GM	WORLDWIDE ENGINEERING STANDARDS	Test Procedure	GMW3387

Procedure for Determining Fiber Degradation of Automotive Textiles

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 determines the resistance of textiles to fiber degradation after accelerated weathering.

1.2 Applicability. This procedure applies to automotive fabrics.

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 GMW3414 GMW3417

3 Resources

3.1 Facilities. Laboratory with accelerated Weathering equipment.

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 Accelerated Weathering equipment per GMW3414 for artificial accelerated weathering, (laboratory test) and/or GMW3417 for natural accelerated weathering (outdoor test).

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

3.2.3 Weighted Roller. Roller shall be chromed cold rolled steel, measuring 19 mm ± 1 mm wide and weighing 860 g ± 5 g. The weight shall be free rolling on a handle so that no additional pressure is applied in the rolling process. If test is not performed on a horizontal surface, the weight should be adjusted based on the angle from the horizontal by the following formula:

- Roller weight = 860 g/cosine (angle).

3.2.4 Suitable cutting tools for preparation of test specimens**.**

3.2.5 Permanent Mending Tape. 3M Scotch tape (style number 6200), or equivalent, that is 19 mm ± 1 mm wide. Cut to a length of 75 mm ± 5 mm.

3.2.6 White card stock.

3.3 Test Vehicle/Test Piece. Production intent automotive textile samples.

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3.4 Test Time.

Calendar time:	0 days
Test hours:	1 hour
Coordination hours:	0 hours

3.5 Test Required Information. Not applicable.

3.6 Personnel/Skills. Appropriate laboratory personnel.

4 Procedure

4.1 Preparation. Cut test specimens as required for the accelerated weathering method prescribed in 3.2.1. Clean test specimens of lint and dirt prior to exposing to accelerated weathering.

4.2 Conditions. See 3.2.1.

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. Test specimens, exposed to accelerated weathering, are evaluated for fiber degradation by applying tape to the surface with a prescribed pressure and removing it with the degraded fibers.

4.3.1 Place the tape (sticky side down) to the exposed side of the test specimen, with the length of the tape along the machine direction of the test specimen. While placing the tape, do not apply any pressure.

4.3.2 Roll the weighted roller along the length of the tape (five (5) times) with the roller directly over the tape.

4.3.3 Grasp one (1) end of the secured tape and quickly remove by pulling at a 90 degree angle to the test specimen surface.

4.3.4 Attach the tape, sticky side down to the white card stock.

4.3.5 Repeat the test on an unexposed test specimen taken from the same laboratory sample. This unexposed specimen will be the control.

5 Data

5.1 Calculations. Not applicable.

5.2 Interpretation of Results.

5.2.1 Visually compare the amount and appearance of degraded fiber collected on the tape from the exposed test specimen to that collected on the tape from the control specimen.

5.2.2 Visually compare the appearance (excluding color fading) of the exposed test specimen to the control test specimen where the tapes were removed.

5.2.3 Rating Scale. Define the fiber degradation after accelerated weathering based on the comparison descriptions below:

- 10 = **No change**. Fiber collected on tape exhibits equal transfer and appearance. Test specimen exhibits no change.
- 8 = **Trace**. Fiber collected on tape exhibits slightly more transfer. Test specimen exhibits no change.
- 6 = **Moderate**. Fiber collected on tape exhibits noticeably more transfer. Test specimen exhibits no change.
- 4 = **Annoying**. Fiber collected on tape exhibits significantly more fiber transfer and/or more transfer is a distinct, defined pattern. Test specimen exhibits no change.
- 2 = **Severe**. Fiber collected on tape exhibits excessive transfer. Test specimen exhibits little or no fiber coverage, causing the backing to be visible yet still intact.

5.3 Test Documentation. Report the rating scale number assigned to each exposed test specimen.

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