

**Thermoplastic Elastomer – Polyolefinic,
Shore A55, Exterior, Extrusion Grade
GMP.E/P.109****1 Scope**

This specification covers the properties of a black, extrusion grade, UV and heat stabilized, fully cured alloy of polypropylene and EPDM rubber.

1.1 Typical Application. Typical applications include the following: backlight molding, roof ditch molding.

2 References

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

2.1 External Standards/Specifications.

ISO 34-1	ISO 1183
ISO 37	ISO 1431-1
ISO 812	SAE J1960
ISO 815	SAE J1976
ISO 868	SAE J2236

2.2 GM Standards/Specifications.

GM1002M	GMW3059
GM9900P	GMW3221
GMW3001	

3 Requirements

3.1 Requirements on Delivery. Important physical, mechanical and thermal properties that characterize the material are summarized in charts. The color shall be specified on drawings, in material specifications and otherwise.

3.2 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.

Tests specimens shall be die cut from fan gated injection molded plaques having a nominal thickness of 2.0 ± 0.2 mm. Die cut specimens are

to be tested with the long axis of the test specimen perpendicular to the direction of flow. Plaque dimensions must be sufficient to permit this.

Tests shall be conducted 40 h minimum after molding and immediately following a conditioning period of 24 h minimum per GMW3221 Code A unless otherwise specified. All tests shall be performed on unannealed specimens. In addition, tests specified at temperatures below or above $22 \pm 3^\circ\text{C}$ shall be conducted at the specified temperature using specimens conditioned at the specified temperature for 4 h minimum.

The minimum values specified in the property tables must be met by test specimens in natural, black, or in a standard sampled color if natural or black are not available. For colored grades where other pigment and additive systems (e.g. stabilizer) are used, the impact values shall not decrease more than 10% from the specified minimum value.

3.3 Compound Properties. See Table 1.

4 Manufacturing Process

Not applicable.

5 Rules and Regulations

5.1 All materials supplied to this specification must comply with the requirements of GMW3001, **Rules and Regulations for Material Specifications** and GM1002M, **Standard Requirements - Plastics**.

5.2 All materials supplied to this specification must comply with the requirements of GMW3059, **Restricted and Reportable Substances for Parts**.

6 Approved Sources

Engineering qualifications of an approved source is required for this specification. Only sources listed in the GM Materials File (i.e., MATSPC) under this specification number have been

qualified by engineering as meeting the requirements of this specification.

Table 1: Compound Properties (Black)

Property	Test Method	Unit	Value
Shore A Hardness	ISO 868, 15 second delay.	Shore A	50 to 60
Specific Gravity	ISO 1183		0.89 to 0.99
Tensile Stress at Break	ISO 37, Type 1 dumbbell, 500 mm/minute	MPa	2.7 min
Elongation at Break	ISO 37, Type 1 dumbbell, 500 mm/minute	%	255 min
Tensile Stress at 100% Elongation	ISO 37, Type 1 dumbbell, 500 mm/minute	MPa	0.9 min
Compression Set	ISO 815, Type A, 70 h at 125°C	%	50 max
Tear Strength	ISO 34-1, Method B, angle die, 500 mm/minute	kN/m	10 min
Low Temperature Brittleness	ISO 812, Type B	°C	-56 max
Properties After Heat Aging	SAE J2236, 1008 h at 135°C in an air-circulating oven followed by indicated property testing at 23°C. Test methods are the same as for original mechanical property testing.	Change In Property	No objectionable color change or tackiness
Tensile Strength		%	70 retention min
Elongation at Break		%	70 retention min
Cleaning / Solvent Resistance	GM9900P, Liquid to sit for 15 minutes, Procedure B		No loss of gloss, no stain, surface softening or loss of grain. No color transfer to cloth.
Ozone Resistance	ISO 1431-1, Procedure A, 100 pphm, 40°C		Zero Rating
Accelerated Weathering	Xenon Arc per SAE J1960, 2500 kJ/m ²		
Change in Color Surface Defects			$\Delta E < 3.0$ No objectionable defects allowed
Solar Weathering	2 years exposure to Natural weathering in Arizona and Florida per SAE J1976, Procedure A		
Color Change Surface Defects			$\Delta E < 3.0$ No objectionable defects allowed