



Resistance to Marring or Scuffing

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. The purpose of this procedure is to determine the ability of a surface to resist scuffing or marring. Scuffing is defined as permanent damage to the coating. An example of scuffing would be a break in the topcoat with visible flakes of coating caused by scraping by the paperclip. Marring is defined as no break or penetration of the coating, only visible trenching or marking detectable. The marring may or may not be permanent. An example of marring would be a furrow created by the paperclip that does not break or permanently disturb the coating.

1.2 Applicability. Plastic films, vinyl, leather, etc., used in automotive interior trim applications.

2 References

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

2.1 External Standards/Specifications.

None

2.2 GM Standards/Specifications.

None

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 A scuff and mar tester as specified in the drawings in Appendix A, Figures A1 through A6.

3.2.2 Number 1 Gem Paper Clips (Trombones, approximately 32 mm × 7 mm). Smooth Finish.

3.3 Test Vehicle/Test Piece.

3.3.1 Unless otherwise specified in the material specification, obtain one (1) specimen 152 mm ± 3 mm × 152.0 mm ± 3 mm from the sample. The specimen must be cut a minimum of 50 mm from any edge of the sample.

3.4 Test Time.

Calendar time:	1 day
Test hours:	1 hour
Coordination hours:	24 hours

3.5 Test Required Information. Not applicable.

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

4 Procedure

Summary of Test Method. A paper clip, with a mass attached to it, remains in contact with the test specimen as the specimen is pulled in four (4) different directions that are parallel to each of the edges of the specimen. The appearance is evaluated.

4.1 Preparation.

4.1.1 Test Sample Preparation. The test specimen must be conditioned as specified by the applicable material specification. If a specimen is to be aged (e.g., exposed to elevated temperature), it must be conditioned afterward to the requirements of the material specification before running the test.

4.2 Conditions. Not applicable.

4.2.1 Environmental Conditions. Not applicable.

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 Test Procedure.

4.3.1.1 Ensure that the paper clip is installed on the weight with the larger end of the paper clip facing down (toward the specimen).

4.3.1.1.1 Before each use, place a piece of white vinyl on the base of the scuff and mar tester. Place the weight (with the paper clip attached) through the guide of the pressure bar. The pressure bar is the arm that extends over the base of the scuff and mar tester. The paper clip should now be resting on the white vinyl. Pull the white vinyl along the base until there is no evidence of foreign matter on the white vinyl (see Appendix A, Figure A1).

Caution: The surface of the base may be damaged by direct contact with the paper clip. Do not allow paper clip (attached to the weight) to rest directly on the base of the scuff and mar tester. Do not remove the specimen while the paper clip (attached to the weight) is in the test position. The surface of the base must remain smooth to obtain reproducible results.

Note: The same paper clip may be used for approximately 500 tests. If the paper clip becomes deformed, replace it immediately.

Note: Unless otherwise specified in the material specification, the total weight to be applied to the specimen by the paper clip during the test must be $750\text{ g} \pm 3\text{ g}$.

4.3.1.2 Lift the weight, remove the white vinyl and replace with the test specimen.

4.3.1.3 Align specimen so that the edges are parallel to the base of the scuff and mar tester. Position the specimen so that it is possible to test at least 100 mm in each direction. Stay far enough from any edge of the specimen to prevent influence of **edge effects**.

4.3.1.4 Place the weight (with the paper clip attached) through the guide of the pressure bar. The paper clip should now be resting on the test specimen.

4.3.1.5 Pull the test specimen slowly and with a constant rate of motion relative to the paper clip as shown in Appendix A, Figure A1. The specimen should be pulled parallel to its edge for a minimum of 100 mm.

4.3.1.6 After the specimen has been tested in one (1) direction, rotate it 90 degrees and repeat until all four (4) directions have been tested.

5 Data

5.1 Calculations. Not applicable.

5.2 Interpretation of Results. Not applicable.

5.3 Test Documentation.

5.3.1 Evaluation and Rating.

5.3.1.1 Evaluate the specimen for scuffing (see Scope for definition). If any scuffing is present, the specimen will not recover. Rate the specimen according to the requirements of the material specification.

5.3.1.2 Inspect the specimen for marring (see 1.1 Purpose). Specimens that exhibit marring shall be reinspected after a minimum of 24 h to be sure that the marring is not superficial and does not disappear upon standing.

5.3.2 Report.

5.3.2.1 Report results based on the evaluation criteria in the material specification.

Note: Slight marring is defined as marring that can only be detected upon close visual inspection.

6 Safety

This Engineering Standard may involve safety requirements for hazardous materials, the method of operations and equipment. This standard does not propose to address all the safety issues associated with its use. It is the responsibility of the user of this standard to ensure compliance with all appropriate safety and health practices. This would include any specific training that may be required. The safety and health standards include site specific rules and procedures, company rules and procedures, and Government Standards. Contact shall be made with the appropriate site Safety and Health personnel for further direction and guidance in these matters.

7 Notes

7.1 Glossary. Not applicable.

7.2 Acronyms, Abbreviations, and Symbols. Not applicable.

8 Coding System

This standard shall be referenced in other documents, drawings, etc., as follows:

Test to GMW14130

9 Release and Revisions

This standard was originated in May 2005. It was first approved by the Global Textile Development Group Conference in May 2005. It was first published in September 2005.

Issue	Publication Date	Description (Organization)
1	SEP 2005	Initial publication.
2	FEB 2011	Refresh to current template; no content changes. (Materials GSSLT)
3	DEC 2016	Five (5) Year Refresh updated to current template. (Textiles/Trim Materials Global Subsystem Leadership Team)