

POLYURETHANE SRIM - 50% GLASS, 10 000 MPa FLEXURAL MODULUS GMP.PUR.010

1 SCOPE. This specification covers the properties of a polyurethane SRIM compound reinforced with 50% glass mat.

1.1 APPLICATIONS. Typical applications include the following: Nonappearance load bearing structural components.

2 REFERENCED STANDARDS.

GM9077P	ASTM D696	ASTM D792
ASTM D638	ASTM D790	ASTM D2584

3 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.

3.1 Properties shall be determined using test specimens router cut from center gated reaction injection molded test plaques. The plaques shall be 250 mm min x 300 mm min x 6.0 ± 0.2 mm.

3.2 Tests shall be conducted 40 h min after post cure and immediately following a conditioning period of 24 h min at 22 ± 3°C and 50 ± 5% RH unless otherwise specified.

3.3 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. The average value is the material properly value. This value is compared to the required value shown in the Compound Properties table(s).

4 COMPOUND PROPERTIES.

4.1 COMPOUND PROPERTIES (NATURAL AND BLACK). See Table 1.

5 SUGGESTED COMPOUND VERIFICATION.

Inherent compound properties and test procedures that may be used to identify this material are listed below. The test value and test procedure requirements are identical to those listed in Section 4, Compound Properties.

Filler Content
Glass Content
Infrared Characterization Scan
Specific Gravity

6 COMPOUND AND SOURCE APPROVAL.

Each vehicle group and component division will have its own approved compound list derived from the corporate plastics file. No shipment shall be made by a new source until a sample of the compound manufactured at a production facility has been approved by the appropriate vehicle group and/or component division. Shipment receipt and certification requirements will vary among receiving locations.

6.1 A completed copy of the GM Material Safety Data Sheet (available from a GM laboratory or engineering department) must be submitted with any new submissions or when a composition change has occurred.

7 IDENTIFICATION. The molding compound shall be identified by the specification code, the manufacturer's identification code and lot number, along with any additional vehicle group and component division requirements.

8 INSPECTION AND REJECTION. The purchaser reserves the right to sample incoming shipments even though it is the responsibility of the supplier to meet the requirements stated without dependence upon the purchaser's inspection. The supplier (whether prime contractor or subcontractor) will forfeit qualification if a change is made in material, processing methods, testing methods, or location of manufacture without prior written request to and subsequent approval from the purchaser.

9 GENERAL INFORMATION. This standard was originated by the Plastics Committee in August 1991. The latest revisions include:

Rev	Date	Description	Div
A	3/92	Properties in Table 1 changed to allow s source approval	PL
B	6/93	Removed Heat Sag requirement, 22°C Flex Mod min = 9500 MPa @ 0.5 mm deflection	PL

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TABLE 1 - COMPOUND PROPERTIES (NATURAL AND BLACK)

Properties	Test Values	Test Methods
Glass Reinforcement	47-53%	TGA, GM9077P or ASTM D2584
Specific Gravity	1.60 -1.64	ASTM D792
Flexural Modulus		ASTM D790, Method I, 1.3 mm/minute, 50 mm span, 25 mm wide specimen, secant calculations at 0.5 and 2.5 mm deflection
@ -30°C		
0.5 mm deflection	13 500 MPa max	
2.5 mm deflection	12 500 MPa max	
@ +22°C		
0.5 mm deflection	9500-12 000 MPa	
2.5 mm deflection	8500-11 700 MPa	
@ +70°C		
0.5 mm deflection	6600 MPa min	
2.5 mm deflection	4550 MPa min	
Flexural Strength		ASTM D790, Method I, 1.3 mm/minute, 50 mm span, 25 mm wide specimen
@ +22°C	300 MPa min	
after 7 days in 100% RH @ 38°C	300 MPa min	
Tensile Strength at Break	200 MPa min	ASTM D638, Type I bar, 5 mm/minute
Coefficient of Linear Thermal Expansion	$25 \times 10^{-6}/^{\circ}\text{C}$ max	ASTM D696, -30 to +80°C temperature range, measure in material flow direction.