



Designation: D2287 – 96 (Reapproved 2010)

Standard Specification for Nonrigid Vinyl Chloride Polymer and Copolymer Molding and Extrusion Compounds¹

This standard is issued under the fixed designation D2287; 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.

This standard has been approved for use by agencies of the Department of Defense.

1. Scope

1.1 This specification covers nonrigid vinyl chloride polymer and copolymer classes in which the resin portion of the composition contains at least 90 % vinyl chloride. The remaining 10 % may include one or more monomers copolymerized with vinyl chloride or consist of other resins mechanically blended with polyvinyl chloride or copolymers thereof.

1.2 These nonrigid vinyl compounds are defined by a hardness range and include the necessary stabilizers, plasticizers, fillers, dyes, and pigments to meet the designated requirements.

1.3 This specification includes nonrigid vinyl chloride compounds recommended for compression molding, injection molding, and extrusion, but it must be recognized that particular compounds may not be suitable for all these means of fabrication.

NOTE 1—This standard is similar in content, but not technically equivalent to [ISO 2898-1:1986](#) and [ISO 2898-2:1989](#).

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

1.5 *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.*

1.6 The text of this specification 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 specification.

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.

Current edition approved Jan. 15, 2010. Published February 2010. Originally approved in 1964. Last previous edition approved in 2001 as D2287 - 96(2001).

This edition contains changes in 1.6 to accommodate BOCA requirements and to 1.7 and 14.1 to reference recycle plastics. DOI: 10.1520/D2287-96R10.

1.7 Recycle PVC plastics meeting the requirements of this specification may be used in some applications. Refer to the specific requirements in the Materials and Manufacture section of the applicable product standard.

2. Referenced Documents

2.1 ASTM Standards:²

D257 Test Methods for DC Resistance or Conductance of Insulating Materials

D412 Test Methods for Vulcanized Rubber and Thermoplastic Elastomers—Tension

D618 Practice for Conditioning Plastics for Testing

D635 Test Method for Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position

D746 Test Method for Brittleness Temperature of Plastics and Elastomers by Impact

D792 Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement

D883 Terminology Relating to Plastics

D1203 Test Methods for Volatile Loss From Plastics Using Activated Carbon Methods

D1600 Terminology for Abbreviated Terms Relating to Plastics

D1898 Practice for Sampling of Plastics³

D2240 Test Method for Rubber Property—Durometer Hardness

D3182 Practice for Rubber—Materials, Equipment, and Procedures for Mixing Standard Compounds and Preparing Standard Vulcanized Sheets

D3892 Practice for Packaging/Packing of Plastics

2.2 ISO Standards:⁴

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 Withdrawn.

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

ISO 2898-1:1986 Plastics—Plasticide Compounds of Homopolymers and Copolymers of Vinyl Chloride (PVC-P)

ISO 2898-2:1989 Plastics—Plasticide Compounds of Homopolymers and Copolymers of Vinyl Chloride (PVC-P)—Part 2 Preparation of Test Specimens and Determination of Properties

3. Terminology

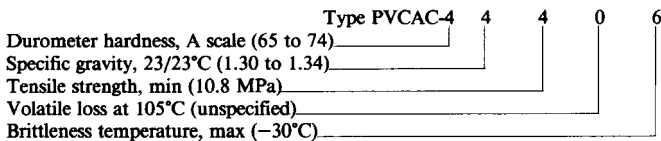
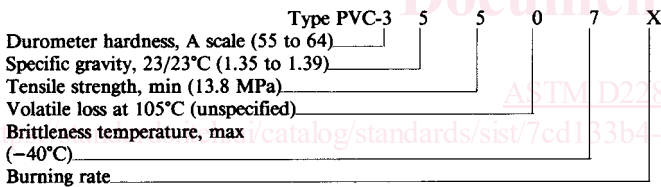
3.1 General—Definitions are in accordance with Terminology **D883** and abbreviations with Terminology **D1600**, unless otherwise indicated.

4. Classification

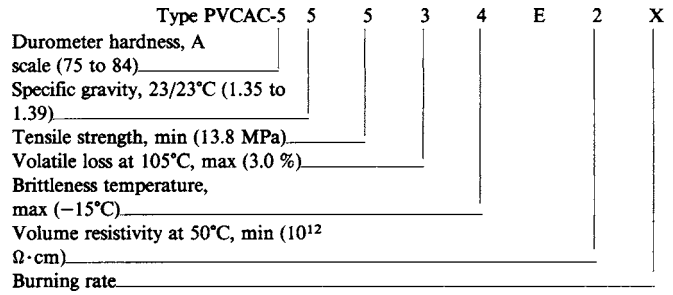
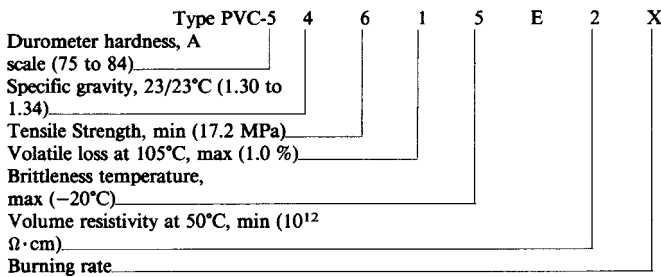
4.1 Provision is made in this specification for the identification of vinyl chloride polymers and copolymers by use of Terminology **D1600**. Additionally, there is provision for distinguishing electrical grades and burning rate by suffix. The system of classification provided in **Table 1** permits characterization and identification of all compounds having properties within the ranges of the combinations that may be selected from the table. Following type identification in accordance with Terminology **D1600**, grades are designated by the cell number for each property in the order in which they are listed in **Table 1**, including the suffixes identifying electrical grades and flammability when required. When a property is not specified, a “0” is entered as the cell number unless identification is terminated prior to that point.

NOTE 2—The manner in which selected materials are identified is illustrated by the examples given below:

General-Purpose, Electrical Requirements Excluded:



Electrical Grades, E Requirement Included:



NOTE 3—The cell-type format provides means for close characterization and specification of material properties, alone or in combination, for a broad range of materials. This format, however, is subject to possible misapplication since unobtainable property combinations can be selected if the user is not familiar with commercially available materials. The manufacturer should be consulted.

5. General Requirements

5.1 Material shall be of uniform composition and be so compounded as to meet the requirements designated for it.

5.2 The designated material shall contain the ingredients necessary to permit satisfactory processing with appropriate equipment under recommended or commercially acceptable conditions. There shall be no separation of components under conditions of application normal for these compounds.

6. Significance and Use

6.1 Means for selecting and identifying nonrigid vinyl chloride compounds are provided in **Table 1**. The properties enumerated in this table and the tests defined are expected to provide identification of the compounds selected. They are not necessarily suitable for direct application in design because of differences in shape of part, size, loading, environmental conditions, etc. Only when specimens are molded in accordance with **11.1.1** can comparative data be expected. The tests selected may be employed for inspection or quality control provided that they are performed strictly in accordance with the instructions given herein and in the designated methods so that extraneous variables are minimized and results are reproduced within the limits of variability of the material being examined and of the tests used for its examination.

7. Detail Requirements

7.1 Compliance with the designated requirements shall be determined with test specimens prepared of sheets molded in accordance with **11.1.1** of this specification.

7.2 Test values for specimens so prepared shall comply with the designated requirements as given in **Table 1**.

7.3 Subject to agreement between the purchaser and the seller, tests may be made on specimens prepared of finished molded articles. Results of such tests may not agree with the values given in **Table 1**. Therefore, in reports of such tests, methods, and conditions of preparation, dimensions, and all other pertinent information shall be included.