GM	WORLDWIDE ENGINEERING STANDARDS	Material Specification	GMW14742

Elastomer for Pad Brake Pedal and Pad Clutch Pedal

1 Scope

1.1 Material Description. This standard covers the materials and performance of elastomeric materials used for pad brake pedal and pad clutch pedal. Materials covered by this standard are divided into two (2) Types:

1.1.1 Type A. Elastomer.

1.1.2 Type B. Drawing defined (e.g., using SAE J200 or ASTM D2000 line callout).

1.2 Symbols. Not applicable.

1.3 Applicability. Elastomeric materials used for pad brake pedal and pad clutch pedal.

2 References

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

2.1 External Standards/Specifications.

ASTM D2000	ISO 188	ISO 1431-1	ISO 23529
ISO 37	ISO 815	ISO 7619-1	SAE J200

2.2 GM Standards/Specifications.

GMW3059	GMW3283	GMW14270

3 Requirements

3.1 Resources.

3.1.1 Test Samples. Unless otherwise specified, the shape, size and number of test pieces shall be in accord1ance with the relevant test procedure.

Unless otherwise specified, samples are finished parts or to be taken from finished parts. Where the dimensions on the finished parts do not allow preparing of test pieces, tests are to be performed on sheet material of same production batch. The same state of cure between slabs or buttons and finished parts must be assured by appropriate tests, which must be described in the test report.

Unless otherwise stated, ambient temperature test conditions shall be held to +23 °C ± 5 °C, all other temperatures shall be held to ± 3 °C. If not otherwise stated, mechanical properties in delivery state and after heat or fluid immersion are to be tested at +23 °C and with the same test procedures.

3.1.2 Conditioning. Conditioning shall be as specified in the relevant test procedures.

3.1.3 Equipment. Conforming to the relevant test procedures.

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

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

3.1.6 Facilities. Conforming to the relevant test procedures.

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

3.2 Material and Performance Requirements. Material and performance requirements are summarized in Table 1.

Table 1: Material and Performance Properties

Property	Test Method	Unit	Value
Hardness			
Type A	ISO 7619-1	Shore A	As specified on drawing
Type B	As specified on drawing/math data file	Shore A	As specified on drawing
Elongation at Break			
Type A	ISO 37, Type 4 dumbbell, 200 mm/minute ± 20 mm/minute	%	250 minimum
Type B	As specified on drawing/math data file	%	As specified on drawing
Age Resistance (Heat Aging)			
Type A	ISO 188 Method B,72 h -2 h at +100 °C ± 3 °C Change in Hardness	Shore A	± 5 maximum
Type B	As specified on drawing/math data file		As specified on drawing
Compression Set			
Type A	ISO 815 test piece Type B +70 °C ± 3 °C, 24 h -2 h, 25% compressed	%	25 maximum
Type B	As specified on drawing/math data file	%	As specified on drawing
Ozone Resistance			
Type A	ISO 1431-1, 50 pphm, 25 °C ± 2 °C, 20% strain, 72 h -2 h visual examination		No cracks permissible
Type B	As specified on drawing/math data file		As specified on drawing
Cold Resistance			
Type A	ISO 23529, -30 °C ± 3 °C; 5 h +1 h Bending test radius = 2.5 mm		No cracks
Type B	As specified on drawing/math data file	MPa	As specified on drawing
Abrasion Resistance			
Type A	To be determined on complete part, mounted on fixture equivalent to the pedal plate in vehicle, run abrasion on Schopper test machine to GMW3283-3 but 10 N ± 1°N load, 500 cycles (example of test setup, see Appendix A, Figure A1)	cm^3	As specified on drawing
Type B	As specified on drawing/math data file		As specified on drawing

pphm = Parts per Hundred Million

4 Manufacturing Process

Not Applicable.

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