



Polyolefin Particle Foam for Molded Parts

1 Scope

1.1 Material Description. Polyolefin foam in three (3) types:

1.1.1 Type 1. Polyethylene particle foam, density of foam $55 \text{ kg/m}^3 \pm 10 \text{ kg/m}^3$.

1.1.2 Type 2. Polypropylene particle foam, density of foam $22 \text{ kg/m}^3 \pm 4 \text{ kg/m}^3$.

1.1.3 Type 3. Polyethylene particle foam, density of foam $25 \text{ kg/m}^3 \pm 4 \text{ kg/m}^3$.

1.2 Symbols.

- **Type 1:** >PE-E<
- **Type 2:** >PP-E<
- **Type 3:** >PE-E<

1.3 Applicability. Typical applications include as-molded part for toolbox fitted in the spare wheel hollow.

2 References

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

2.1 External Standards/Specifications.

CMVSS 302

FMVSS 302

ISO 845

ISO 1926

2.2 GM Standards/Specifications.

GMW3059

GMW3232

GMW14270

GMW15634

GMW3205

GMW3235

GMW14363

3 Requirements

3.1 Required Property Values for Documentation. All requirements listed in Table 1 shall be fulfilled by the delivered foam and shall be documented by the supplier in a construction data sheet. Documentation of additional properties in this construction data sheet may be required by the approving region.

Table 1: Required Property Values for Documentation

Property	Test Method	Specified Value		
		Type 1	Type 2	Type 3
Density	ISO 845	$55 \text{ kg/m}^3 \pm 10 \text{ kg/m}^3$	$22 \text{ kg/m}^3 \pm 4 \text{ kg/m}^3$	$25 \text{ kg/m}^3 \pm 4 \text{ kg/m}^3$
Flexural Strength	The molded part is placed on two bearings, each 100 mm width, and then pressed manually through the bearings. The test shall be carried out at $+23 \text{ }^\circ\text{C} \pm 5 \text{ }^\circ\text{C}$. See Appendix A.	No break		

Property	Test Method	Specified Value		
		Type 1	Type 2	Type 3
Humidity Resistance	Storage of the molded part or suitable section for 168 h $\pm$ 2 h at +40 °C $\pm$ 3 °C and 93% $\pm$ 5% RH. The test shall be carried out in as-received condition without sample conditioning.	No change which could adversely affect serviceability. No objectionable odor may occur.		
Indentation Hardness	GMW14363-A2 Test in as-received condition. See Appendix A, Figure A2 for measuring point.	5 mm $\pm$ 2 mm		
Tensile Strength	ISO 1926. Speed 500 mm/minute	$\geq$ 120 kPa	$\geq$ 80 kPa	$\geq$ 200 kPa
Fogging/Volatility of Organic Constituents	GMW3235 Method B-Y1-T1 (gravimetric, $\geq$ 1 day pre-drying, +90 °C test temperature).	$\leq$ 2 mg		
Resistance to Odor	GMW3205, Dry condition (Code B) Test Piece Volume: Test Container Volume = 1:500	Rating 6 minimum		
Volatile and Semi-Volatile Interior Materials Emissions Volatile Organic Compound (VOC) Semi-volatile Organic Compound (SVOC)	GMW15634	Report Report		
Flammability	GMW3232	Must comply to CMVSS 302 and FMVSS 302		

RH = Relative Humidity

3.2 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.

4 Manufacturing Process

Not applicable.

5 Rules and Regulations

5.1 Legal Regulations. All materials must satisfy applicable laws, rules, regulations and recommendations valid in the country of usage.

5.2 Language. In the event of conflict between the English and domestic language, the English language shall take precedence.

5.3 Inspection and Rejection. Samples of components or materials released to a GM material specification shall be tested for conformity with the requirements of this material specification and approved by the responsible Engineering department prior to commencement of delivery of bulk supplies.