



Schopper Abrasion Wear Test

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 Test Procedure shall be used to evaluate the abrasion resistance of automotive trim materials under tension using a Schopper rotary abrasion test.

1.2 Applicability. All flat, non-backcoated bolster fabrics and carpets.

1.3 Remarks. Not applicable.

2 References

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

2.1 External Standards/Specifications.

None

2.2 GM Standards/Specifications.

GMW3010

GMW3221

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.

3.1.3 Schopper abrasion testing machine. See Appendix A, Figure A1.

3.1.3.1 Adjustable ring clamp to secure test specimen to test head.

3.1.3.2 Detachable test head with the ability to rotate in both directions.

3.1.3.3 Weight, (1000 ± 50) g.

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

3.2 Equipment.

3.2.1 Soft brush with natural bristles.

3.2.2 White paper or cardboard.

3.2.3 Cutting dies or shears for preparation of test specimens.

3.2.4 Balance, accurate to ± 0.1 mg.

3.3 Test Vehicle/Test Piece.

3.3.1 Abrasive Material – emery paper, silicon carbide paper 320 grade, quality CPE 271, 98 mm x 278 mm supplied by the following or equivalent:

Carborundum GmbH.

Werk II

PF 160120

Duesseldorf 13, Germany

3.3.2 In case the emery paper supply is exhausted in your testing lab, please contact your responsible materials engineer for replacement.

Note: Depending on the specific properties of each new sand paper lot, it is necessary to verify the new lot at Opel laboratory before distribution. Opel laboratory will provide the necessary amount of sand paper to each GM region, together with a specific lot factor.

3.4 Test Time. Not applicable.

3.5 Test Required Information. Not applicable.

3.6 Personnel/Skills. Not applicable.

4 Procedure

4.1 Preparation.

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

4.1.2 A minimum of three 100 cm² circular, test specimens shall be cut from various areas of the test material. Any loose or frayed material adhering to the edges of any test specimen shall be removed prior to testing to avoid any subsequent weighing errors.

4.1.3 Overall test specimen thickness shall not exceed 12 mm.

4.2 Conditions.

4.2.1 Environmental Conditions. Conditioning shall be performed according to GMW3221 Code A.

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. A circular test specimen is abraded using rotary abrasion in both clockwise and counterclockwise directions at a specified speed, pressure and number of rotations. An abrasion block maintains line contact with a test specimen which has been clamped onto a rotating test head, thereby producing an abrasive effect in a tangential direction. The test specimen is evaluated for weight loss or the presence of a hole.

4.3.1 Weight Loss Test Procedure.

4.3.1.1 Weigh the test specimen to the nearest 0.1 mg.

4.3.1.2 Using the assembly jig, the test specimen shall be mounted on the test head such that by suitable adjustment of the clamp ring, a bowing of the test specimen on the test head, dependent on the thickness and ductility of the material under test, is achieved. See Table 1 for bowing height codes.

Note: Elongation is the most important factor to consider when determining proper bowing height.

Table 1: Bowing Height Codes

Code	Bowing Height in mm	Material
1	5	Sandwich upholstery fabrics where the elongation is < 5 % (test to GMW3010) Thin fabrics or non-laminated upholstery fabrics with a thickness < 4 mm. Carpets Minibond upholstery fabrics not used for seat cushion inserts and seat back inserts.
2	8	Sandwich upholstery fabrics with a thickness of ≥ 4 mm.
3		----- Specially defined -----