GM	WORLDWIDE ENGINEERING STANDARDS	Material Specification	GMW14561

Elastomer for Hydraulic Damping Parts Chassis

1 Scope

This specification covers the materials and performance of elastomeric materials used for hydraulic damping parts in chassis applications (hydro bushings).

1.1 Material Description. Materials covered by this specification are divided into two types.

- **Type A:** Elastomer up to +70 °C.
- **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 hydraulic damping parts in chassis applications. This standard is used to define the requirements for elastomeric materials used in hydraulic damping parts.

2 References

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

2.1 External Standards/Specifications.

ASTM D2000	ISO 188	ISO 1817	ISO 23529
ISO 37	ISO 815	ISO 7619-1	SAE J200
ISO 48	ISO 1431-1	ISO 11357-2	

2.2 GM Standards/Specifications.

GMW3059	GMW14270	GMW17821

2.3 Additional References.

- Component Technical Specification (CTS)
- Drawing/Math Data File
- Relevant Test Method
- Vehicle Technical Specification (VTS)

3 Requirements

3.1 Resources.

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

Unless otherwise specified, samples are finished parts or to be taken from finished parts. 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 methods.

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

3.1.3 Equipment. Conforming to the relevant test method.

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 method.

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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.

3.3 All materials supplied to this standard must comply with GMW3059, **Restricted and Reportable Substances**, including the requirement to submit a full material composition disclosure to GM via the International Material Data System (IMDS) or via a completed GMW3059 report form.

Table 1: Material and Performance Properties

Property	Test Method	Unit	Value
Hardness			
Type A	ISO 7619-1 ISO 48	Shore A IRHD	Nominal Value [Note 1] As specified on drawing
Type B	As specified on drawing/math data file	Shore A	Nominal Value [Note 1] As specified on drawing
Elongation at Break			
Type A	ISO 37, Type Four (4) dumbbell, 200 mm/minute ± 20 mm/minute	Percent (%)	350 minimum
Type B	As specified on drawing/math data file	Percent (%)	As specified on drawing
Tensile Strength			
Type A	ISO 37, Four (4) dumbbell, 200 mm/minute ± 20 mm/minute	MPa	14 minimum
Type B	As specified on drawing/math data file	MPa	As specified on drawing
Age Resistance (Heat Aging)			
Type A	ISO 188, Method B, 168 h -2 h at +70 °C ± 3 °C Change in Hardness Change in Elongation at Break Change in Tensile Strength	Shore A/IRHD % %	+10 maximum -30 maximum -15 maximum
Type B	As specified on drawing/math data file	Not applicable	As specified on drawing
Compression Set [Note 2]			
Type A	ISO 815 test piece Type B +70 °C ± 3 °C, 24 h -2 h, 25% compressed	%	30 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	Not applicable	No cracks permissible
Type B	As specified on drawing/math data file	Not applicable	As specified on drawing
Cold Resistance			
Type A	ISO 23529, -30 °C ± 3 °C; 5 h + 1 h Change in Hardness	Shore A	+15 maximum
Type B	As specified on drawing/math data file	Not applicable	As specified on drawing

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