



Standard Specification for Coextruded Composite Drain, Waste, and Vent Pipe (DWV)¹

This standard is issued under the fixed designation F1499; 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.

1. Scope*

1.1 This specification covers coextruded composite drain, waste, and vent pipe (DWV). The pipe is produced in Schedule 40 IPS sizes by a coextrusion die system, in which the concentric layers are formed and combined before exiting the die.

1.1.1 Coextruded composite drain, waste, and vent pipe, DWV, by definition, is permitted to be produced with two or more layers. The outer layer shall be ABS. The middle layer is permitted to be thermally foamed PVC or solid PVC or a blend of rework material, as specified in the rework material section. The inner layer is permitted to be solid PVC or ABS, or a blend of rework material as specified in the rework material section.

1.1.2 The function of this specification is to provide standardization of product, technical data, and serve as a purchasing guide.

1.2 DWV is permitted to be produced utilizing a two layer or three layer coextrusion die.

1.3 Materials that do not meet the requirements of the material section are excluded.

1.4 Pipe produced to this specification is permitted to be joined using molded fittings meeting the requirements of Specification D2661 or Specification F628. The fitting patterns must comply with Specification D3311.

1.5 Pipe produced to this specification is permitted to be perforated in accordance with any specified standard or by agreement between the purchaser and the supplier.

1.6 Pipe produced to this specification is permitted to be belled for joining by solvent cementing or belled for joining by an elastomeric seal (gasket), in accordance with any specified standard or by agreement between the purchaser and the supplier.

1.7 Recommendations for storage, joining, and installation are provided in Appendix X1, Appendix X2, and Appendix X3, respectively.

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

1.9 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 this specification.

NOTE 1—Specifications related to this specification are as follows: Specifications D2661, D2665, F628, and F891.

1.10 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

1.11 *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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.12 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 The following standards contain provisions that, though referenced in this specification, constitute provisions of this specification. All standards are subject to revision and parties using this specification, shall reference the most recent edition of the standards listed as follows:

2.2 ASTM Standards:²

D618 Practice for Conditioning Plastics for Testing

D696 Test Method for Coefficient of Linear Thermal Expansion of Plastics Between –30°C and 30°C with a Vitreous Silica Dilatometer

D883 Terminology Relating to Plastics

¹ This specification is under the jurisdiction of ASTM Committee F17 on Plastic Piping Systems and is the direct responsibility of Subcommittee F17.63 on DWV.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

- D1600** Terminology for Abbreviated Terms Relating to Plastics
- D1784** Classification System and Basis for Specification for Rigid Poly(Vinyl Chloride) (PVC) Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds
- D2122** Test Method for Determining Dimensions of Thermoplastic Pipe and Fittings
- D2235** Specification for Solvent Cement for Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe and Fittings
- D2321** Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications
- D2412** Test Method for Determination of External Loading Characteristics of Plastic Pipe by Parallel-Plate Loading
- D2444** Practice for Determination of the Impact Resistance of Thermoplastic Pipe and Fittings by Means of a Tup (Falling Weight)
- D2661** Specification for Acrylonitrile-Butadiene-Styrene (ABS) Schedule 40 Plastic Drain, Waste, and Vent Pipe and Fittings
- D2665** Specification for Poly(Vinyl Chloride) (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings
- D3311** Specification for Drain, Waste, and Vent (DWV) Plastic Fittings Patterns
- D3965** Classification System and Basis for Specifications for Rigid Acrylonitrile-Butadiene-Styrene (ABS) Materials for Pipe and Fittings
- D4000** Classification System for Specifying Plastic Materials
- E105** Guide for Probability Sampling of Materials
- E122** Practice for Calculating Sample Size to Estimate, With Specified Precision, the Average for a Characteristic of a Lot or Process
- F402** Practice for Safe Handling of Solvent Cements, Primers, and Cleaners Used for Joining Thermoplastic Pipe and Fittings
- F412** Terminology Relating to Plastic Piping Systems
- F628** Specification for Acrylonitrile-Butadiene-Styrene (ABS) Schedule 40 Plastic Drain, Waste, and Vent Pipe With a Cellular Core
- F891** Specification for Coextruded Poly(Vinyl Chloride) (PVC) Plastic Pipe With a Cellular Core

2.3 Federal Standard:

Fed. Std. No. 123 Marking for Shipments (Civil Agencies)³

2.4 Military Standard:

MIL-STD-129 Marking for Shipment and Storage³

2.5 ANSI Standard:

ANSI Z 34.1 American National Standard for Certification-Third-Party Program⁴

ANSI Z 34.2 American National Standard for Certification-Self-Certification by Producer or Supplier⁴

3. Terminology

3.1 Definitions:

3.1.1 Definitions are in accordance with Terminology **D883** and **F412**. Abbreviations are in accordance with Terminology **D1600**. Plastic materials are classified in accordance with Classification **D4000**.

3.1.2 *coextruded pipe*—pipe consisting of two or more concentric layers of material bonded together in processing by any combination of temperature, pressure, grafting, crosslinking, or adhesion.

3.1.3 *compound*—a mixture of a polymer with other ingredients such as inert fillers, stabilizers, catalysts, processing aids, lubricants, impact modifiers, pigments, or curing agents.

3.1.4 *out-of-roundness*—the allowed difference between the maximum measured diameter and the minimum measured diameter (stated as an absolute deviation).

3.1.5 *thermally foamed plastic*—a cellular plastic produced by applying heat to effect gaseous decomposition or volatilize of a constituent. (1985)

3.1.6 *virgin plastic, (adj)*—materials in the form of pellets, granules, powder, floc, or liquid that has not been subjected to use or processing other than that required for its initial manufacture. (1985)

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *ABS/PVC*—an acronym for a blend of acrylonitrile-butadiene-styrene and poly vinyl chloride.

3.2.2 *lot*—a lot shall consist of all pipe produced, of one size, from one extrusion line, during one designated 24-h period.

3.2.3 *rework material*—a blend of the different materials generated from coextruded composite drain, waste, and vent pipe (DWV).

4. Classification

4.1 Coextruded composite drain, waste, and vent pipe, DWV, produced in compliance this specification will provide pipe suitable for the drainage and venting of sewage and certain other liquid wastes.

NOTE 2—Before installing coextruded composite pipe in an industrial waste disposal system, the approval of the cognizant building code authority should be obtained as conditions not commonly found in normal use may be encountered and temperatures in excess of 180 °F (82 °C) may be encountered.

5. Ordering Information

5.1 Orders for coextruded composite drain, waste, and vent pipe, DWV, produced in compliance with this specification should include the following:

- 5.1.1 This ASTM designation number, and the year of issue,
- 5.1.2 Pipe size,
- 5.1.3 Footage required of each size, and
- 5.1.4 Materials.

6. Materials and Manufacture

6.1 *Basic Compound*—Virgin compound for use in the outer layer of coextruded composite drain, waste, and vent pipe, DWV, shall contain pigments or screening agents to provide protection against UV radiation.

³ Available from Naval Publications and Forms Center, 5801 Tabor Ave., Philadelphia, PA 19120.

⁴ Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, <http://www.ansi.org>.