



Standard Specification for Rigid Poly(Vinyl Chloride) (PVC) Interior-Profile Extrusions¹

This standard is issued under the fixed designation D 3678; 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 approval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope *

1.1 This specification establishes requirements for the material properties, including dimensional stability and extrusion quality, of rigid, poly(vinyl chloride) (PVC) interior-profile extrusions. Methods for identifying interior-profile extrusions that comply with the requirements of this specification are provided.

1.2 Rigid PVC recycled plastic may be used in this product in accordance with the requirements in Sections 6 and 7.

1.3 Rigid PVC compounds for interior building product applications are covered in Specification D 1784.

1.4 Rigid PVC exterior profile extrusions for assembled windows and doors are covered in Specification D 4726.

1.5 The text of this standard references notes and footnotes which provide explanatory material. These notes and footnotes (excluding those in Tables and Figures) shall not be considered as requirements of this standard.

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

NOTE 1—Information with regard to application should be obtained from the manufacturers of the profiles.

NOTE 2—There are no ISO standards covering the primary subject matter in this specification.

1.7 The following precautionary caveat pertains only to the test method 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 for Testing²

D 696 Test Method for Coefficient of Linear Thermal Expansion of Plastics Between -30°C and 30°C with a vitreous Silica Dilatometer²

D 883 Terminology Relating to Plastics²

D 1042 Test Method for Linear Dimensional Changes of Plastics Under Accelerated Service Conditions²

D 1600 Terminology for Abbreviated Terms Relating to Plastics²

D 1784 Specification for Rigid Poly(Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds²

D 2152 Test Method for Adequacy of Fusion of Extruded Poly(Vinyl Chloride) (PVC) Pipe and Molded Fittings by Acetone Immersion³

D 3892 Practice for Packaging/Packing of Plastics⁴

D 4726 Specification for White Rigid Poly (Vinyl Chloride) (PVC) Exterior Profile Extrusions Used for Assembled Windows and Doors³

D 5033 Guide for the Development of ASTM Standards Relating to Recycling and Use of Recycled Plastics⁵

E 631 Terminology of Building Constructions⁶

3. Terminology

3.1 *General*—Definitions are in accordance with Terminology D 883 or Terminology E 631 and abbreviations with Terminology D 1600, unless otherwise indicated.

4. Significance and Use

4.1 The purpose of this specification is to establish on a national basis, a recognized standard of quality for rigid poly(vinyl chloride) (PVC) interior-profile extrusions for interior use other than cellular products, piping, tubing, and window and door profiles used in finished building products. The information contained in this standard is intended to be helpful to producers, distributors, and users, and to promote understanding between buyers and sellers. It is also intended to serve as the basis for requirements on finished interior building

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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.

⁵ *Annual Book of ASTM Standards*, Vol 08.03.

⁶ *Annual Book of ASTM Standards*, Vol 04.11.

*A Summary of Changes section appears at the end of this standard.

products which are either made from or employ rigid PVC profile extrusions in their construction.

5. Classification

5.1 This standard covers three classes of rigid PVC interior-profile extrusions as follows:

- Class 1*—Normal impact
- Class 2*—Intermediate impact
- Class 3*—High impact

6. Materials and Manufacture

6.1 This specification covers profile extrusions made from plastics conforming to the requirements of Specification D 1784. Class 1 extrusions shall meet the requirements specified in Specification D 1784 for Class 12454 compound. Class 2 extrusions shall meet the requirements for Class 14323 compound. Class 3 extrusions shall meet the requirements for Class 1-40031-54-0000 compound. Refer to Table 1 in Specification D 1784.

6.2 Rigid PVC recycled plastic, as defined in Guide D 5033, may be used in this product if all the requirements in the sections on Materials and Manufacture (Section 6), and on Physical Requirements (Section 7) are met by the extrusions containing PVC recycled plastic.

6.3 All Class compounds shall have a minimum coefficient of linear expansion of 10×10^{-5} cm/cm/°C (5.5×10^{-5} in./in./°F).

NOTE 3—Non-PVC materials may be used as a capstock.

6.4 *Rework Material*—Clean, homogeneous PVC rework material or rework material containing PVC capstock generated from the manufacturer's own production of the same class compound may be used by the same manufacturer providing that the extruded profiles meet all the requirements of this specification. Clean principally PVC rework material containing non-PVC capstock may be used only in the substrate of a capstocked product by the same manufacturer, providing that the extruded profiles meet all of the requirements of this specification.

6.5 The PVC compound in extruded section shall maintain uniform color and be free of any visual surface or structural changes, such as peeling, chipping, cracking, flaking, or pitting.

7. Physical Requirements

7.1 *Dimensions*—The size, thickness, and dimensional tolerances of the interior-profile extrusions shall be as agreed upon between the supplier and purchaser.

7.2 *Dimensional Stability*—The dimensional stability of the interior-profile extrusions shall be determined in the extrusion direction in accordance with 8.5. Extrusions over 1.02 mm (0.040 in.) in thickness shall have a maximum shrinkage of 2.2 %; those of 1.02-mm (0.040-in.) thickness or less shall have a 3.0 % maximum shrinkage.

7.3 *Extrusion Quality*—The extrusion quality of Class 1 extrusions shall be determined by immersion in anhydrous acetone in accordance with the requirements of 8.6. Specimens of extrusions having not more than 25 % surface attack shall be considered as adequately fused and of satisfactory quality. The

extrusion qualities of Class 2 and Class 3 extrusions shall be as agreed upon between the supplier and purchaser.

8. Test Methods

8.1 *General*—Use the inspection and test procedures contained in this section to determine the conformance of products to the requirements of this specification. Each producer or distributor who represents his products as conforming to this specification may utilize statistically based sampling plans that are appropriate for each particular manufacturing process, but shall keep such essential records as are necessary to document with a high degree of assurance his claim that all of the requirements of this specification have been met. Additional sampling and testing of the product, as may be agreed upon between supplier and purchaser, is not precluded by this section.

8.2 *Visual Inspection*—Visually examine the interior-profile extrusions to determine their compliance with the requirements of 6.5.

8.3 *Conditioning of Specimens*—Condition the test specimens in accordance with Procedure A of Practice D 618, except that the minimum conditioning time shall be 24 h.

8.4 *Test Conditions*—Conduct the tests the Standard Laboratory Atmosphere of $23 \pm 1^\circ\text{C}$ ($73.4 \pm 2^\circ\text{F}$) and $50 \pm 5\%$ relative humidity, unless otherwise specified in the applicable test method.

8.5 *Dimensional Stability*—Determine the dimensional stability in accordance with Test Method D 1042, except that the test cycle shall consist of heating the specimens for 30 min in a uniformly heated oven at a temperature of $82 \pm 0.6^\circ\text{C}$ ($180 \pm 1^\circ\text{F}$).

8.6 *Extrusion Quality*—Determine the extrusion quality in accordance with Test Method D 2152, except that the test specimens shall be 25.40 to 50.80 mm (1 to 2 in.) in length and sufficient in number to ensure testing the complete cross section. In the test procedure described, the interior-profile extrusions will normally swell and soften in contact with anhydrous acetone. In some cases there may be surface attack. Disintegration is defined as complete separation of flakes or pieces from the body of the extrusion.

8.7 *Coefficient of Linear Expansion*—Conduct this test in accordance with Test Method D 696.

9. Product Marking

9.1 In order that purchasers may identify products conforming to all requirements of this specification, producers and distributors may include a statement of compliance in conjunction with their name and address on product labels, invoices, sales literature, and the like. The following statement is suggested when sufficient space is available:

“The product conforms to all of the requirements established in ASTM D 3678, developed cooperatively with the industry and published by ASTM.”

“Full responsibility for the conformance of this product to this specification is assumed by (name and address of producer or distributor).”

9.2 The following abbreviated statement is suggested when available space on labels is insufficient for the full statement:

“Conforms to ASTM D 3678 (name and address of producer or distributors).”

9.3 All packing, packaging, and marking provisions of Practice D 3892 shall apply to this specification.

10. Packaging

10.1 The interior-profile extrusions shall be packaged in such a manner as to provide reasonable protection against damage in ordinary handling and transportation.

11. Keywords

11.1 building products; extrusion; interior profile extrusions; recycled plastic; rigid poly(vinyl chloride)

SUMMARY OF CHANGES

Committee D-20 has identified the location of the following changes to this standard since the last issue (D 3678–96) that may impact the use of this standard.

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| (1) Added reference to related standards in Scope. | (4) Added provision for rework and visual inspection requirements (6.4 and 6.5). |
| (2) Added paragraph 1.5 regarding notes. | (5) Allowed non-PVC capstock (Note 3). |
| (3) Added coefficient of expansion requirement (6.3). | |

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