



Integral Skin Polyurethane Foam

1 Scope

1.1 Material Description. This specification describes the properties of a paintable integral skin polyurethane foam. This material is not ultraviolet (UV) stabilized in the polyol chemistry and may not be used as an A surface without paint. This material must be painted for production parts using a paint approved to GMW15521.

1.2 Symbols. Not applicable.

1.3 Applicability. Typical applications include the following: steering wheels and steering wheel back covers.

1.4 Remarks. Not applicable.

2 References

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

2.1 External Standards/Specifications.

ISO 845	ISO 1798	ISO 3386/1	ISO 3386/2
ISO 868			

2.2 GM Standards/Specifications.

GMW3013	GMW3221	GMW15521	GMW16172
GMW3059	GMW3232	GMW15634	GMW16853
GMW3205	GMW3235	GMW15635	

2.3 Additional References. None.

3 Requirements

3.1 Requirements on Test Specimens. Reference GMW3221.

3.1.1 Requirements on Delivery. Materials approved to this specification shall meet the requirements of GMW3013. Important physical, mechanical and thermal properties that characterize the material are summarized in Appendix A, Table A1. The color shall be specified on drawings, in material specifications and otherwise.

3.1.2 Requirements on Test Specimens:

- 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.
- Mechanical and physical properties (Appendix A, Table A1) shall be determined using test specimens cut from molded blocks 200 mm × 200 mm × 45 mm (minimum size) with a target density of 400 kg/m³. Skin properties shall be determined from specimens cut from the outer 5 mm of the block. The core properties shall be determined using specimens from the center 10 mm of the block thickness.
- Tests shall be conducted 4 days minimum after molding and immediately following a conditioning period of 24 h minimum in a controlled atmosphere per GMW3221, Code A, unless otherwise specified.
- An equal number of specimens shall be cut from both the longitudinal and transverse plaque directions for each mechanical property. The specimens shall be tested and the results averaged. Averages and ranges shall be reported for each material property using the GMW3013 reporting template.

3.1.2.1 Mechanical Requirements. See Appendix A, Table A1.

3.1.2.2 Physical Requirements. See Appendix A, Table A1.

3.1.2.3 Additional Requirements. See Appendix A, Table A1.

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.

5.5 All materials supplied to this standard must comply with the requirements of the International Material Data System (IMDS) and GMW3059, **Restricted and Reportable Substances**.

6 Approved Sources

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

A list of approved materials can be found in the GM Approved Materials Source List. 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 GM Materials Engineering 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.

Changes in an approved formulation to accommodate Tier 1 manufacturing capabilities must remain within approved statistical certified ranges. If not, another submission for the GM Approved Materials Source List approval will be required.