GM	WORLDWIDE ENGINEERING STANDARDS	Material Specification	GMW17202

Interior Low Emissions Polyoxymethylene Homopolymer

1 Scope

1.1 Material Description. This specification describes material types of unfilled Polyoxymethylene (POM), also known as acetal, that are used in injection components for interior trim that are not Ultraviolet (UV) stable.

1.1.2 Types. The classification into groups is according to the different properties as described in Table 1.

1.2 Symbols. All plastic parts must have legible plastic compound identification symbol per GMW3116 and ISO 11469 requirements – >POM<.

1.3 Applicability. Typical applications include non-visible parts such as fasteners, pins, gears, and other small parts not requiring dimensional stability.

1.4 Remarks. Types: 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 294-3/4	ISO 1183	ISO 9988-2
ISO 75-1	ISO 527-1	ISO 3146	ISO 11359-2
ISO 75-2	ISO 527-2	ISO 3167	ISO 11469
ISO 179/1eA	ISO 1133	ISO 3795	

2.2 GM Standards/Specifications.

GMW3013	GMW3221	GMW14444	GMW15635
GMW3059	GMW3232	GMW15634	GMW16853
GMW3116	GMW3235		

2.3 Additional References.

TMC003 Material Safety Data Sheet guidance documents (available at www.gmsupplypower.com).

3 Requirements

Materials approved to this specification shall meet the standard requirements of GMW3013.

3.1 Requirements on Test Specimens. Reference GMW3221. Unless otherwise specified, injection molding of test specimens shall be accomplished per ISO 294-3/4 with the conditions for injection molding from ISO 9988-2. Unless otherwise specified, test methods and specimen dimensions are also to be in accordance with GMW3013.

All tests shall be performed on un-annealed 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 shall be conditioned at the specified temperature for 4 h minimum and tested at the specified temperature.

The values specified in Table 1 shall be met by test specimens in natural, black, or integrally colored.

© Copyright 2014 General Motors Company All Rights Reserved

Documents
Document Sharing Hub

Copyright General Motors Company
Provided by IHS Markit under license with General Motors Company
Reproduction, distribution or publication of these standards is expressly prohib
Licensee=/, User=,
Not for Resale,
Full document details: GMW GMW17202 2014

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 molding compounds shall be resistant to the media they contact 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: Stress Strain Curve at multiple temperatures, e.g., +23 °C, +85 °C, -30 °C.

3.5 Performance Requirements. Performance requirements, e.g., flammability, fogging or resistance to odor, 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.

Table 1: Compound Properties

Property	**Standard** [Note 1]	**Units**	**H1 Require-ment**	**H2 Require-ment**	**H3 Require-ment**	**H4 Require-ment**
Density	ISO 1183, Method A, ≥ 10mm x ≥ 10mm x 4 mm	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, Specimen ISO 3167, 4 mm thick Type A bar, Test Speed 1 mm/minute; between 0.05 to 0.25% Strain	MPa	2700 to 3700	2750 to 3800	2800 to 3800	2800 to 3600
Tensile Strength at Yield	ISO 527-1, ISO 527-2, Specimen ISO 3167, 4 mm thick Type A bar, Test Speed 50 mm/minute	MPa	65 to 77	65 to 77	65 to 77	65 to 77
Tensile Elongation at Break	ISO 527-1, ISO 527-2, Specimen ISO 3167, 4 mm thick Type A bar, Test Speed 50 mm/minute	MPa	Report			
Poisson's Ratio (one lot only)	ISO 527-1/2 Specimen ISO 3167, 4 mm thick Type A bar, Tensile Method, Test Speed 1 mm/minute	No Units	Report			
Charpy Notched Impact Strength at +23 °C	ISO 179/1eA, Specimen Machined V-notch, r = 0.25 mm, 80 mm x 10 mm x 4 mm	kJ/m^2	≥ 6	≥ 5	≥ 4	≥ 3

© Copyright 2014 General Motors Company All Rights Reserved

Documents
Document Sharing Hub

Copyright General Motors Company
Provided by IHS Markit under license with General Motors Company
Reproduction, distribution or publication of these standards is expressly prohib
Licensee=/, User=,
Not for Resale,
Full document details: GMW GMW17202 2014