DEPARTMENT OF COMMERCE
NATIONAL INSTITURE OF STANDARDS AND TECHNOLOGY
OFFICE OF STANDARDS SERVICES

PRODUCT STANDARD PS26-70
RIGID POLY (VINYL CHLORIDE)
(PVC) PROFILE EXTRUSIONS

Product Standard PS26-70, Rigid Poly (Vinyl Chloride) (PVC) Profile Extrusions., was withdrawn by the Department of Commerce in 1982.

PS26-70 was replaced by ASTM D3678, Specification for Rigid Poly (Vinyl Chloride) (PVC) Interior Profile Extrusions. This ASTM standard is under the jurisdiction of Committee D20 on Plastics and the direct responsibility of Subcommittee D20.24 on Plastic Building Products.

The Committee Staff Manager can provide additional assistance and contacts for the subcommittee, contacts:

Committee D20 Staff Member
American Society for Testing and Materials (ASTM)
100 Barr Harbor Drive
West Conshohocken, PA19428-2959
Phone: (610) 832 -9585
Fax: (610) 832-9555

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The following organization can also provide additional information and assistance, contact:

The Society of the Plastics Industry (SPI)
1667 K St., NW,
Suite 1000
Washington, DC 20006
Phone 202.974.5200
Fax 202.296.7005

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A UNITED STATES DEPARTMENT OF COMMERCE PUBLICATION

U.S. DEPARTMENT OF COMMERCE
National Bureau of Standards

NBS Voluntary Product Standard

WITHDRAWN

PS 26-70

Rigid Poly (Vinyl Chloride) (PVC) Profile Extrusions

A Voluntary Standard Developed by Producers, Distributors, and Users With the Cooperation of the National Bureau of Standards

For sale by the Superintendent of Documents
U.S. Government Printing Office, Washington, D.C., 20402.
(Order by SD Catalog No. C13.20/2:26-70), Price 10 cents.

VOLUNTARY PRODUCT STANDARDS

Voluntary Product Standards are standards developed under procedures established by the Department of Commerce (15 CFR Part 10, as amended, May 28, 1970). The standards may include (1) dimensional requirements for standard sizes and types of various products, (2) technical requirements, and (3) methods of testing, grading, and marking. The objective of a *Voluntary Product Standard* is to establish requirements which are in accordance with the principal demands of the industry and, at the same time, are not contrary to the public interest.

Development of a VOLUNTARY PRODUCT STANDARD

The Office of Engineering Standards Services of the National Bureau of Standards has been assigned by the Department of Commerce the responsibility to work closely with scientific and trade associations and organizations, business firms, testing laboratories, and other appropriate groups to develop *Voluntary Product Standards*. The Bureau has the following role in the development process: It (1) provides editorial assistance in the preparation of the standard; (2) supplies such assistance and review as is required to assure the technical soundness of the standard; (3) acts as an unbiased coordinator in the development of the standard; (4) sees that the standard is representative of the views of producers, distributors, and users or consumers; (5) seeks satisfactory adjustment of valid points of disagreement; (6) determines the compliance with the criteria established in the Department's procedures cited above; and (7) publishes the standard.

Industry customarily (1) initiates and participates in the development of a standard; (2) provides technical counsel on a standard; and (3) promotes the use of, and support for, the standard. (A group interested in developing a *Voluntary Product Standard* may submit a written request to the Office of Engineering Standards Services, National Bureau of Standards, Washington, D.C. 20234.)

A draft of a proposed standard is developed in consultation with interested trade groups. Subsequently, a Standard Review Committee is established to review the proposed standard. The committee, appropriately balanced, includes qualified representatives of producers, distributors, and users or consumers of the product being standardized. When the committee approves a proposal, copies are distributed for industry consideration and acceptance. When the acceptances show general industry agreement, and when there is no substantive objection deemed valid by the Bureau, the Bureau announces approval of the *Voluntary Product Standard* and proceeds with its publication.

Use of a VOLUNTARY PRODUCT STANDARD

The adoption and use of a *Voluntary Product Standard* is completely voluntary. *Voluntary Product Standards* have been used most effectively in conjunction with legal documents such as sales contracts, purchase orders, and building codes. When a standard is made part of such a document, compliance with the standard is enforceable by the purchaser or the seller along with other provisions of the document.

Voluntary Product Standards are useful and helpful to purchasers, manufacturers, and distributors. Purchasers may order products that comply with *Voluntary Product Standards* and determine for themselves that their requirements are met. Manufacturers and distributors may refer to the standards in sales catalogs, advertising, invoices, and labels on their product. Commercial inspection and testing programs may also be employed, together with grade labels and certificates assuring compliance, to promote even greater public confidence. Such assurance of compliance promotes better understanding between purchasers and sellers.

Nat. Bur. Stand. (U.S.), Prod. Stand. 26-70, 7 pages (Oct. 1970)
CODEN: XNPSA

Rigid Poly(Vinyl Chloride) (PVC) Profile Extrusions

Effective April 1, 1970 (See section 7.)

(This voluntary standard, initiated by The Society of the Plastics Industry, Inc., has been developed under the *Procedures for the Development of Voluntary Product Standards*, published by the Department of Commerce. See Section 8, *History of Project*, for further information.)

1. PURPOSE

The purpose of this Product Standard is to establish on a national basis, a recognized standard of quality for rigid poly(vinyl chloride) (PVC) profile extrusions other than pipe, tubing, and siding, used in finished building products. The information contained in this Product Standard is intended to be helpful to producers, distributors, and users and to promote understanding between buyers and sellers.

2. SCOPE AND CLASSIFICATION

2.1. Scope—This Product Standard establishes requirements for the material and properties, including dimensional stability and extrusion quality, of rigid PVC profile extrusions. Methods for identifying profile extrusions that comply with the requirements of this Standard are provided.

2.2. Classification—This Standard covers two classes of rigid PVC profile extrusions as follows:

Class 1—Normal impact, high chemical resistance.
Class 2—High impact, normal chemical resistance.

2.3. Use—It is intended that this Standard serve as the basis for requirements on finished building products which are either made from or employ rigid poly(vinyl chloride) (PVC) profile extrusions in their construction. Such end products are as follows:

Window sash, frame and components
Rain carrying equipment
Trim, interior and exterior
Baseboard molding
Door components

3. REQUIREMENTS

3.1. General—Products represented as complying with this Voluntary Product Standard shall meet all of the requirements specified herein.

3.2. Materials—This Standard covers profile extrusions made from plastics conforming to the requirements of the American Society for Testing and Materials (ASTM) Designation D 1784–68, *Standard Specification for Rigid Poly(Vinyl Chloride) Compounds and Chlorinated Poly(Vinyl Chloride) Compounds.*[1] Class 1 extrusions shall meet the requirements specified in ASTM D 1784–68 for Class 12453–C compound, and Class 2 extrusions shall meet the requirements for Class 14332–D compound. The poly(vinyl chloride)

[1] Later issues of the ASTM publications may be used providing the requirements are applicable and consistent with the issue designated. Copies of ASTM publications are obtainable from the American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pa. 19103.

material will have a coefficient of linear expansion not greater than 10 x 10^{-5} cm/cm/°C when tested in accordance with ASTM Designation D 696–44 (1961), *Standard Method of Test for Coefficient of Linear Thermal Expansion of Plastics*.[2] (This value is equivalent to a dimensional change not exceeding 0.55 percent for a 37.8° C (100° F) change in temperature.) The specimens for test purposes may be molded from the rigid PVC profile extrusions or from the extrusion compound.

3.3. Dimensions—The size, thickness, and dimensional tolerances of the profile extrusions shall be as agreed upon by the buyer and seller.

3.4. Dimensional stability—The dimensional stability of the profile extrusions shall be determined in accordance with 4.5.1. Extrusions over 0.040 inch in thickness shall have a maximum shrinkage of 2.2 percent; those of 0.040 inch thickness or less shall have a 3.0 percent maximum shrinkage.

3.5. Extrusion quality—The extrusion quality of Class 1 extrusions shall be determined by immersion in anhydrous acetone in accordance with the requirements of 4.5.2. Specimens of extrusions having no disintegration and not more than 25 percent surface attack shall be considered as adequately fused and of satisfactory quality. The extrusion quality of Class 2 extrusions shall be as agreed upon by the buyer and seller.

3.6. Appearance—The extrusions shall be free of striations, die lines, crazing, and flow marks and other defects that might affect their serviceability.

4. INSPECTION AND TEST PROCEDURES

4.1. General—The inspection and test procedures contained in this section are to be used to determine the conformance of products to the requirements of this Voluntary Product Standard. Each producer or distributor who represents his products as conforming to this Standard may utilize statistically based sampling plans which 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 Standard have been met. Additional sampling and testing of the product, as may be agreed upon between purchaser and seller, is not precluded by this section.

4.2. Visual inspection—The profile extrusions shall be visually examined to determine their compliance with the requirements of 3.5.

4.3. Conditioning of specimens—The test specimens shall be conditioned in accordance with Procedure A of ASTM Designation D 618–61, *Standard Methods of Conditioning Plastics and Electrical Insulating Materials for Testing*,[2] except that the minimum conditioning time shall be 24 hours.

4.4. Test conditions—The tests shall be conducted in the standard laboratory atmosphere of 23±1° C (73.4±2° F) and 50±5 percent relative humidity, unless otherwise specified in the applicable test method.

4.5. Tests—

4.5.1. Dimensional stability—The dimensional stability shall be determined in accordance with ASTM Designation D 1042–51 (1966), *Standard Method for Measuring Changes in Linear Dimensions of Plastics*,[3] except that the test cycle shall consist of heating the specimens for 30 minutes in a uniformly heated oven at a temperature of 82.2° C (180° F). Three specimens cut from the full cross-section of the profile extrusion and approximately 12 inches in length shall be used for test purposes. For profiles of irregular cross-section having sections both over and under 0.040 inch in thickness, if 51 percent or more of the cross-sectional area is greater than 0.040 inch thick, the maximum shrinkage shall be 2.2 percent; otherwise, the maximum shrinkage shall be 3.0 percent.

4.5.2. Extrusion quality—The extrusion quality shall be determined in accordance with ASTM Designation D 2152–67, *Standard Method of Test for Quality of Extruded Poly(Vinyl Chloride) Pipe by Acetone Immersion*,[3] except that test specimens shall be 1 to 2 inches in length and sufficient in number to insure testing the complete cross section. In the test procedure described the 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.

5. PACKAGING

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

6. IDENTIFICATION

In order that purchasers may identify products conforming to all requirements of this Voluntary Product Standard, 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:

> This product conforms to all of the requirements established in Product Standard PS 26–70, developed cooperatively with the industry and published by the National Bureau of Standards under the *Procedures for the Development of Voluntary Product Standards* of the U.S. Department of Commerce. Full responsibility for the conformance of this product to the standard is assumed by (name and address of producer or distributor).

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

> Conforms to PS 26–70, (name and address of producer or distributor).

7. EFFECTIVE DATE

The effective date of this Voluntary Product Standard is the date upon which reference to the Standard may be made by producers, distributors, users and consumers, and other interested parties. Compliance by producers with all of the requirements of this Product Standard may not actually occur until some time after its effective date. Products shall not be represented as conforming to this Product Standard until such time as all requirements established in the Standard are met. The effective date of this Standard is April 1, 1970.

[2] See footnote, 1 page 1.

[3] See footnote 1, page 1.

8. HISTORY OF PROJECT

In February 1964, The Society of the Plastics Industry, Inc., requested the assistance of the National Bureau of Standards in the development of a standard for rigid poly(vinyl chloride) profile extrusions. In November 1964, a proposed Standard was circulated to representative producers, distributors, users, and other interested organizations for comment. Response to this circulation indicated that further development of the requirements and test methods was necessary.

In April 1967 a new draft was developed and submitted to the Standard Review Committee. The draft was revised as recommended by the committee and in March 1968 it was approved by the committee. In January 1969 the recommended Product Standard was circulated to the industry for acceptance. Based on the comments received from this circulation, a modification of the requirements in the standard was prepared. With the committee's approval of the modification the changes were circulated on September 15, 1969, to the responders of the previous circulation.

The response to the circulation indicated that a consensus of acceptability, as defined under the *Procedures for the Development of Voluntary Product Standards*, existed within the industry with regard to the Standard. In August and September 1969, the Standard Review Committee and the acceptors were balloted concerning the deletion of the "hallmark" from the Standard. The response to this balloting indicated a consensus had again been achieved and on March 10, 1970, the Standard designated PS 26-70, *Rigid Poly(Vinyl Chloride) Profile Extrusions*, was approved for publication by the National Bureau of Standards to be effective April 1, 1970.

Technical Standards Coordinator:
D. R. Stevenson, Product Standards Section, Office of Engineering Standards Services, National Bureau of Standards, Washington, D.C. 20234

9. STANDING COMMITTEE

The individuals whose names are listed below constitute the membership of the Standing Committee for this Standard. The function of the committee is to review all proposed revisions and amendments in order to keep this Standard up to date. Comments concerning this Standard and suggestions for its revision may be addressed to any member of the committee or to the Office of Engineering Standards Services, National Bureau of Standards, Washington, D.C. 20234, which acts as secretary for the committee.

Representing Producers

J. T. Regan, B. F. Goodrich Chemical Company, 3135 Euclid Avenue, Cleveland, Ohio 44115 (Chairman) (Resin producer)

Al Revencas, Allied Chemical Corporation, 225 Allwood Road, Clifton, New Jersey 08133 (Resin producer)

Robert S. Crane, Jr., Crane Plastics, Inc., 2141 Fairwood Avenue, P.O. Box 1047, Columbus, Ohio 43216 (Extruder)

John A. Penberthy, Western Plastics Products Company, Division Western Textile Products Company, 3400 Tree Court Industrial Boulevard, St. Louis, Missouri 63122 (Extruder)

Representing Distributors

Roger L. Gundelfinger, Malta Manufacturing Company, Box 397, Malta, Ohio 43758

Fred W. Kreger, R. O. W. Window Sales Company, 1369 Academy East, Ferndale, Michigan 48220.

Charles K. Sitterly, Caradco, Inc., 11th and Jackson Streets, Dubuque, Iowa 52003

L. W. Weaver, Bird and Sons, Inc., East Walpole, Massachusetts 02032.

Representing Users

W. E. Bryant, National Association of Home Builders, 1625 L Street, N.W., Washington, D.C. 20036

Frank S. Fitzgerald, Architectural Aluminum Manufacturers Association, 35 East Wacker Drive, Chicago, Illinois 60601

John O. Kohl, Andersen Corporation, Bayport, Minnesota 55003

H. J. Somermeyer, Crown-Line Plastics, Inc., Hamburg, Iowa 51640

10. ACCEPTORS

The producers, distributors, users, and others listed below have individually indicated in writing their acceptance of this Product Standard prior to its publication. The acceptors have indicated their intention to use the Standard as far as practicable but reserve the right to depart from it when necessary. The list is published to show the extent of recorded public support for the Standard.

ASSOCIATIONS
(General Support)

Building Officials Conference of America, Chicago, Illinois
National Association of Home Builders, Washington, D.C.
Society of the Plastics Industry, Inc., The, New York, New York

PRODUCERS

Alford Plastics, Houston, Texas
American Vinyl Company, Hialeah, Florida
Andersen Corporation, Bayport, Minnesota
Auburn Plastics, Inc., Auburn, New York
Bird & Son, Inc., E. Walpole, Massachusetts
Bolta Products Division, General Tire & Rubber Company, Lawrence, Massachusetts
Celanese Plastics Company, Hilliard, Ohio
Colonial Plastics, Tampa, Florida
Crane Plastics, Inc., Columbus, Ohio
Crescent Plastics, Inc., Evansville, Indiana
Crown-Line Plastics, Inc., Hamburg, Iowa
Flambeau Plastics Corporation, Baraboo, Wisconsin
General Tire & Rubber Company, The, Wabash, Indiana
Glass Laboratories, Inc., Brooklyn, New York
Goodall Rubber Company, Trenton, New Jersey
Goodrich, B. F., Chemical Company, Cleveland, Ohio
Goodrich, B. F., Company, Marietta, Ohio
Goodyear Chemical Division, Akron, Ohio
Jarrow Products, Inc., Chicago, Illinois
Kessler Products Company, Inc., Youngstown, Ohio
Maynard Plastics, Inc., Salem, Massachusetts
New England Plastics Corporation, Woburn, Massachusetts
Northland Plastics, Inc., Sheboygan, Wisconsin
Pawling Rubber Corporation, Pawling, New York
Precision Polymers, Inc., Rockaway, New Jersey
Screens & Fabricators Metals Corporation, North Bergen, New Jersey
Sunlite Plastics, Inc., Milwaukee, Wisconsin
Superior Plastics, Inc., Chicago, Illinois
Tex-Trude, Inc., Houston, Texas
Thielex Plastics Corporation, The, Piscataway, New Jersey
Western Plastics Products Division, Kirkwood, Missouri

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Vogt Manufacturing Corporation, Rochester, New York
Vulcan Metal Products, Inc., Birmingham, Alabama
Washington State University, College of Engineering, Division of Research, Pullman, Washington