



Standard Specification for Physical Properties of Polyethylene Corrugated Gravity Flow (non-pressure) Pipe and Fittings with Recycled Content¹

This standard is issued under the fixed designation F3556; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This specification covers the identification of minimum physical properties of polyethylene corrugated pipe and fittings products both with recycled polyethylene content (post-consumer or post-industrial) and without recycled content. It is not the function of this specification to provide specific engineering data for design purposes, to specify manufacturing tolerances, or to determine suitability for use for a specific application.

1.2 Polyethylene corrugated pipe and fittings, being thermoplastic, are re-processable and recyclable (Note 2). This specification allows for the manufacture of these products with recycled polyethylene content, provided the minimum performance requirements of this specification are met.

1.3 The polyethylene corrugated gravity flow (non-pressure) pipe and fittings products to which this standard is to be applied are only fully formulated during the extrusion or molding process. It is in this process where the recycled polyethylene materials are used either alone or blended with virgin (unpigmented) polyethylene materials and combined with color concentrates/masterbatches or other additives. The requirements presented in this document apply to the final formulated/manufactured pipe and fittings products.

NOTE 1—The notes in this specification are for information only and shall not be considered part of this specification.

NOTE 2—See Guide ISO 15270 for information and definitions related to recycled plastics.

1.4 Quality-control measures are to be taken by manufacturers. See Annex A1 for general requirements on quality control.

NOTE 3—There is no known ISO equivalent to this standard.

1.5 The values stated in SI units are to be regarded as standard. The values given in parentheses are mathematical conversions to inch-pound units and are given for informational purposes only.

¹ This specification is under the jurisdiction of ASTM Committee F17 on Plastic Piping Systems and is the direct responsibility of Subcommittee F17.26 on Olefin Based Pipe.

Current edition approved May 1, 2024. Published May 2024. DOI: 10.1520/F3556-24

1.6 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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.

1.7 This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.

2. Referenced Documents

2.1 ASTM Standards:²

- D618 Practice for Conditioning Plastics for Testing
- D638 Test Method for Tensile Properties of Plastics
- D790 Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials
- D792 Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement
- D1505 Test Method for Density of Plastics by the Density-Gradient Technique
- D4218 Test Method for Determination of Carbon Black Content in Polyethylene Compounds by the Muffle-Furnace Technique
- D4703 Practice for Compression Molding Thermoplastic Materials into Test Specimens, Plaques, or Sheets
- D4883 Test Method for Density of Polyethylene by the Ultrasound Technique
- F412 Terminology Relating to Plastic Piping Systems
- F2136 Test Method for Notched, Constant Ligament-Stress (NCLS) Test to Determine Slow-Crack-Growth Resistance of HDPE Resins or HDPE Corrugated Pipe
- F3181 Test Method for The Un-notched, Constant Ligament Stress Crack Test (UCLS) for HDPE Materials Containing

² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.