GM	WORLDWIDE ENGINEERING STANDARDS	Material Specification	GMW17202

Interior Low Emissions Polyoxymethylene Homopolymer, Heat Stabilized

1 Scope

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/Material Description. This specification describes the properties of injection moldable, low emission, heat stabilized, unfilled polyoxymethylene (acetal) homopolymer that is used for interior components.

1.2 Symbols. The material abbreviation according to ISO 11469 is >POM<.

1.3 Applicability. Typical applications include non-visible parts such as fasteners, pins, gears, and other small parts located within the refreshable air space of the vehicle interior which are not Ultraviolet (UV) stabilized.

1.4 Remarks. The classification into groups is according to the different properties as described in Table 1. The following types apply to this specification:

- **H1:** Low Melt Flow
- **H2:** Medium Low Melt Flow
- **H3:** Medium High Melt Flow
- **H4:** High Melt Flow

2 References

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

2.1 External Standards/Specifications.

ASTM E831	ISO 179-1/1eA	ISO 527-2	ISO 3795
ISO 75-1	ISO 188	ISO 1133	ISO 11359-2
ISO 75-2	ISO 294-3/4	ISO 1183	ISO 11469
ISO 179-1	ISO 527-1	ISO 3146	ISO 29988-2

2.2 GM Standards/Specifications.

GMW3013	GMW3221	GMW14270	GMW15635
GMW3059	GMW3232	GMW14444	GMW16853
	GMW3235	GMW15634	

2.3 Additional References.

Plastic Submission Template

3 Requirements

3.1 Requirements on Test Specimens. Materials approved to this specification shall meet the standard requirements of GMW3013. Unless otherwise specified, injection molding of test specimens shall be accomplished per ISO 294-3/4, using the injection molding conditions specified in ISO 29988-2. Unless otherwise specified, test methods and specimen dimensions are also to be in accordance with GMW3013.

All tests shall be performed on unannealed specimens immediately following a conditioning period of 24 h minimum in a controlled atmosphere per GMW3221, Code A, unless otherwise specified. In addition, tests specified at temperatures below or above +23 °C ± 2 °C shall be conditioned at the specified temperature for

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4 h minimum and tested at the specified temperature. See the Acetal tab on the Plastics Submission Template for test details and parameters (contact specification owning group named in Section 6 for access).

The values specified in Table 1 shall be met by test specimens in natural, black, or in a standard sampled color if natural and black are not available.

3.2 Emissions Testing of Interior Materials and Parts. For all Code E designated parts per GMW14444, reference GMW16853 for emissions testing of interior materials and parts.

3.3 Chemical Requirements. All parts manufactured from these materials shall be resistant to the media contacted at their place of use.

Note: For each product, the requirements to Table 1 shall be documented by Certification Statement according to GMW3013.

3.4 Compound Properties. See Table 1. The following are also required for full specification approval. The minimum number of lots per test required is one:

- Interior Emissions report per GMW16853.
- Poisson's Ratio.
- Stress Strain Curve at multiple temperatures: -30 °C, +23 °C, +85 °C, +110 °C. See GMMPD tab on Plastic Submission Template for test details (contact specification owning group named in Section 6 for access).
- Coefficient of Linear Thermal Expansion (CLTE) data. See GMMPD tab on Plastic Submission Template for test details (contact specification owning group named in Section 6 for access).
- Differential Scanning Calorimetry (DSC) Curve.
- Fourier Transform Infrared (FTIR) Spectroscopy Curve.
- Mold Shrinkage.

See the Acetal tab on the Plastic Submission Template for the test procedures (contact specification owning group named in Section 6 for access).

3.5 Performance Requirements. Performance requirements shall be specified on part drawings or in component specifications.

All finished parts for interior applications shall meet the requirements according to GMW14444.

3.6 Requirements on Delivery. Important physical, mechanical, and thermal properties that characterize the material are summarized in Table 1.

Note: For each product the requirements to Table 1 shall be documented by the Plastic Submission Template according to GMW3013. The color shall be specified on drawings, in material specifications and otherwise.

3.7 All materials supplied to this standard must comply with GMW3059, **Restricted and Reportable Substances**, including the requirement to obtain a GM-approved International Material Data System (IMDS) submission.

Table 1: Compound Properties (Natural and Black)

Property	Standard [Note 1]	Units	Types and Requirements			
			H1	H2	H3	H4
Melt Volume Rate (MVR), 190 °C/2.16 kg or Melt Flow Rate (MFR), 190 °C/2.16 kg	ISO 1133	g/10 minute or cm^3/10 minute	1 to 4	3 to 8	6 to 18	15 to 27
			1.2 to 4.8	3.6 to 9.6	7.2 to 21.6	18 to 34.4
Density	ISO 1183	g/cm^3	1.42 ± 0.03	1.42 ± 0.03	1.42 ± 0.03	1.42 ± 0.03
Tensile Modulus	ISO 527-1, ISO 527-2	MPa	2700 to 3700	2750 to 3800	2800 to 3800	2800 to 3600

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