facilities.

Date	Action	Revisions	Rev. 0
2016 01 04	Released		D. Murtonen, NA

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Conditioning and Test Conditions

All test values indicated herein are based on material conditioned in a controlled atmosphere of 23 ± 2 °C and 50 ± 5% relative humidity for not less than 24 hours prior to testing.

Procedure

1. Cut test specimen 240 X 100 mm in size with the long edge perpendicular to decorative stitch plow through (See Fig 2) and seal any loose thread ends with epoxy (See Fig 2). Allow epoxy to fully harden and dry prior to testing.

2. Cut one piece of abradant (Velcro brand hook tape) per test specimen. (see Fig 3) Wrap the lower wood board of the pilling tester with abradant. The abradant shall be tautly mounted on the lower wood board of the pilling tester. A new piece of abradant should be used for each test run and for each sample.

3. Wrap the test specimen around the specimen holder positioned so as many decorative stitch plow throughs as possible run perpendicular to the center of the holder. Specimen needs to be pulled and clamped to holder tightly. Specimen should lie flat against holder. (see Fig 4)

4. Position the specimen holder on top of the abradant material.(see Fig 5) As many decorative stitch plow throughs as possible should be in contact with the abradant during the test. Position sample holder knobs so they do not interfere with instrument rotation.

5. Test for 3 minutes (171 cycles) and remove test specimen from specimen holder for evaluation.

Evaluation

Evaluation must occur on a flat surface looking down on the specimen with the naked eye. No magnification is to be used for evaluation. Evaluate top stitched decorative threads only, not the A surface fabric/vinyl or leather. Use the photographic standards to rate the fraying using the following scale:

Rating Scale for Fraying

Rating 5 - Severe fraying and/or no stiches intact. Each stitch loop contains frayed thread.

Rating 4 - Moderate fraying. Each stitch loop does not contain frayed thread. Most stitch loops intact.

Rating 3 - Minimal fraying with some fibers loose, stiches fully intact

Rating 2 - Thread abraded with no loose fibers, stiches fully intact

Rating 1 - No fraying, no abrasion, stitches fully intact, no significant change

Report the Rating for each tested specimen. Provide photographs or tested specimen with rating for report.

General Information

At the time this method was created, an acceptable amount of fraying was considered to be Rating 1 or 2 and an unacceptable amount Rating 3 or higher. Always consult the referencing material specification for the latest requirements.

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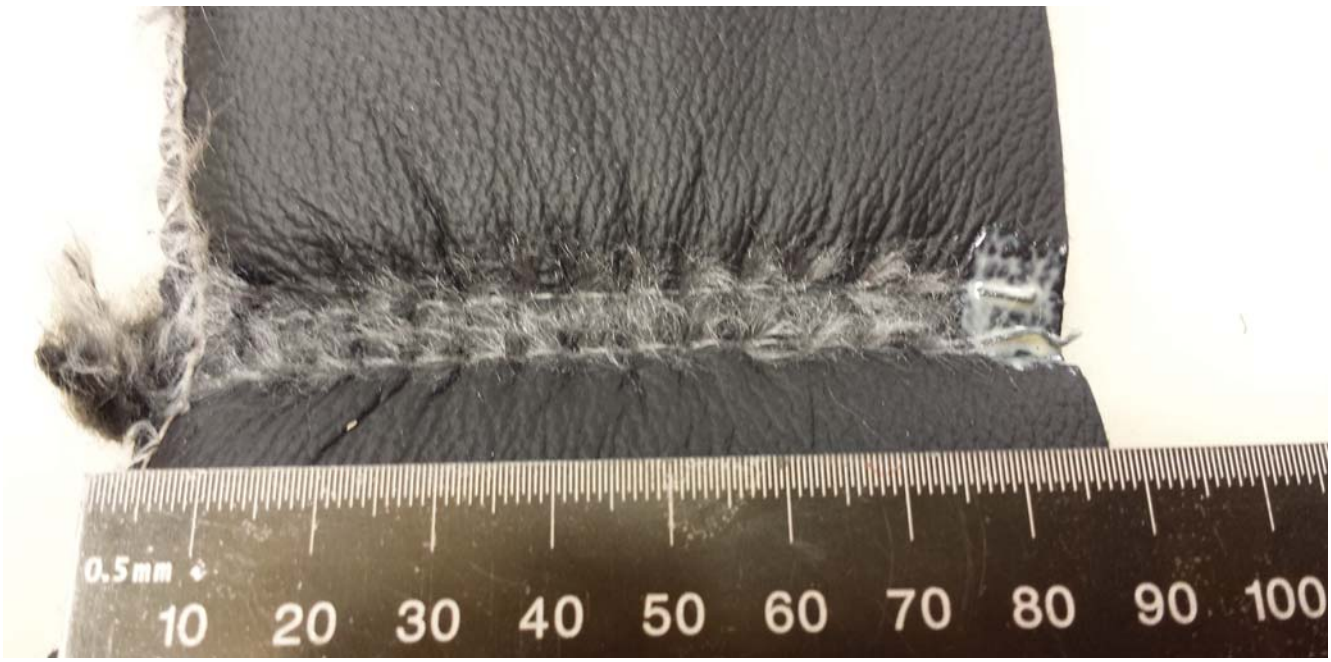
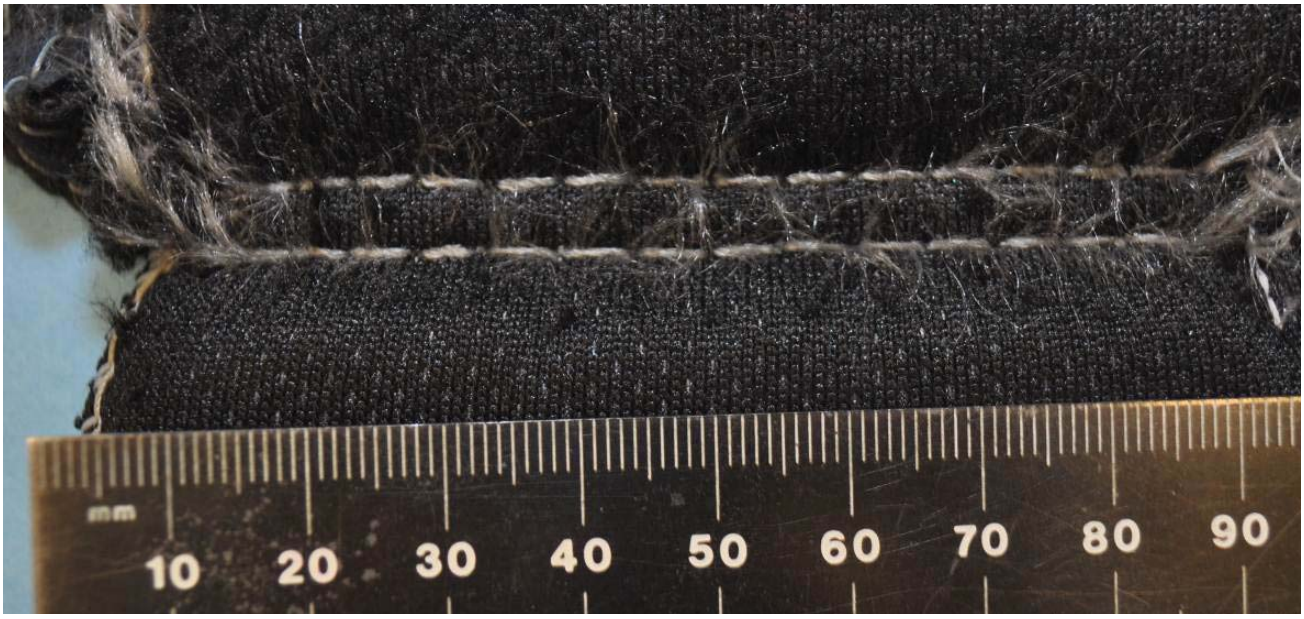
Evaluation Scale for Fraying



Rating 5 Severe fraying and/or no stiches intact. Each stitch loop contains frayed thread. Stitch loops are barely visible.



Rating 4 Moderate fraying. 50% or more of stitch loops contain frayed thread. Stitch loops intact and slightly visible.

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