



Polyethylene Terephthalate (PET) Foam Core

1 Scope

1.1 Material Description. This specification covers the properties of a polyethylene terephthalate (PET) closed cell foam.

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

1.3 Applicability. Typical applications include the following: Core material for fiber reinforced plastic laminates, such as the Corvette floor panels.

2 References

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

2.1 External Standards/Specifications.

ASTM C297	ISO 845	ISO 11469
ISO 844	ISO 1922	

2.2 GM Standards/Specifications.

GMW3059	GMW14270	GMW16853
GMW3221	GMW14444	

3 Requirements

3.1 Requirements on Test Specimens. Reference GMW3221, Code A.

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 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.

3.4 Test Procedures. Tests shall be conducted using the latest issue of the test methods indicated. Suitable precautions should be taken to ensure that applicable safe limits are not exceeded when conducting test procedures, processes, and/or handling the materials required by this specification.

3.4.1 Properties shall be determined using test specimens cut from foam core slabs cut to a thickness of 20 mm $\pm$ 0.2 mm (except for compressive modulus testing where the test specimen thickness shall be 40 mm $\pm$ 0.2 mm).

3.4.2 Tests shall be conducted immediately following a conditioning period of 24 h at 22 °C $\pm$ 3 °C and 50% $\pm$ 5% relative humidity (RH) unless otherwise specified.

3.4.3 Avoid taking specimens from damaged, contaminated, or defective areas caused by improper handling or manufacturing. Specimens should not be cut within 50 mm of any edge of the sample.

3.5 Material Property Requirements. See Table 1.

Table 1: Material Requirements

Property	Test Method	Units	Value
Density	ISO 845	kg/m ³	127 to 143
Compressive Strength	ISO 844	MPa	2.0 minimum
Compressive Modulus at 22 °C	ISO 844	MPa	100 minimum
Shear Strength at Break	ISO 1922	MPa	1.0 minimum
Shear Modulus	ISO 1922	MPa	20 minimum
Tensile Strength	ASTM C297 (flatwise)	MPa	2.0 minimum

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.

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.

6 Approved Sources

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

A list of approved materials can be found in the GM Materials Approved Source List. To access this list, reference GMW14270 for latest location. This GM material file is provided to third parties to reduce redundant testing of materials. If an approved material is used, the part supplier can use the 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 GM Materials Engineering – Foam 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. Not applicable.

7.2 Acronyms, Abbreviations, and Symbols.

GHS	Globally Harmonized System of Classification and Labeling of Chemicals
IMDS	International Material Data System
MSDS	Material Safety Data Sheet