



Standard Specification for Thermoplastic Gas Pressure Pipe, Tubing, and Fittings¹

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This standard has been approved for use by agencies of the Department of Defense.

1. Scope

1.1 This specification covers requirements and test methods for material (see Appendix X1) dimensions and tolerances, hydrostatic burst strength, chemical resistance, and impact resistance of plastic pipe, tubing, and fittings for use in fuel gas mains and services for direct burial and reliner applications. The annexes provide specific requirements and test methods for each of the materials currently approved. If and when additional materials are available, specific annex requirements will be added. The pipe and fittings covered by this specification are intended for use in the distribution of natural gas. Requirements for the qualifying of polyethylene systems for use with liquefied petroleum gas are covered in Annex A1.

1.1.1 This specification does not cover threaded pipe. Design considerations are discussed in Appendix X2. In-plant quality control programs are specified in Annex A3 and Annex A4.

1.2 The text of this specification references notes, footnotes, and appendixes which provide explanatory material. These notes and footnotes (excluding those in tables and figures) shall not be considered as requirements of the specification.

1.3 The values stated in inch-pound units are to be regarded as the standard. The values given in parentheses are provided for information purposes only.

1.4 The following is an index of the annexes and appendixes in this specification:

Annex	Subject
A1	Polyethylene (PE) Pipe and Fittings
A2	Poly (Vinyl Chloride) (PVC) Pipe and Fittings
A3	In-Plant Quality Control for all materials up to 12 in.
A4	In-Plant Quality Control for PE materials between 14 and 24 in.
A5	Polyamide (PA) Pipe and Fittings
A6	Magnetic-detectable Polyethylene Pipe
Appendixes	Subject
X1	New Materials
X2	Design Consideration

1.5 The following precautionary caveat pertains only to the test method portion, Section 6, 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:

2.1.1 Terminology:

D 1600 for Abbreviated Terms Relating to Plastics²

F 412 Relating to Plastic Piping Systems³

2.1.2 Test Methods for:

D 638 Tensile Properties of Plastics²

D 1238 Melt Flow Rates of Thermoplastics by Extrusion Plastometer²

D 1598 Time-to-Failure of Plastic Pipe Under Constant Internal Pressure³

D 1599 Resistance to Short-Time Hydraulic Pressure of Plastic Pipe, Tubing, and Fittings³

D 2122 Determining Dimensions of Thermoplastic Pipe and Fittings³

D 2290 Apparent Hoop Tensile Strength of Plastic or Reinforced Plastic Pipe by Split Disk Method³

D 2837 Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials³

F 1473 Notch Tensile Test to Measure the Resistance to Slow Crack Growth of Polyethylene Pipes and Resins³

2.1.3 Practices for:

D 543 Evaluating the Resistance of Plastics to Chemical Reagents²

D 618 Conditioning Plastics for Testing²

D 1898 Sampling of Plastics⁴

D 2657 Heat Fusion Joining of Polyolefin Pipe and Fittings³

D 2774 Underground Installation of Thermoplastic Pressure Piping³

F 699 Accelerated Conditioning of Polybutylene Pipe and Tubing for Subsequent Quality Control Testing³

2.1.4 Specification for:

F 1563 Tools to Squeeze-off Polyethylene (PE) Gas Pipe or Tubing³

¹ This specification is under the jurisdiction of ASTM Committee F17 on Plastic Piping Systems and is the direct responsibility of Subcommittee F17.60 on Gas.

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² *Annual Book of ASTM Standards*, Vol 08.01.

³ *Annual Book of ASTM Standards*, Vol 08.04.

⁴ Discontinued; see 1997 *Annual Book of ASTM Standards*, Vol 08.01.