



Polypropylene - Expanded Bead Foam

1 Scope

1.1 Material Description. This specification covers the properties of a highly resilient, multiple impact resistant, black or white expanded polypropylene bead foam which is chest molded.

Materials certified to this material specification may have additional characteristics. Possible additional characteristics are defined in GMW3013.

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

1.3 Applicability. Typical applications include the following: Bumper energy absorbers, knee bolsters.

1.4 Remarks. The classification into types is according to the different ranges of density. There is a type Z to be used for a density that is outside the listed ranges.

2 References

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

2.1 External Standards/Specifications.

FMVSS 302	ISO 845	ISO 1856	ISO 1926
ISO 844	ISO 1798	ISO 1923	ISO 11469

2.2 GM Standards/Specifications.

GMW3013	GMW3221	GMW14444	GMW15634
GMW3059	GMW3232	GMW14650	GMW16853
GMW3205	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 requirements of GMW3013, General Requirements for Handling of Technical Terms of Delivery of Plastics.

3.1 Requirements on Test Specimens. Reference GMW3221.

3.2 Requirements on Delivery. Important physical and mechanical properties that characterize the material are summarized in Appendix A, Table A1.

Note: The requirements to Table A1 shall be documented for self-certification of the product according to GMW3013. The color shall be specified on drawings, in material specifications and otherwise.

3.3 Chemical Requirements. All parts manufactured from molding compounds shall be resistant to the media they contact at their place of use.

3.4 Requirements on Materials. See Table A1.

3.5 Requirements at Use for Interior. See Appendix A, Table A2. These requirements must be met in addition to the requirements in Table A1.

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

3.6 Requirements at Use for Exterior. The following requirements must be met in addition to the requirements in Table A1.

3.6.1 All finished parts for exterior applications shall meet the requirements according to GMW14650.

3.7 Conditioning. All test pieces shall be conditioned to GMW3221, Code A.

3.8 Required Performance Values. All requirements listed in Table A1 and Table A2, if necessary, shall be fulfilled by the delivered foam and shall be documented by the supplier in Appendix A, Data Sheet A1: Foam Certification Data 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.

A new approval must be received for any changes, e.g., properties, manufacturing process, location of manufacture, etc. If not otherwise agreed, all testing and documentation normally required for initial release must be completed.

It is the responsibility of the supplier to inform the customer in a timely manner, without solicitation, and to include documentation of all modifications of materials and/or processes and to apply for a new release.

If not otherwise agreed, all release tests shall be repeated and documented by the supplier prior to commencement of delivery of non-conforming bulk supplies. In individual cases, a shorter test can be agreed to between the responsible Engineering department and the supplier.

5.4 Material Safety Data Sheets/Safety Data Sheets (MSDS/SDS). For new product submissions, or when a change in chemical composition of an existing product has occurred, a complete copy of the Material Safety Data Sheet/Safety Data Sheet must be submitted in compliance with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS) requirements or other country-specific MSDS/SDS requirements. In addition, product MSDS/SDS submissions must be in compliance with specific country General Motors TMC003 Material Safety Data Sheet/Safety Data Sheet guidance documents where available.

5.5 All materials supplied to this standard must comply with the requirements of GMW3059, Restricted and Reportable Substances for Parts.

6 Approved Sources

Materials supplied to this specification must be approved by General Motors.

A list of approved materials can be found in MATSPC. This GM Material File is provided to third parties to reduce redundant testing of materials. If approved material already listed is used, the part supplier can use GM Material File reference for Production Part Approval Process (PPAP) material approval. If the decision is made to use a not yet approved material, contact the Plastics GSSLT for details on the approval process. The material approval process must be completed prior to PPAP start date of the part supplied to General Motors.

7 Notes

7.1 Glossary.

MATSPC: Global repository of GM approved materials for corresponding GM Engineering Standards.

7.2 Acronyms, Abbreviations, and Symbols.

GHS	Globally Harmonized System of Classification and Labeling of Chemicals
ID	Identification
MSDS	Material Safety Data Sheet
N/A	Not Applicable
PPAP	Production Part Approval Process
SDS	Safety Data Sheet
SVOC	Semi-volatile Organic Compound
VOC	Volatile Organic Compound

8 Coding System

This standard shall be referenced in other documents, drawings, etc., as follows:

Material per GMW16214-TX

Where:

X = Type

9 Release and Revisions

This standard was originated in April 2009. It was first approved by the Global Materials Team in November 2009. It was first published in November 2009.

Issue	Publication Date	Description (Organization)
1	NOV 2009	Initial publication.
2	JUL 2014	Five year refresh of standard. Added emission requirement specification GMW16853. (Materials-Plastics Global Subsystem Leadership Team)