



Polypropylene Homopolymer - Calcium Carbonate Filled, Heat Stabilized, Extrusion Grade

1 Scope

1.1 Material Description. This specification covers the properties of polypropylene homopolymer, calcium carbonate filled, extrusion compounds.

1.2 Symbols. The material abbreviations according to ISO 11469 are shown in Table 1.

1.3 Applicability. Typical applications include the following: interior trim components.

1.4 Remarks. None.

2 References

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

2.1 External Standards/Specifications.

ASTM D3012	ISO 188	ISO 1133	ISO 11359-2
ASTM E831	ISO 294	ISO 1183	ISO 11469
ISO 75-1/2	ISO 527-1	ISO 3167	ISO 19069-2
ISO 179/1eA	ISO 527-2	ISO 3795	

2.2 GM Standards/Specifications.

GMW3059	GMW3232	GMW14270	GMW15634
GMW3205	GMW3235	GMW14444	GMW16853
GMW3221			

2.3 Additional References.

Safety and Industrial Hygiene (S&IH) Technical Standard (TS), S&IH TS 3.4-160-02

3 Requirements

3.1 Requirements on Test Specimens.

Unless otherwise specified, injection molding of test specimens shall be accomplished per ISO 294, using the injection molding conditions specified in ISO 19069-2. Test methods and specimen dimensions are also to be in accordance with ISO 19069-2 with the following additions:

- Use ISO 3167, Type 1A, thickness 4 mm, for tensile properties.
- All tests shall be performed on specimens 40 h (minimum) after molding and immediately following a conditioning period of 24 h (minimum) in a controlled atmosphere per GMW3221, Code A, unless otherwise specified. All tests shall be performed on unannealed specimens.

The values specified in Table 1 shall be met by test specimens in natural, black or in a standard sampled color if natural or black are not available.

3.1.1 Requirements on Delivery. Important physical, mechanical and thermal properties that characterize the material are summarized in Table 1.

3.1.2 Chemical Requirements. All parts manufactured from molding compounds shall be resistant to any media contacted in application.

3.2 Emissions Testing of Interior Materials and Parts. For all Code E designated parts per GMW14444, reference GMW16853 for emissions testing of interior materials and parts.

3.3 Compound Properties. The following are also required for full specification approval. The minimum number of lots per test required is one in natural:

- Interior Emissions report per GMW16853
- Poisson's Ratio
- Stress Strain Curve at multiple temperatures: -30 °C, +23 °C, +85 °C (see GMMPD tab on Plastic Certification Template for test parameters)
- Coefficient of Linear Thermal Expansion (CLTE) data (see GMMPD tab on Plastic Submission Template for test parameters)
- Differential Scanning Calorimetry (DSC) Curve
- Fourier Transform Infrared Spectroscopy (FTIR) Curve
- See the polypropylene tab on the Plastic Submission Template for the test procedures.

3.4 Performance Requirements. Performance requirements shall be specified on part drawings or in component specifications. All finished parts for Interior applications shall meet the requirements specified in GMW14444.

3.5 All materials supplied to this standard must comply with GMW3059, Restricted and Reportable Substances, including the requirement to obtain a GM-approved International Material Data System (IMDS) submission.

Table 1: Compound Properties (Black or Natural)

Property	Standard	Units	Requirements
ISO Symbol	ISO 11469	N/A	>PP-KD40<
Density	ISO 1183/A	g/cm ³	Target Range 1.26 ± 0.02
Tensile Stress at Yield	ISO 527-1 ISO 527-2	MPa	22 to 28
Tensile Stress at Yield after Heat Aging Note 1	ISO 527-1 and ISO 527-2	% Retention	≥ 85
Tensile Modulus	ISO 527-1 ISO 527-2	MPa	2300 – 3100
Notched Charpy Impact at +23 °C	ISO 179-1/1eA	kJ/m ²	≥ 5.5
Notched Charpy Impact at -30 °C	ISO 179-1/1eA	kJ/m ²	≥ 1.5
Notched Charpy Impact Strength at +23 °C after Heat Aging Note 1	ISO 179-1/1eA	% Retention	≥ 85
HDT Method A, 0.45 MPa, flatwise	ISO 75-1/2	°C	≥ 105