



Standard Specification for Electrofusion Type Polyethylene Fittings for Outside Diameter Controlled Polyethylene Pipe and Tubing¹

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1. Scope

1.1 This specification covers electrofusion polyethylene fittings for use with outside diameter-controlled polyethylene pipe, covered by Specifications D 2447, D 2513, D 2737, D 3035, and F 714. Requirements for materials, workmanship, and testing performance are included. Where applicable in this specification “pipe” shall mean “pipe” or “tubing.”

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

1.3 The following safety hazards caveat pertains only to the test method 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 and Electrical Insulating Materials for Testing²
- D 638 Test Method for Tensile Properties of Plastics²
- D 1248 Specification for Polyethylene Plastics Molding and Extrusion Materials²
- D 1598 Test Method for Time-to-Failure of Plastic Pipe Under Constant Internal Pressure³
- D 1599 Test Method for Short-Time Hydraulic Failure Pressure of Plastic Pipe, Tubing, and Fittings³
- D 1600 Terminology Relating to Abbreviations, Acronyms, and Codes for Terms Relating to Plastics²
- D 2122 Test Method for Determining Dimensions of Thermoplastic Pipe and Fittings³
- D 2447 Specification for Polyethylene (PE) Plastic Pipe, Schedules 40 and 80, Based on Outside Diameter³
- D 2513 Specification for Thermoplastic Gas Pressure Pipe, Tubing, and Fittings³
- D 2737 Specification for Polyethylene (PE) Plastic Tubing³

D 3035 Specification for Polyethylene (PE) Plastic Pipe (SDR-PR) Based on Controlled Outside Diameter³

D 3350 Specification for Polyethylene Plastic Pipe and Fittings Materials⁴

F 412 Terminology Relating to Plastic Piping Systems³

F 714 Specification for Polyethylene (PE) Plastic Pipe (SDR-PR) Based on Outside Diameter³

F 905 Practice for Qualification of Polyethylene Saddle Fusion Joints³

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.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *electrofusion*—a heat fusion joining process where the heat source is an integral part of the fitting, such that when electric current is applied, heat is produced that melts and joins the plastics.

3.2.2 *fusion interface*—surface in the heat fusion process where the plastic materials of the products being joined bond together.

3.2.3 *fusion zone length*—total length of the melted material in the fitting cross-section under evaluation.

4. Materials and Manufacture

4.1 This specification covers fittings made from polyethylene compounds as defined in Specifications D 1248 or D 3350.

4.2 *Rework Material*—Clean rework polyethylene material of the same resin, free of any wire or contaminants generated from the fitting manufacturer’s own production, may be used by the same manufacturer, as long as the fittings produced conform to the requirements of this specification.

4.3 *Heating Mechanism*—The heat mechanism shall be of materials not detrimental to the performance of the fitting or the pipe to which it is intended to be joined.

5. Performance Requirements

5.1 The following requirements are for electrofusion joints that have been joined using the manufacturer’s recommended joining procedures. These requirements must be met by each electrofusion joint design, on each size and type of pipe

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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 08.02.