



Polyamide 6 - Glass Fiber Reinforced, Heat Stabilized

1 Scope

1.1 Material Description. This specification describes material types of glass fiber reinforced, heat stabilized polyamide 6 (nylon 6), which are used in injected or extruded form for molded components.

1.2 Symbols. The symbol, per ISO 11469, shall be completed by the supplier according to the glass fiber content of the material. The material abbreviations according to ISO 11469 are shown in Table 1 and Table 2.

1.3 Applicability. Painted Wheel Covers, Pedals, Gears, Spacers, Relays, Brackets, Fans.

2 References

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

2.1 External Standards/Specifications.

ISO 75	ISO 527-1/2	ISO 3167	ISO 11469
ISO 179/1eA	ISO 1183	ISO 3451	ISO 15512
ISO 188	ISO 1874-2	ISO 3795	
ISO 294	ISO 3146	ISO 11357-3	

2.2 GM Standards/Specifications.

GMW3013	GMW3221	GMW3235	GMW15634
GMW3059	GMW3232	GMW14335	GMW16853
GMW3205			

3 Requirements

Materials approved to this specification shall meet the standard 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 charts.

The color shall be specified on drawings, in material specifications and otherwise.

3.2 Requirements on Test Specimens. Reference GMW3221, Procedure for Standard Conditioning of Organic Materials.

Unless otherwise specified, injection molding of test specimens shall be accomplished per ISO 294 with the conditions for injection molding from ISO 1874-2. Test methods and specimen dimensions are also to be in accordance with ISO 1874-2 with the following clarification: Use ISO 3167, Type A, thickness 4 mm, for tensile and flexural properties (ISO 1874-2 only specifies ISO 3167).

Test values indicated herein are based on material with moisture content of 0.2% maximum (dry as molded) as tested per ISO 15512 Method A or B, or GMW14335. Immediately after molding, per ISO 1874-2, specimens shall be sealed in moisture-proof containers and stored at +23 °C ± 3 °C for at least 24 h. All tests shall be performed on unannealed specimens immediately after their removal from the containers in a controlled atmosphere of +23 °C ± 3 °C and 50% ± 6% relative humidity (RH) unless otherwise specified.

The minimum values specified in the property tables shall be met by test specimens in natural, black or in a standard sampled color, if natural or black are not available.

3.3 Requirements on Parts. Parts of this material type shall have a water content at delivery of at least:

- 1.5% by mass for up to 20% by mass reinforced material types, and
- 1.0% by mass for over 20% by mass reinforced material types (test to ISO 15512 Method A or B, or GMW14335).

Deviations from this shall be specifically indicated on the part drawings.

3.4 Compound Properties (Natural and Black). See Tables 1 and 2. The following are also required for full standard approval. The minimum number of lots per test required is one in natural: Poisson's Ratio, Stress Strain Curve at multiple temperatures (for example -30 °C, +23 °C, +120 °C), Coefficient of Linear Thermal Expansion (CLTE), Mold Shrinkage and Fogging. See GMW3013 for all test procedures and parameters.

3.5 Chemical Requirements. All parts manufactured from molding compounds shall be resistant to the media they contact, such as aliphatic and aromatic hydrocarbons, fuels, lubricants, oils, greases and alcohols, at their places of use.

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