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An American National Standard

Standard Specification for Polyethylene/Aluminum/Polyethylene (PE-AL-PE) Composite Pressure Pipe[1]

This standard is issued under the fixed designation F 1282; 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.

ϵ^1 NOTE—Sections 1.1, 5.3.3.1, 9.6.2 and X2.2 were editorially updated and Section 6.6.2 and Note A2.1 were reinstated in July 2002.

1. Scope

1.1 This specification covers a coextruded polyethylene composite pressure pipe with a welded aluminum tube reinforcement between the inner and outer layers. The inner and outer polyethylene layers are bonded to the aluminum tube by a melt adhesive. Included is a system of nomenclature for the polyethylene-aluminum-polyethylene (PE-AL-PE) pipes, the requirements and test methods for materials, the dimensions and strengths of the component tubes and finished pipe, adhesion tests, and the burst and sustained pressure performance. Also given are the requirements and methods of marking. The pipe covered by this specification is intended for use in potable water distribution systems for residential and commercial applications, water service, underground irrigation systems, and radient panel heating systems, baseboard, snow- and ice-melt systems, and gases that are compatible with composite pipe and fittings.

1.2 This specification relates only to metal and plastic composite pipes incorporating a welded metallic tube. The welded metallic tube of itself is capable of sustaining internal pressures. Pipes consisting of metallic layers not welded together are outside the scope of this specification.

1.3 Specifications for connectors for use with pipe meeting the requirements of this specification are given in Annex A1.

1.4 This specification excludes crosslinked polyethylene-aluminum-crosslinked polyethylene pipes (see Specification F 1281).

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

1.6 The following precautionary 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 for Testing[2]

D 1248 Specification for Polyethylene Plastics Extrusion Materials for Wire and Cable[2]

D 1598 Test Method for Time-to-Failure of Plastic Pipe Under Constant Internal Pressure[3]

D 1599 Test Method for Resistance to Short-Time Hydraulic Pressure of Plastic Pipe, Tubing, and Fittings[3]

D 1600 Terminology for Abbreviated Terms Relating to Plastics[2]

D 1898 Practice for Sampling of Plastics[2]

D 2104 Specification for Polyethylene (PE) Plastic Pipe, Schedule 40[3]

D 2122 Test Method for Determining Dimensions of Thermoplastic Pipe and Fittings[3]

D 2837 Test Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials[3]

D 3035 Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Controlled Outside Diameter[3]

D 3350 Specification for Polyethylene Plastics Pipe and Fittings Materials[4]

E 8 Test Methods for Tension Testing of Metallic Materials[5]

F 412 Terminology Relating to Plastic Piping Systems[3]

F 1281 Specification for Crosslinked Polyethylene/Aluminum/Crosslinked Polyethylene (PEX-AL-PEX) Pressure Pipe[3]

F 1974 Specification for Metal Insert Fittings for Polyethylene/Aluminum/Polyethylene and Crosslinked Polyethylene/Aluminum/Crosslinked Polyethylene Composite Pressure Pipe[3]

2.2 *NSF Standard:*

[1] This specification is under the jurisdiction of ASTM Committee F17 on Plastic Piping Systems and is the direct responsibility of Subcommittee F17.11 on Composite.

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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 03.01.

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