



Standard Specification for Polybutylene (PB) Plastic Hot- and Cold-Water Distribution Systems¹

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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, test methods, and methods of marking for polybutylene plastic system components made in one standard dimension ratio and intended for 0.69 MPa (100 psi) water service up to and including 82°C (180°F). These components comprise pipe and tubing, socket-fusion fittings, compression fittings, mechanical fittings, and plastic-to-metal transition fittings. Requirements and test methods are included for sustained, hydrostatic pressure strength, thermocycling resistance, joint strength, and dimensions and tolerances for pipe and socket fusion fittings. The components covered by this specification are intended for use in hot- and cold-water potable water service and distribution systems and such non-potable water applications as building services piping, water heating and cooling systems, fire sprinkler applications, and other miscellaneous applications involving the transport of water, ethylene glycol solutions, or other aqueous liquids shown not to adversely affect PB performance.

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 in SI units are the standard. The values stated in parentheses are for information only.

NOTE 1—Suggested hydrostatic design stresses and hydrostatic pressure ratings for pipe, tubing, and fittings are listed in Appendix X1. Design, assembly, and installation considerations are discussed in Appendix X2. An optional performance qualification and an in-plant quality control program are recommended in Appendix X3.

1.4 The following precautionary caveat pertains only to the test method portion, Section 7, 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 for Testing²
- D 1598 Test Method for Time-to-Failure of Plastic Pipe Under Constant Internal Pressure³
- D 1599 Test Method for Resistance to Short-Time, Hydraulic Pressure of Plastic Pipe, Tubing, and Fittings³
- D 1600 Terminology for Abbreviated Terms Relating to Plastics²
- D 1708 Test Method for Tensile Properties of Plastics by Use of Microtensile Specimens²
- D 1784 Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds²
- D 1898 Practice for Sampling of Plastics²
- D 2122 Test Method for Determining Dimensions of Thermoplastic Pipe and Fittings³
- D 2581 Specification for Polybutylene (PB) Plastics Molding and Extrusion Materials⁴
- D 2749 Symbols for Dimensions of Plastic Pipe Fittings³
- D 2837 Test Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials³
- D 3915 Specification for Rigid Poly (Vinyl Chloride) (PVC) and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds for Plastic Pipe and Fittings Used in Pressure Applications⁵
- D 4181 Specification for Acetal (POM) Molding and Extrusion Materials⁵
- F 412 Terminology Relating to Plastic Piping Systems³
- F 699 Practice for Accelerated Conditioning of Polybutylene Pipe and Tubing for Subsequent Quality Control Testing³
- F 948 Test Method for Time-to-Failure of Plastic Piping Systems and Components Under Constant Internal Pressure With Flow³

2.2 ANSI Standards:

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² Annual Book of ASTM Standards, Vol 08.01.

³ Annual Book of ASTM Standards, Vol 08.04.

⁴ Annual Book of ASTM Standards, Vol 08.03.

⁵ Annual Book of ASTM Standards, Vol 08.02.