

RRIM — POLYDICYCLOPENTADIENE

GMP.PDCPD.001

1 SCOPE. This specification covers the properties of a paintable, polydicyclopentadiene reaction injection molded polymer.

1.1 PAINTABILITY. Approved paint systems that can be used on this material are listed in the GM Approved Paint On Parts Systems (GM APOPS) data base.

1.2 APPLICATIONS. Typical applications include the following: Trim parts, bumpers, body panels.

2 REFERENCED STANDARDS.

GM1000M	ASTM D638	ASTM D792
GM9904P	ASTM D696	ASTM D3769
ASTM D256	ASTM D790	

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 die cut from edge gated reaction injection molded test plaques. The plaques shall be 250 mm min long by 300 mm min wide by 3.8 ± 0.2 mm thick.

3.2 Tests shall be conducted immediately following a conditioning period of 24 h min at $22 \pm 3^\circ\text{C}$ and $50 \pm 5\%$ 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 property value. This value is compared to the required value shown in the Compound Properties table(s).

4 COMPOUND PROPERTIES.

4.1 RESTRICTED AND REPORTABLE CHEMICALS (GM1000M). All materials supplied to this specification must comply with the requirements listed in GM1000M, "Restricted and Reportable Chemicals".

4.2 COMPOUND CERTIFICATION. Material suppliers must certify molding compound properties to the specific GM Test Sampling Plan approved for their material.

4.3 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.

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 Completed copies of the Material Safety Data Sheet meeting GM information requirements must be submitted with any new submissions or whenever 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 June 1990. The latest revisions include:

Rev	Date	Description
A	2/96	Revised Table 1 Properties to Accommodate Additional Materials

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TABLE 1 – COMPOUND PROPERTIES (NATURAL AND BLACK)

Properties	Test Values	Test Methods
Moisture Growth	0.04% max	Measure on 100 x 100 mm specimens cut from test plaques defined in 3.1. Average the growth in the length and width directions after 96 h immersion in water @ 23 ±2 °C.
Specific Gravity	1.00 – 1.04	ASTM D792
Flexural Modulus		ASTM D790, Method I, 13 mm/minute, 50 mm span, 25 mm wide specimen, tangent calculation
@ -30°C	2560 MPa max	
@ +22°C	1825 – 2125 MPa	
@ +70°C	1400 MPa min	
Tensile Strength At Break	37 MPa min	ASTM D638, Type I bar, 50 mm/minute
Heat Sag	38 mm max 5 mm max	ASTM D3769, 150 mm overhang 150 mm overhang, @ 121°C 150 mm overhang, @ 107°C
Coefficient Of Linear Thermal Expansion	95 E-06/°C max	ASTM D696, -50 to 150°C temperature range, measure in material flow direction
Multiaxial Impact Strength @ -30°C	42 J min at max load Failures must be such that no cracks radiate more than 45 mm from center of impact and no material shall be broken loose	GM9904P, Class Z Z = 2.2 m/s, -30°C. Specimens shall be 3.8 ± 0.2 mm thick
Notched Izod Impact	340 J/m min	ASTM D256, Method A