GM WORLDWIDE ENGINEERING STANDARDS	Test Procedure	GMW3217

Ravel Resistance

1 Introduction

Note: Nothing in this standard supercedes applicable laws and regulations.

Note: In the event of conflict between the English and domestic language, the English language shall take precedence.

1.1 Purpose. This procedure is used to determine an automotive seat fabric's resistance to raveling during seat cover manufacture and during normal vehicle life. This test is recommended for woven fabrics without lamination or with laminates up to 5 mm thick.

1.2 Applicability. This test is recommended for woven fabrics without lamination or with laminates up to 5 mm thick.

2 References

Note: Only the latest approved standards are applicable unless otherwise specified.

2.1 External Standards/Specifications.

None

2.2 GM Standards/Specifications.

GMW3221

2.3 Additional References.

Model HT-8358 Scott Type Crease-Flex Abrasion Tester available from http://www.hungta.com.

3 Resources

3.1 Facilities.

3.1.1 Calibration. The test facilities and equipment shall be in good working order and shall have a valid calibration label.

3.1.2 Alternatives. Alternative test facilities and equipment may also be used. However, all measuring variables as specified in this standard shall be determined correctly with respect to their physical definition.

3.2 Equipment.

3.2.1 Scott-type Crease Flex Abrasion Tester, or equivalent. A possible source/identification for this equipment is Model HT 8358 from Hung Ta (http://www.hungta.com/)

3.2.2 Cutting dies or shears for preparation of test specimens.

3.2.3 Apparatus for conditioning to the appropriate requirements as described in GMW3221 – Code A, unless otherwise specified in the relevant materials specification**.**

3.3 Test Vehicle/Test Piece. Two (2) test specimens per direction.

3.4 Test Time.

Calendar time:	2 days
Test hours:	1 hour
Coordination hours:	0.5 hour

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3.5 Test Required Information. While the ends of a test specimen are rigidly held, a crease is formed in the center of the test specimen and a prescribed load is applied to the crease. Under these conditions, the test specimen ends are cycled in opposing planar directions. The extent to which the test specimen has been raveled is then evaluated.

3.6 Personnel/Skills. Personnel trained in accordance with the laboratory accreditation and Standard Operating Procedure requirements.

4 Procedure

4.1 Preparation.

4.1.1 A minimum of two (2) test specimens, 30 mm ± 3 mm × 120 mm ± 5 mm shall be taken from both the warp and fill directions. All weave patterns used in the material must be included in the test area of the test specimens.

Note: It may be necessary to initially cut the test specimens to a size larger than these required dimensions.

Note: Fabrics having laminate thicknesses exceeding 5 mm, cannot be evaluated using this procedure. Test specimens whose excess laminate thickness has been cleanly and uniformly cut away, are acceptable.

4.1.2 Remove threads from both sides of the long dimension until all remaining threads in the same direction run the full length of the test specimen and the final dimensions satisfy the requirements of 4.1.1.

4.1.3 Cut away the resulting fringe to within 1 mm of the nearest long thread.

4.1.4 Unless otherwise specified in the relevant material specification, conditioning shall be performed according to GMW3221, Code A.

4.2 Conditions.

4.2.1 Environmental Conditions.

4.2.2 Test Conditions. Deviations from the requirements of this standard shall have been agreed upon. Such requirements shall be specified on component drawings, test certificates, reports, etc.

4.3 Instructions.

4.3.1 Separate the two (2) sets of clamps of the test machine by 30 mm ± 3 mm.

4.3.2 Place two (2) specimens, taken from the same direction, face to face over their entire area, and insert them, one end in each set of clamps.

4.3.3 Tighten each set of clamps, using the clamping screws, to firmly grip the ends of the test specimens.

4.3.4 Bring the two (2) sets of clamps together being sure that the loose fabric is allowed to fold only once on itself on its respective side of the clamping fixture. See Appendix A, Figure A1.

4.3.5 Bring the two (2) sets of clamps together (4.3.4), until a clamping force of 9.8 N ± 0.1 N is achieved (as shown on the relative gauge on the test machine).

4.3.6 Run the test for 1000 cycles at a speed of 120 cycles per minute and a stroke length of 50 mm.

4.3.7 Remove the test specimens.

4.3.8 Repeat the entire procedure using the two (2) remaining test specimens.

5 Data

5.1 Calculations. Not applicable.

5.2 Interpretation of Results.

5.2.1 Place the test specimen on a flat surface for evaluation.

5.2.2 Look for horizontal threads that have become disentangled from the test specimen (raveled) and form a bridge over all or part of the tested length. Look for yarn slippage in the fabric structure.

5.2.3 Observe the tested area with the unaided eye and use Table 1 to determine the rating.

5.3 Test Documentation.

5.3.1 Report the worst rating of the two (2) specimens tested in each direction.

5.3.2 When submitting the test results, include the test specimens.

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