



Designation: D6263 – 15

Standard Specification for Extruded Rods and Bars Made From Rigid Poly(Vinyl Chloride) (PVC) and Chlorinated Poly(Vinyl Chloride) (CPVC)¹

This standard is issued under the fixed designation D6263; 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.

INTRODUCTION

This specification is intended to be a means of calling out mechanical grade plastic product used in the fabrication of end items or parts.

1. Scope*

1.1 This specification covers requirements and test methods for the material, dimensions, and workmanship, and the properties of extruded shapes of rods and bars made from poly(vinyl chloride) (PVC), and chlorinated poly(vinyl chloride) (CPVC).

1.2 The properties included in this specification are those required for the compositions covered. Use the classification system given in Section 4 to describe requirements necessary to identify particular characteristics important to specialized applications.

1.3 This specification allows for the use of regrind and recycled plastics as defined in Guide D7209 providing: products produced from regrind or recycled PVC material can be shown to meet the requirements of this standard with regard to material classification, physical performance, dimensions and workmanship; and the regrind or recycled plastics used have not been subjected to severe environments in post consumer applications (such as chemical service) which could adversely affect the end products performance when subjected to machining or critical applications or both.

1.4 The values are stated in inch-pound units and are regarded as the standard in all property and dimensional tables. For reference purposes, SI units are also included in Table 1 only.

1.5 The following safety hazards caveat pertains only to the test method portions section 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.

NOTE 1—There is no known ISO equivalent to this standard.

2. Referenced Documents

2.1 ASTM Standards:²

- D256 Test Methods for Determining the Izod Pendulum Impact Resistance of Plastics
- D618 Practice for Conditioning Plastics for Testing
- D638 Test Method for Tensile Properties of Plastics
- D790 Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials
- D883 Terminology Relating to Plastics
- D1784 Specification for Rigid Poly(Vinyl Chloride) (PVC) Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds
- D3892 Practice for Packaging/Packing of Plastics
- D7209 Guide for Waste Reduction, Resource Recovery, and Use of Recycled Polymeric Materials and Products (Withdrawn 2015)³

2.2 ANSI Standard:

- Z1.4-1993 Sampling Procedures and Tables for Inspection by Attributes⁴

¹ This specification is under the jurisdiction of ASTM Committee D20 on Plastics and is the direct responsibility of Subcommittee D20.15 on Thermoplastic Materials (Section D20.20.02).

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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.

³ The last approved version of this historical standard is referenced on www.astm.org.

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

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

2.3 *NSF Standard:*
NSF Standard 61⁵

3. Terminology

3.1 Definitions:

3.1.1 For definitions of other technical terms pertaining to plastics used in this specification, see Terminology **D883** or Guide **D7209**.

3.1.2 *regrind plastic, n*—a product or scrap such as sprues and runners and edge trim that have been reclaimed by shredding and granulating for use in-house.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *rod, n*—an extruded solid cylindrical shape with a minimum diameter of 0.125 in. (3.2 mm).

3.2.2 *tubular bar, n*—an extruded annular shape with minimum inside diameter of 0.375 in. (9.5 mm) and minimum wall thickness of 0.0625 in. (1.6 mm).

4. Classification and Material

4.1 Product shape and size as defined in the applicable purchase order.

4.2 This specification covers extruded product as listed in Tables S-PVC-I and S-PVC-II. Products included in the designations reference Specification **D1784** callouts where applicable.

4.2.1 Categorize the type of poly(vinyl chloride), and chlorinated poly(vinyl chloride) shape product by type, grade, and class depending on resin composition as defined in Table S-PVC-II.

4.3 The type, class and grade is further differentiated based on dimensional stability (elevated temperature excursion test). See Table S-PVC-II and dimensional requirements, Table A.

4.4 Property Tables:

4.4.1 Use Tables S-PVC-I and S-PVC-II to describe extruded products.

4.4.2 Use Table 1 also to describe extruded products not included in Table S-PVC-I or S-PVC-II via a cell callout that includes the applicable material type and specific properties (Designations 1 through 7).

4.4.3 To facilitate the incorporation of future or special materials not covered by Tables S-PVC-I and S-PVC-II, the “as specified” category (00) for type, class and grade is shown in the applicable table with the basic properties to be obtained from Table 1 as they apply.

4.5 *Callout Designation*—A one-line system shall be used to specify poly(vinyl chloride), or chlorinated poly(vinyl chloride) materials covered by this specification. The system uses pre-defined cells to refer to specific aspects of this specification as illustrated below:

4.5.1 Examples:

4.5.1.1 *Example 1*—Product made from general purpose poly(vinyl chloride):

CELL CALLOUT: S-PVC0111
 S-PVC01 = Product made from PVC in accordance with Table S-PVC-I and Table S-PVC-II
 1 = Unfilled class
 1 = General purpose grade product

4.5.1.2 *Example 2*—Product made from general purpose chlorinated poly(vinyl chloride):

CELL CALLOUT: S-CPVC0211
 S-PVC02 = Product made from CPVC in accordance with Tables S-PVC-I and S-PVC-II
 1 = Unfilled class
 1 = General purpose grade product

4.5.2 These two examples illustrate how a one-line, alpha-numeric sequence can identify the product composition, commercial parameters and physical characteristics of extruded product. A space must be used as a separator between the specification number and the type designation. No separators are needed between type, class, and grade. When special notes are to be included, such information shall be preceded by a comma. Special tolerances must be noted at time of order and are inserted after the grade in parenthesis and preceded by a comma.

4.5.2.1 The material used in the manufacture of PVC and CPVC shapes intended for contact with or the transport of potable water, or both, must be evaluated and certified as safe for this purpose by a testing agency acceptable to the local health authority. The evaluation shall be in accordance with the requirements for chemical extraction, taste, and odor, that are no less restrictive than those included in the National Sanitation Foundation (NSF) Standard 61.

5. Ordering Information

5.1 All shapes covered by this specification shall be ordered using the proper callout designation (see 4.5).

6. Physical Property Requirements

6.1 The physical property values listed within this specification’s tables are to be considered minimum specification values. Any requirement for specific test data for a given production lot shall be specified at the time of order. Use Table 1 to specify physical properties for extruded products not yet included in Table S-PVC-I or S-PVC-II.

7. Dimensional Requirements

7.1 The type, class, and grade is differentiated based on dimensional stability (elevated temperature excursion test) as indicated in Table S-PVC-II.

7.2 Products shall be produced within the commercial tolerances and with the lowest stress levels for machined parts as delineated in Table A.

7.3 Tubular bar dimensions shall be supplied in the unfinished condition, unless otherwise specified at time of order, sufficient to finish to the nominal dimensions ordered.

7.4 The maximum allowable camber at final inspection at the factory shall be within the limits referenced in Table A.

8. Workmanship, Finish, and Appearance

8.1 *Appearance*—The resin material color for poly(vinyl chloride) shall be dark gray. The resin material color for

⁵ Available from NSF International, P.O. Box 130140, 789 N. Dixboro Rd., Ann Arbor, MI 48113-0140, <http://www.nsf.org>.