



Standard Specification for Polybutylene (PB) Plastics Molding and Extrusion Materials¹

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1. Scope

1.1 This specification provides for the identification of polybutylene plastics molding and extrusion materials in such manner that the manufacturer and the purchaser can agree on the acceptability of different lots or shipments. The tests involved in this specification are intended to provide information for identifying materials according to types and categories. It is not the function of this specification to provide specific engineering data for design purposes.

1.2 The values stated in SI units are to be regarded as the standard. The values given in parentheses are for information only.

NOTE 1—There is no similar or equivalent ISO standard.

1.3 The following safety hazards caveat pertains only to the test methods portion, Section 9, of this specification: *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:

- D 618 Practice for Conditioning Plastics and Electrical Insulating Materials for Testing²
- D 638 Test Method for Tensile Properties of Plastics²
- D 792 Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement²
- D 1238 Test Method for Flow Rates of Thermoplastics by Extrusion Plastometer²
- D 1505 Test Method for Density of Plastics by the Density-Gradient Technique²
- D 1603 Test Method for Carbon Black in Olefin Plastics²
- D 1898 Practice for Sampling of Plastics²
- D 3892 Practice for Packaging/Packing of Plastics³
- D 5033 Guide for the Development of Standards Relating to the Proper Use of Recycled Plastics⁴

2.2 Military Standard:

MIL-STD-105 Sampling Procedures and Tables for Inspection by Attributes⁵

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

3.1.1 *internal recycled material*—clean rework material generated from the manufacturer's own resin production.

3.1.2 *polybutylene plastics*—plastics prepared by the polymerization of no less than 85 % butene-1 and no less than 95 % of total olefins by weight.

4. Classification

4.1 This specification recognizes that polybutylene plastics are identified on the basis of two characteristics, that is, density and flow rate. The former is the criterion for assignment as to type, the latter for designation as to category.

4.2 *Types*—This specification provides for two types of polybutylene molding and extrusion materials in accordance with the requirements in Table 1. Material supplied under these types shall be of such nominal density, within the ranges given, as agreed upon between the manufacturer and the purchaser and subject to tolerances likewise agreed upon.

4.3 *Categories*—This specification provides for six grades of polybutylene on the basis of flow rate ranges in accordance with the requirements of Table 2. Material supplied under these grades shall be of such nominal flow rate, within the ranges given, as agreed upon between the manufacturer and the purchaser and subject to tolerances likewise agreed upon.

4.4 *Classes*—Each of the two types is subdivided into three classes, according to use and composition, as follows:

4.4.1 *Class A*—General-purpose and dielectric, unpigmented.

4.4.2 *Class B*—General-purpose and dielectric, in colors (including black and white).

4.4.3 *Class C*—Weather-resistant (black) containing not less than 2 % carbon black. The carbon black shall be of a kind and particle size (Note 1), and dispersed by such means and to such degree, as agreed upon between the manufacturer and the purchaser.

NOTE 2—Carbon black, 20 nm or less in average particle diameter, is used, as required, in black electrical and jacketing materials to impart maximum weather resistance.

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² Annual Book of ASTM Standards, Vol 08.01.

³ Annual Book of ASTM Standards, Vol 08.02.

⁴ Annual Book of ASTM Standards, Vol 08.03.

⁵ Available from Standardization Documents Order Desk, Bldg. 4 Section D, 700 Robbins Ave., Philadelphia, PA 19111-5094, Attn: NPODS.