



Polyurethane, Dense Molded, Adhesive Coated

1 Scope

This standard defines the requirements for a dense molded polyurethane material having high resiliency, high coefficient of friction, and a pressure sensitive adhesive (PSA) coating on one side. These materials are typically used as spacers.

1.1 Material Description. The material shall be dense molded polyurethane with an acrylic pressure sensitive adhesive coating on one side. These materials are available in the following types.

1.1.1 Type I. Thirty (30) to forty (40) durometer molded or cast-to thickness roll stock foamed urethane with an acrylic based PSA.

1.1.2 Type II. Sixty (60) to eighty (80) durometer molded or cast to thickness roll stock urethane with an acrylic based PSA.

The color of the material shall be specified on the part drawing. Black is typically used. The material types are available in brown, clear, or a custom color match.

Parts will be molded or cast to thickness and die-cut to obtain the desired size and contour. Solid urethane roll stock is available in thicknesses up to 3.5 mm. Foamed urethane roll stock is available up to 6.5 mm. Molded urethane is available up to 25.4 mm.

One surface of the molded or die cut part shall be covered evenly and completely with a pressure sensitive adhesive. The adhesive shall be protected with a release liner, which can be readily removed without any detrimental effects.

1.1.2.1 Limitations on Usage. This material is not suitable for use in applications with exposure to brake fluid or engine coolant, or with exposure to temperatures in excess of 105 °C intermittent and 65 °C continuous, or with exposure to ultraviolet (UV).

1.2 Symbols. Not applicable.

1.3 Applicability. Typical application is spacers.

1.4 Remarks. The classification into types is according to different ranges of durometer.

2 References

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

2.1 External Standards/Specifications.

ISO 37 ISO 815 ISO 868

2.2 GM Standards/Specifications.

GMW3059 GMW14093 GMW14270 GMW14729
GMW3221 GMW14124

2.3 Additional References.

- BASF Basecoat per R98/R99.
- BASF Clearcoat per E10CG060S.

3 Requirements

3.1 Requirements on Test Specimens. Reference GMW3221. All samples are to be conditioned prior to each requirement test to GMW3221, Code A.

3.2 Test Preparation. Testing is done per the International Organization for Standardization (ISO) laboratory procedures. Samples shall be properly identified, where appropriate, with the molding method, direction of grain, and conditions of the curing process. Limited testing may also be run on finished parts. Slabs representing a minimum of three (3) production lots must be submitted for source approval.

3.3 Physical property and adhesion requirements are listed in Table 1.

Table 1: Requirements

Test	Type I	Type II
Original Properties.		
• Durometer, (ISO 868, 15 s delay), Type A, point.	35 ± 5	70 ± 10
Oven Aging. 70 h at 70 °C		
• Durometer Change, points, maximum.	5	5
• Flexibility: Tensile dumbbell (per ISO 37, Type I) shall be wrapped 180 degrees around a 25 mm mandrel.	No Cracks or Breaks	No Cracks or Breaks
Compression Set. 22 h at 70 °C, (ISO 815, Type A), percent (%) maximum	35	35
Cold Flexibility. Tensile dumbbell (per ISO 37, Type I) that has been at -40 °C for 70 h shall be wrapped 180 degrees around a 25 mm mandrel that has been cooled to -40 °C for at least 5 h.	No Cracks or Breaks	No Cracks or Breaks
Hydrolytic Stability. 168 h at 70 °C and 100% relative humidity (RH).		
• Durometer Change, percent (%) maximum	-25	-30
Adhesion Requirements. Finished parts shall be bonded to production representative substrate. Samples shall be fixtured to represent in-car position. (If a production substrate is not known, then test on BASF Basecoat per R98/R99, BASF Clearcoat E10CG060S for North America and other regions to select their common paint system.)		
Edge Adhesion. • After 168 h at 70 °C. • After 168 h condensing humidity per GMW14729. • After three (3) cycles of GMW14124, cycle W.	During and after all exposures, the edges of the dense molded sample must be securely bonded. There shall be no signs of lift or separation from the bond to substrate.	
Impact Test. (GMW14093 apparatus C). • As received. • Within 60 s after completion of the second cold cycle in GMW14124, cycle W, three (3) cycles, a total of three (3) impacts.	Must withstand 1.7 J when reverse impacted.	

3.4 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.

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