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| GM WORLDWIDE ENGINEERING STANDARDS | Test Procedure | GMW3214 |

# Sagging Resistance of Automotive Textile Materials

## 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 standard is used to determine an automotive seat material's resistance to sagging as a result of an applied load and subsequent recovery for prescribed periods.

**1.2 Applicability**. Textiles, leathers, plastic roll goods and other materials requiring sagging resistance in their application.

## 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.**

Opel Drawing No. 80 020 000.

## 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** Sagging Resistance Tester (Opel Drawing No. 80 020 000) see Appendix A, Figure A1.

**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 material specifications.

**3.3 Test Vehicle/Test Piece.** A minimum of three (3) test specimens 280 mm ± 5 mm in diameter shall be taken randomly across the roll width.

**3.4 Test Time.**

| | |
|---|---|
| Calendar time: | 2 days |
| Test hours: | 2 hours |
| Coordination hours: | 1 hour |

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**3.5 Test Required Information.** While a test specimen is rigidly held over an opening, a prescribed load is applied to the material over the opening. The load is then removed and the specimen allowed recovering. The results are expressed as the amount of deformation remaining after a prescribed time has elapsed.

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

**4.1.2** The test specimen shall be placed on the annular base plate and securely tightened by the clamping ring, ensuring that the surface is smooth, flat and free from stress.

**4.1.3** The top plate of the clamping device shall be tightly screwed onto the platform of the test equipment. For laminated materials, the clamping ring may be omitted. Such test specimens shall be securely tightened only by means of the top plate.

**4.1.4** The indenter and rod shall be gradually lowered until a pre-force $F_0$ =1.5 N ± 0.1 N is applied to the test specimen. That pre-force shall be held for 10 s ± 1 s, and then the Vernier scale shall be zeroed.

**4.1.5** The total test force F = 50 N ± 5 N, (which equals $F_0$ + force exerted by any additional weights, $F_1$) shall be applied for 60 minutes ± 1 minutes.

**4.1.6** All forces shall be removed and the test specimen allowed to recover for 60 minutes ± 1 minutes.

**4.1.7** The pre-force $F_0$ shall be re-applied and the resulting depth of penetration recorded after 10 s ± 1 s.

**4.2 Conditions.**

**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.** Not applicable.

## 5 Data

**5.1 Calculations.** Calculate the arithmetic average of three test results in mm rounded to the nearest 0.1 mm.

**5.2 Interpretation of Results.** Report results.

**5.3 Test Documentation**. Report each specimen's penetration depth and the arithmetic average of all three (3) specimens.

## 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.

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