



Polyurethane Foam for Back Foaming

1 Scope

Note: Nothing in this standard supercedes applicable laws and regulations.

Note: In the event of conflict between the English and domestic language, the English language shall take precedence.

1.1 Purpose/Material Description. Flexible Polyurethane Foam (F-PU) or Semi-Flexible Polyurethane Foam (SF-PU) with purpose of pouring directly into the back-side of A-surface trim (also known as: Backfoaming; Foam-in-Place, FIP, and Pour-in-Place, PIP) for applicable applications, including: instrument panels, door panels, soft molded seat back panels, etc. Adhesion promoters may be required to prevent delamination of foam from trim.

1.1.1 For F-PU foam for head restraints, armrest, and center consoles (non-PIP), et al., refer to GMW15064. For molded F-PU foam for seats, refer to GMW15471. For slab (sheeted) F-PU foam for lamination, refer to GMW15058.

1.2 Symbols. Not applicable.

1.3 Applicability. For back foaming of deep drawn foils, e.g., instrument panel, door panels, etc.

1.4 Remarks.

1.4.1 Bio, Sustainable, Recycled or Alternate Materials. Bio-based, Sustainable Polyurethane (BS-PU) or Recycled-content Polyurethane (REC-PU) materials may be used for parts under this specification. Prior to incorporating recycled or bio-based materials into a finished product, the supplier shall provide data to GM Materials Engineering showing that no decrease in performance or durability will occur due to the use of the BS-PU or REC-PU materials.

2 References

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

2.1 External Standards/Specifications.

ISO 845	ISO 1856-A	ISO 3386-1	ISO 8067
ISO 1798-1			

2.2 GM Standards/Specifications.

GMW3059	GMW3259	GMW14444	GMW15634
GMW3205	GMW14270	GMW14892	GMW15635
GMW3221	GMW14357	GMW15058	GMW16853
GMW3232	GMW14358	GMW15064	
GMW3235	GMW14359	GMW15471	

3 Requirements

3.1 Requirements on Test Specimens.

3.1.1 Conditioning. Immediately prior to test, all test pieces shall be pre- dried at $(+70 \pm 3) ^\circ\text{C}$ and conditioned. The pre-drying period shall be ≥ 16 h for tests conducted after humidity aging to GMW14357 and shall be ≥ 3 h for other tests. Following pre-drying, all test pieces shall be conditioned to GMW3221, Code A.

3.1.2 Test Piece and Number. If it is not possible to take test pieces from the part, then suitable plates shall be manufactured for the test (taken from equal manufacturing process, recipe of foam and density). The test piece shall be taken without skin and in rising direction of foam.

3.1.3 Aged Test Pieces. The foam is aged as a part or block (taken from equal manufacturing process, recipe of foam and density). After ageing, the test piece shall be taken from the aged foam sample without skin and in rising direction of the foam.

3.1.4 Test Piece for Indentation Load Deflection. The Indentation Load Deflection (ILD) test piece shall be taken from a molded part.

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 Type Description.

3.3.1 Type 0: Type 0 has a defined density of $> 140 \text{ kg/m}^3$.

3.3.2 Type 1: Type 1 has a defined density of $(125 \pm 15) \text{ kg/m}^3$.

3.3.3 Type 2: Type 2 has a defined density of $(95 \pm 15) \text{ kg/m}^3$.

3.3.4 Type 3: Type 3 has a defined density of $< 80 \text{ kg/m}^3$.

3.4 General. The components manufactured from this foam must be homogeneous with regard to their foam structure, cell size, mechanical properties and surface condition.

3.4.1 The components shall be free from cracks, hard areas, blisters, unfoamed areas (voids) and other defects which could adversely affect the serviceability.

3.4.2 Foam reinforcement shall be securely bound to the foam and shall show no voids or cracks around them. Over the cross section, the foam shall show a uniform structure.

3.5 Required Basic Foam Physical Properties and Performance Values. All requirements listed in Table 1 and Table 2 shall be fulfilled by the delivered foam and shall be documented by the supplier in the GM Foam Submission Template, available from GM Interior Materials Engineering, or GM Foam Bill-of-Materials Family Owner (BFO), or program Design Release Engineer (DRE).

3.6 Restricted and Reportable Substances 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.

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.