



Polyolefin Alloy – Weather Resistant, Shore A 95

1 Scope

1.1 Material Description. This standard covers the properties of a weather resistant, 95 shore A polyolefin alloy, pellet form, injection molding compound. For the purpose of this specification, polyolefin alloy is defined as an alloy of polypropylene plastic and Ethylene Propylene (EP) or Ethylene Propylene Diene Monomer (EPDM) rubber.

1.2 Symbols. The material abbreviation according to ISO 11469 is >PP+EPDM-M<.

1.3 Typical Applications. Typical applications include the following: front air deflectors.

2 References

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

2.1 External Standards/Specifications.

ISO 34-1	ISO 294	ISO 1133	SAE J1545
ISO 75-2	ISO 527	ISO 1183	SAE J1976
ISO 179/1eA	ISO 812	ISO 6603	SAE J2527
ISO 188	ISO 868	ISO 11469	

2.2 GM Standards/Specifications.

GMW3013	GMW3221	GMW14650	GMW16847
GMW3059			

2.3 Additional References.

TMC003 Material Safety Data Sheet guidance documents (available at www.gmsupplypower.com).

3 Requirements

Materials approved to this specification shall meet the requirements of GMW3013, **General Requirements for Handling of Technical Terms of Delivery for Plastics**.

Important physical, mechanical and thermal properties that characterize the material are summarized in Table 1. The color shall be specified on drawings and otherwise.

3.1 Requirements on Test Specimens. Reference GMW3221, Code A.

3.2 Compound Properties. See Table 1. A minimum of six lots shall be tested to Table 1. The following are also required for full specification approval (the minimum number of lots per test required is one):

- Poisson's Ratio
- Stress vs. Strain Curve at 23 °C
- Multiaxial Impact Curve

3.3 Performance Requirements. Performance requirements, e.g., flammability, fogging or resistance to odor shall be specified on part drawings or in component specifications.

Table 1: Compound Properties (Black or Natural)

Properties	Standard	Unit	Values
Shore A Hardness	ISO 868, 15 second delay	Shore A	95 ± 5
Density	ISO 1183	g/cm ³	0.85 to 0.92
Tensile Modulus	ISO 527, Type 1A dumbbell, 500 mm/minute	MPa	95 to 210
Tensile Stress at Break	ISO 527, Type 1A dumbbell, 500 mm/minute	MPa	4.0 minimum
Elongation at Break	ISO 527, Type 1A dumbbell, 500 mm/minute	%	160 minimum
Tensile Stress at 100% Elongation	ISO 527, Type 1A dumbbell, 500 mm/minute	MPa	6 minimum
Tear Strength	ISO 34-1, Method B, angle die, 500 mm/minute	kN/m	65 minimum
Notched Charpy Impact at 23 °C at -30 °C	ISO 179/1eA	kJ/m ² kJ/m ²	No break No break
Multiaxial Impact Strength at 23 °C ± 2 °C	ISO 6603-2/40/20/C/4.4. Sample to be either square 60 mm x 60 mm minimum, or circle 60 mm diameter minimum Sample thickness to be 2 mm ± 0.1 mm.	J	9 J minimum All failures must be ductile
Multiaxial Impact Strength at -30 °C ± 2 °C (or lowest temperature at which only type YD or YS failures are observed)	ISO 6603-2/40/20/C/4.4. Sample to be either square 60 mm x 60 mm minimum, or circle 60 mm diameter minimum. Sample thickness to be 2 mm ± 0.1 mm.	J	7 J minimum All failures must be ductile
Heat Deflection Temperature (HDT), Method B	ISO 75-2, Method B	°C	30 to 50
Melt Flow Rate	ISO 1133	g/10 minutes	11 to 17
Shrink, 48 h after molding	ISO 294, plaque size 101.6 mm x 152 mm x 3.2 mm (4 in x 6 in x 0.125 in)	%	0.8 to 1.2
Low Temperature Brittleness	ISO 812, Type B	°C	- 40 maximum
Properties After Long Term Heat Aging	ISO 188, 1000 h at 135 °C in an air-circulating oven followed by indicated property testing at 23 °C.		
Tensile Stress	ISO 527, Type 1A dumbbell, 500 mm/minute	%	80
Elongation at Break	ISO 527, Type 1A dumbbell, 500 mm/minute	%	80