



Polyester Bulk Molding Compound (BMC) – Injection Molded, Glass Reinforced

1 Scope

1.1 Material Description. This specification covers the properties of paintable, metalized, and bondable injection molding grade bulk molding compound (BMC) that is reinforced with glass fibers that are 3.175 mm to 12.7 mm long.

1.2 Symbols. The symbol has to be completed by the supplier according to Unsaturated Polyester (UP) and Glass Fiber (GF) content of the material. The material abbreviation according to ISO 11469 is >UP-GF<.

1.3 Applicability. Typical applications include, but are not limited to, the following: forward lighting.

1.4 Remarks. The classification into groups is according to the different ranges of glass fiber content.

1.4.1 Glass Fiber Content. The glass fiber content shall be according to the following ranges:

- **Type 1:** 9% to 15%
- **Type 2:** 16% to 20%
- **Type 3:** 21% to 26%

2 References

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

2.1 External Standards/Specifications.

ISO 62	ISO 527-1	ISO 1172	ISO 3451/1
ISO 178	ISO 527-2	ISO 1183	ISO 11359-2
ISO 180/U	ISO 604	ISO 2577	ISO 11469
ISO 527			

2.2 GM Standards/Specifications.

GMW3059	GMW14797	GMW16172	GMW17572
GMW3221	GMW15921		

2.3 Additional References. None.

3 Requirements

3.1 Requirements on Test Specimens. Reference GMW3221. Tests shall be conducted using the latest issue of the test methods indicated. Suitable precautions shall 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.

3.1.1 Properties shall be determined using test specimens router cut from injection molded plaques. These plaques shall be molded using the mold temperatures, mold pressures and cure cycles as recommended by the resin supplier. Use the mold configuration shown in Appendix A, Figure A1. Plaques shall be 2.5 mm $\pm$ 0.1 mm thick. Weight variation between plaques shall not exceed $\pm$ 3.0%. Do not use the area (50 mm parallel $\times$ 120 mm perpendicular to the flow) adjacent to the gate.

3.1.2 Raw materials used for molding shall be within their vendor defined shelf life. Plaques shall be uniform in appearance and free from blisters, pregels, knit lines, cracks and surface contamination. Porosity shall be

one (1) pit maximum per 625 mm². Surfaces shall also be free of external mold release (if external mold release is utilized, mold and scrap a minimum of three (3) plaques before using any plaques for testing).

3.1.3 An equal number of test specimens shall be cut from both the longitudinal and transverse plaque directions for each mechanical property. The specimens shall be tested and the results averaged. The average value is the material property value. This value is compared to the required value shown in Table 1.

3.1.4 Tests shall be conducted 40 h minimum after molding and immediately following a conditioning period of 24 h minimum at 22 °C ± 3 °C and 50% ± 5% relative humidity (RH) unless otherwise specified. All testing shall be done on unannealed samples.

3.2 Compound Properties.

3.2.1 Compound Certification. Material suppliers must certify molding compound properties to the specific GM Test Sampling Plan approved for their material.

3.2.2 Compound Properties (Natural, Gray and Black). See Table 1.