



Polypropylene - Long Glass Fiber Reinforced

1 Scope

1.1 Material Description. This standard covers the properties of polypropylene reinforced with long glass fibers. It covers injection molding types for manufacturing of technical parts requiring high structural stiffness.

1.2 Symbols. The material abbreviation according to ISO 11469 is > PP-GF <. The symbol shall be completed by the supplier according to the Glass Fiber (GF) content of the material.

1.3 Applicability. Typical applications include the following: Carriers, battery covers, etc.

1.4 Remarks. The classification into groups is according to the different ranges of glass fiber content. The Code Letter E at the end indicates that these Types are impact modified.

2 References

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

2.1 External Standards/Specifications.

ISO 75-1	ISO 188	ISO 1183	ISO 4577
ISO 75-2	ISO 294-4	ISO 1873-2	ISO 11359-1
ISO 75-3	ISO 527-1	ISO 3167	ISO 11359-2
ISO 179-1	ISO 527-2	ISO 3451-1	ISO 11469

2.2 GM Standards/Specifications.

GMW3013	GMW3221	GMW14444	GMW16853
GMW3059	GMW3232	GMW14650	
GMW3205	GMW3235	GMW15634	

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.

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

Note: For each product the requirements to Table 1 shall be documented by Certification Statement according to GMW3013. The color shall be specified on drawings, in material specifications and otherwise.

3.2 Requirements on Test Specimens.

3.2.1 Unless otherwise specified, injection molding of test specimens shall be accomplished per ISO 294 with the conditions for injection molding from ISO 1873-2. Test methods and specimen dimensions shall also be in accordance with ISO 1873-2 with the following additions: Use ISO 3167, Type A, thickness 4 mm, for tensile and flexural properties.

3.2.2 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.

3.2.3 The values specified in Table 1 shall be met by test specimens in natural or black.

3.3 Chemical Requirements. All parts manufactured from molding compounds shall be resistant to the media they contact at their place of use.

3.4 Compound Properties. See Table 1. The following are also required for full specification approval. The minimum number of lots per test required is one in natural: Tensile Modulus, Poisson's Ratio, Stress Strain Curve at +23 °C, +100 °C and -30 °C.

3.5 Performance Requirements. Performance requirements shall be specified on part drawings or in component specifications.

All finished parts for Interior applications shall meet the requirements according to GMW14444.

All finished parts for Exterior applications shall meet the requirements according to GMW14650.