



Standard Specification for Corrugated Polyethylene (PE) Pipe and Fittings¹

This standard is issued under the fixed designation F 405; 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.

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 materials, marking dimensions, workmanship, elongation, brittleness, pipe stiffness, and perforations for corrugated polyethylene (PE) pipe and fittings in nominal sizes of 3 to 6 in., inclusive.

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

NOTE 1—Sizes 8 to 15 in. are described in Specification F 667.

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

1.4 The following precautionary caveat pertains only to the test methods portion, Section 8, 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 1248 Specification for Polyethylene Plastics Molding and Extrusion Materials²

D 1600 Terminology for Abbreviated Terms Relating to Plastics²

D 2122 Test Method for Determining Dimensions of Thermoplastic Pipe and Fittings³

D 2412 Test Method for Determination of External Loading Characteristics of Plastic Pipe by Parallel-Plate Loading³

¹ This specification is under the jurisdiction of ASTM Committee F-17 on Plastic Piping Systems and is the direct responsibility of Subcommittee F17.65 on Land Drainage.

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² Annual Book of ASTM Standards, Vol 08.01.

³ Annual Book of ASTM Standards, Vol 08.04.

F 412 Terminology Relating to Plastic Piping Systems³

F 667 Specification for Large Diameter Corrugated Polyethylene Pipe and Fittings³

3. Terminology

3.1 *Definitions*—Definitions are in accordance with Terminology F 412, and abbreviations are in accordance with Terminology D 1600, unless otherwise specified. The abbreviation for polyethylene is PE.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *crack*—any break or split that extends through the wall.

3.2.2 *crease*—a deformation that cannot be removed like a dent; generally associated with wall buckling.

4. Significance and Use

4.1 Corrugated PE pipe and fittings are intended for underground applications where soil support is given to the flexible walls. Their major uses are in soil drainage and septic field leach beds (see appendix for installation guidelines).

4.2 Corrugated fittings complying with the requirements of this specification may be used with either standard or heavy-duty pipe as defined by the requirements of Table 1.

5. Materials

5.1 *General*—Compounds used in the manufacture of corrugated PE drainage pipe and fittings shall conform with the requirements of Grade P14 Class C, Grade P23 Class C, Grade P33 Class C, or Grade P34 Class C, as defined and described in Specification D 1248.

NOTE 2—Class B pigments may be substituted for Class C provided that ultraviolet protection is acceptable to the purchaser as satisfactory for the intended use.

5.2 *Rework Material*—The manufacturer shall use only his own clean pipe or fitting rework material; the pipe and fittings produced shall meet all the requirements of this specification.

6. Requirements

6.1 The pipe and fittings shall be homogeneous throughout and free of foreign inclusions or visible defects. The pipe and fittings shall be as uniform as commercially practicable in color, opacity, density, and other physical properties. The ends