U.S. DEPARTMENT OF COMMERCE
NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY
(formerly National Bureau of Standards-NBS)
OFFICE OF STANDARDS SERVICES

PRODUCT STANDARD PS19-69

ACRYLONITRILE-BUTADIENE-STYRENE (ABS) PLASTIC PIPE (STANDARD DIMENSION RATIO)

Product Standard PS19-69, Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe (Standard Dimension Ratio), was withdrawn by the U.S. Department of Commerce on September 9, 1974.

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The following standard was used to replace PS19-69: ASTM D2282, Standard Specification for Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe (SDR-PR).

This ASTM standard is under the responsibility of ASTM Committee F17 on Plastic Piping Systems, Subcommittee F17.61, Water. ASTM can provide guidance and assistance for additional information on this standard and other sources. Contact:

American Society for Testing and Materials (ASTM)
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, Pennsylvania 19428-2959, USA
Telephone: (620) 832-9500/-9585; Fax: (610) 832-9555
Internet: http://www.astm.org (click on Site Map or ASTM Store, etc.)

Committee F17 Staff Manager
Telephone: (610) 832-9720; Fax: (610) 832-9666

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The Plastics Pipe Institute (PPI) and Society of the Plastics Industry, Inc. (SPI) can provide additional information and assistance, contact:

Plastics Pipe Institute (PPI)
1825 Connecticut Avenue, NW, Suite 680
Washington, DC 20009, USA
Telephone: (202) 462-9607
Fax: (202 462-9779

Society of the Plastics Industry, Inc.
1801 K Street, NW, Suite 600K
Washington, DC 20006, USA
Telephone: (202) 974-5200
Fax: (202) 296-7005
Internet: http://www.socplas.org

A UNITED STATES DEPARTMENT OF COMMERCE PUBLICATION

NBS Voluntary Product Standard

WITHDRAWN

PS 19-69

U.S. DEPARTMENT OF COMMERCE

National Bureau of Standards

PRODUCT STANDARDS

Product Standards are published voluntary standards that establish (1) dimensional requirements for standard sizes and types of various products, (2) technical requirements for the product, and (3) methods of testing, grading, and marking these products. The objective is to define requirements for these products in accordance with the principal demands of the trade. *Product Standards* are published by the National Bureau of Standards of the U. S. Department of Commerce.

Development of a PRODUCT STANDARD

The Bureau's Office of Engineering Standards Services works closely with business firms, trade organizations, testing laboratories, and other appropriate groups to develop such standards. (A group interested in developing a *Product Standard* may submit a written request to the Office of Engineering Standards Services, National Bureau of Standards.) After determining that the desired standard would be technically feasible and in the public interest, a specific proposal is developed in consultation with interested trade groups and circulated for industry consideration and comment.

Subsequently, a Standard Review Committee is established to review the proposed standard for conformance with the Department of Commerce procedures. The committee includes qualified representatives of producers, distributors, and users or consumers of the product. When approved by the committee, copies of the recommended standard are distributed for consideration and acceptance. When the acceptances show general agreement by all segments of the industry, and when there is no substantive objection deemed valid by the National Bureau of Standards, the Bureau announces approval of the *Product Standard* and proceeds with its publication.

Use of a PRODUCT STANDARD

Product Standards are developed for the maximum use of industry by ensuring that producers, distributors, and users or consumers cooperate in the development of a voluntary *Product Standard*. The adoption and use of a *Product Standard* is *voluntary*. *Product Standards* are used most effectively in conjunction with legal instrumentalities such as building codes, purchase orders, and sales contracts. When a standard is made part of such a contract, compliance with the standard is enforceable by the buyer or the seller along with other provisions of the contract. There is *no* governmental regulation or control involved.

Purchasers may order products that comply with Product Standards and determine for themselves that their requirements are met. More often, manufacturers refer to the standards in sales catalogs, advertising, invoices, and labels on the product. Commercial inspection and testing programs are also employed for greater effectiveness together with grade labels, hallmarks and certificates. Such assurance of compliance promotes confidence and understanding between buyers and sellers.

EFFECTIVE DATE

Having been passed through the regular procedures of the Office of Engineering Standards Services, National Bureau of Standards, and approved by the acceptors hereinafter listed in part, this Product Standard is issued by the National Bureau of Standards, effective:

December 31, 1969
(See Section 8)

Lewis M. Branscomb
Director

Nat. Bur. Stand. (U.S.), 19-69, 13 pages (June 1970)
CODEN: XNPSA

Product Standard PS 19-69
Supersedes Commercial Standard CS 254-63

Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe (Standard Dimension Ratio)

(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 9, *History of the Project*, for further information.)

1. PURPOSE

The purpose of this Product Standard is to establish nationally recognized dimensions and significant quality requirements for acrylonitrile-butadiene-styrene (ABS) plastic pipe when it is made in Standard Dimension Ratios with the outside diameter controlled. This Standard is also intended to provide producers, distributors, and users with a basis for common understanding of the material and dimensional characteristics of this product.

2. SCOPE AND CLASSIFICATION

2.1. Scope—This Product Standard covers the principal types, grades, sizes, and pressure ratings of commercially available ABS plastic pipe made in Standard Dimension Ratios (SDR) with the outside diameter controlled. Included are requirements and methods of test for materials, workmanship, dimensions, sustained pressure, and burst pressure. Methods of marking and labeling to indicate compliance with this Standard are also provided.[1]

2.2. Classification—The ABS plastic material and pipe covered by this Product Standard are classified as follows:

2.2.1. Material—ABS plastics used to make pipe meeting the requirements of this Standard are categorized by means of two criteria, namely, short-term strength tests and long-term strength tests.

2.2.1.1. Basic materials—This Standard covers pipe made from three ABS plastics as defined in the American Society for Testing and Materials (ASTM)[2] D 1788–68, *Standard Specification for Rigid Acrylonitrile-Butadiene-Styrene (ABS)Plastics*,[3] in which the requirements are based on short-term tests. These are Type I, Grade 2; Type I, Grade 3; and Type II, Grade 1.

2.2.1.2. Hydrostatic design stresses—This Standard covers pipe made from ABS plastics as defined by three hydrostatic design stresses developed on the basis of long-term tests.[4] These hydrostatic design stresses are 1000, 1250, and 1600 psi for water at 23 °C (73.4 °F) and apply only to pipe meeting all of the requirements of this Standard.

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[1] Information regarding the properties, applications, installation, and maintenance of acrylonitrile-butadiene-styrene plastic piping is contained in Technical Report PPI-TR12-SEP 1969, *Installation Procedures for Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe*, published by the Plastics Pipe Institute, 250 Park Avenue, New York, N. Y. 10017.

[2] Copies of ASTM publications are obtainable from the American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pa. 19103.

[3] Later issues of all publications specified in this Product Standard may be used providing the requirements are applicable and consistent with the issues designated.

[4] Information regarding the method of test and other criteria used in assigning these hydrostatic design stresses may be obtained from the Plastics Pipe Institute (PPI), a division of The Society of the Plastics Industry, Inc., 250 Park Avenue, New York, N.Y. 10017.

2.2.1.3. Pipe materials—This Standard covers pipe made from three ABS plastic pipe materials coded as follows:

(1) Type I, Grade 2, with a hydrostatic design stress of 1,000 psi for water at 23 °C (73.4 °F), designated as ABS1210.

(2) Type I, Grade 3, with a hydrostatic design stress of 1,600 psi for water at 23 °C (73.4 °F), designated as ABS1316.

(3) Type II, Grade 1, with a hydrostatic design stress of 1,250 psi for water at 23 °C (73.4 °F), designated as ABS2112.

2.2.2. Standard Dimension Ratio pipe—This Standard covers pipe made in four Standard Dimension Ratios, as determined in accordance with 5.1.5. They are SDR13.5, SDR17, SDR21, and SDR26. The pressure rating is uniform for all nominal pipe sizes for a given ABS pipe material and SDR as shown in table 1.

2.2.3. Pipe pressure rating—Pipe meeting the requirements of this Standard is rated for use with water at 23 °C (73.4 °F) at the maximum internal pressure shown in table 1. These ratings have been calculated in accordance with the International Standards Organization [5] (ISO) equation as defined in 5.1.3. Lower ratings may be recommended at the option of the pipe manufacturer. The pressure ratings for threaded pipe are one-half those for nonthreaded pipe in the same material and size. It is recommended that pipe with walls thinner than Schedule 80 not be threaded (see footnote "a," table 3).

TABLE 1. *Standard Dimension Ratios (SDR) and pressure ratings (PR) for water at 23°C (73.4°F) for nonthreaded[a] ABS plastic pipe*

Standard Dimension	ABS pipe material[b] ABS1210	ABS1316	ABS2112
Ratio	Pressure rating,[c] psi		
13.5	160	250	200
17	125	200	160
21	100	160	125
26	80	125	100
Pressure rating	Standard Dimension Ratio		
psi			
250	—	13.5	—
200	—	17	13.5
160	13.5	21	17
125	17	26	21
100	21	—	26
80	26	—	—

[a] These pressure ratings do not apply for threaded pipe. See 2.2.3.
[b] See 2.2.1.3 and 5.1.4 for code designation.
[c] Some minor adjustments have been made to keep the pressures uniform to simplify testing.

3. REQUIREMENTS

3.1. General—All pipe represented as complying with this Standard shall meet all of the requirements listed herein and shall be marked as specified in section 6.

[5] Address: 1430 Broadway, New York, N.Y. 10018, c/o American National Standards Institute, Inc.

3.2. Materials—The ABS plastic extrusion compound shall meet the requirements of either Type I, Grade 2; Type I, Grade 3; or Type II, Grade 1, as described in ASTM D 1788–68.

3.2.1. Rework material—Clean rework material generated from the manufacturer's own pipe production may be used by the same manufacturer provided that the materials specified in 3.2 are not mixed with one another and that the pipe produced meets all the requirements of this Standard.

3.3. Pipe dimensions and tolerances—

3.3.1. Outside diameters—The outside diameters shall be as shown in table 2 when measured in accordance with 4.3 and 4.3.1. The tolerances for out-of-roundness apply only to pipe prior to shipment.

3.3.2. Wall thickness—The wall thicknesses shall be as shown in table 3 when measured in accordance with 4.3 and 4.3.2.

3.3.3. Wall thickness range—The wall thickness range (eccentricity of the inside and outside circumference) of the pipe shall not exceed 12 percent when measured in accordance with 4.3 and 4.3.3.

3.4. Performance requirements—

3.4.1. Sustained pressure—The pipe shall not fail, balloon, burst, or weep as defined in section 4, ASTM D 1598–67, *Standard Method of Test for Time-to-Failure of Plastic Pipe Under Long-Term Hydrostatic Pressure*,[6] at the test pressure given in table 4 when tested in accordance with 4.4.

TABLE 2. *Outside diameters and tolerances for ABS plastic pipe, Standard Dimension Ratio*

Nominal pipe size	Average outside diameter	Tolerances		
		For average outside diameter	For maximum and minimum (out-of-roundness)	
			SDR26 SDR21	SDR17 SDR13.5
inch	*inch*	*inch*	*inch*	*inch*
⅛	0.405	±0.004	±0.015	±0.008
¼	.540	± .004	± .015	± .008
⅜	.675	± .004	± .015	± .008
½	.840	± .004	± .015	± .008
¾	1.050	± .004	± .015	± .010
1	1.315	± .005	± .015	± .010
1¼	1.660	± .005	± .015	± .012
1½	1.900	± .006	± .030	± .012
2	2.375	± .006	± .030	± .012
2½	2.875	± .007	± .030	± .015
3	3.500	± .008	± .030	± .015
3½	4.000	± .008	± .050	± .015
4	4.500	± .009	± .050	± .015
5	5.563	± .010	± .050	± .030
6	6.625	± .011	± .050	± .035
8	8.625	± .015	± .075	± .045
10	10.750	± .015	± .075	± .050
12	12.750	± .015	± .075	± .060

[6] See footnotes 1 and 2, page 1.

TABLE 3. *Wall thicknesses for ABS plastic pipe, Standard Dimension Ratio*

Nominal pipe size	SDR26		SDR21		SDR17		SDR13.5	
	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
inch	*inch*	*inch*	*inch*	*inch*	*inch*	*inch*	*inch*	*inch*
⅛	—	—	—	—	—	—	0.060	0.080
¼	—	—	—	—	—	—	.060	.080
⅜	—	—	—	—	—	—	.060	.080
½	—	—	—	—	0.060	0.080	.062	.082
¾	—	—	0.060	0.080	.062	.082	.078	.098
1	0.060	0.080	.063	.083	.077	.097	.097	.117
1¼	.064	.084	.079	.099	.098	.118	.123	.143
1½	.073	.093	.090	.110	.112	.132	.141	.161
2	.091	.111	.113	.133	.140	.160	.176	.197
2½	.110	.130	.137	.157	.169	.189	.213	.239
3	.135	.155	.167	.187	.206	.231	.259	.290
3½	.154	.174	.190	.213	.235	.263	.296	[a].332
4	.173	.194	.214	.240	.265	.297	.333	[a].373
5	.214	.241	.265	.297	.327	.366	[a].412	[a].461
6	.255	.286	.315	.354	.390	[a].437	[a].491	[a].550
8	.332	.372	.411	.459	—	—	—	—
10	.413	.463	.512	.572	—	—	—	—
12	.490	.549	.607	.679	—	—	—	—

[a] These wall thicknesses are equivalent to Schedule 80.

TABLE 4. *Sustained test pressures*[a] *for water at 23 °C (73.4 °F) for ABS plastic pipe, Standard Dimension Ratio*

Dimension ratio	ABS1210[b]	ABS1316[b]	ABS2112[b]
	psi	*psi*	*psi*
4.15	1,350	2,030	1,710
5	1,070	1,600	1,350
6	860	1,280	1,070
7.3	680	1,020	860
9	540	800	680
11	430	640	540
13.5	340	510	430
17	270	400	340
21	220	320	270
26	170	260	220
32.5	140	200	170
41	110	160	140

[a] The hoop stresses used to derive these test pressures are as follows:
ABS1210 — 2140 psi
ABS1316 — 3200 psi
ABS2112 — 2700 psi
Some minor adjustments have been made to keep the test pressures uniform to simplify testing.
[b] See 2.2.1.3 and 5.1.4 for code designation.

TABLE 5. *Minimum burst pressures*[a] *for water at 23 °C (73.4 °F) for ABS plastic pipe, Standard Dimension Ratio*

Dimension ratio	ABS1210[b]	ABS1316[b]	ABS2112[b]
	psi	*psi*	*psi*
4.15	3,300	3,810	4,190
5	2,620	3,000	3,300
6	2,100	2,400	2,620
7.3	1,650	1,900	2,100
9	1,320	1,500	1,650
11	1,050	1,200	1,320
13.5	830	960	1,050
17	660	750	830
21	530	600	660
26	420	480	530
32.5	330	380	420
41	260	300	330

[a] The hoop stresses used to derive these pressures are as follows:
ABS1210 — 5240 psi
ABS1316 — 6000 psi
ABS2112 — 6600 psi
Some minor adjustments have been made to keep the pressures uniform to simplify testing.
[b] See 2.2.1.3 and 5.1.4 for code designation.

3.4.2. Burst pressure—The minimum burst pressure of the pipe shall be as given in table 5 when determined in accordance with 4.5.

3.5. Workmanship—The pipe shall be homogeneous throughout and free from visible cracks, holes, or foreign inclusions. The pipe shall be uniform in color, opacity, and density.

3.6. Approval for potable water—All pipe intended for use with potable water shall meet the requirements for that purpose specified by the National Sanitation Foundation Testing Laboratory, Inc.,[7] or specified by other organizations accredited by Federal or State Public Health agencies as having requirements for that purpose

[7] Address: The National Sanitation Foundation Testing Laboratory, Inc., 2355 West Stadium Boulevard, Ann Arbor, Mich. 48106.

which are no less stringent than those of the National Sanitation Foundation Testing Laboratory, Inc.

4. INSPECTION AND TEST PROCEDURES

4.1. Test conditions—Tests shall be conducted in the standard laboratory atmosphere of 23 ± 2 °C (73.4 ± 3.6 °F) and 50 ± 5 percent relative humidity.

4.2. Conditioning test specimens—The test specimens shall be conditioned at 23 ± 2 °C (73.4 ± 3.6 °F) and 50 ± 5 percent relative humidity for not less than 40 hours prior to test in accordance with Procedure A in ASTM D 618–61, *Standard Methods of Conditioning Plastics and Electrical Insulating Materials for Testing.*[8]

4.3. Dimensions—Measurements shall be made in accordance with ASTM D 2122–67, *Standard Method of Determining Dimensions of Thermoplastic Pipe.*[8]

4.3.1. Outside diameter—The outside diameter of the pipe shall be measured in accordance with section 7 of ASTM D 2122–67. The average outside diameter at any cross section on the length of the pipe is the arithmetic average of the maximum and minimum diameters at that section. The average outside diameter of the pipe is the arithmetic mean of the average diameters at all measured cross sections.

4.3.2. Wall thickness—Micrometer measurements of the wall thickness shall be made in accordance with section 4 of ASTM D 2122–67, to determine the maximum and minimum values. The wall thickness shall be measured at both ends of the pipe to the nearest 0.001 inch.

4.3.3. Wall thickness range—The wall thickness range, E, shall be calculated for each cross section as follows:

$$E, \%, = \frac{A - B}{A} \times 100$$

where A and B are the maximum and minimum wall thicknesses, respectively, for each cross section. The wall thickness range shall not exceed 12 percent for any cross section measured.

4.4. Sustained pressure test—Six specimens of pipe shall be tested with water at the internal pressures given in table 4. Each specimen shall be at least 10 times the nominal diameter in length, but not less than 10 inches nor greater than 3 feet between end closures, and shall bear the permanent marking as stated in section 6. The test shall be in accordance with ASTM D 1598–67 except that the pressure shall be maintained at the value given in table 4 for 1,000 hours. Pressure shall be held within plus or minus 10 psi of the appropriate table value. Failure of two of the six specimens tested constitutes failure of the test. Failure of one of the six specimens tested is cause for retest of six additional specimens. Failure of one of these six specimens constitutes failure of the test. Evidence of failure of the pipe shall be as defined in section 4 of ASTM D 1598–67 as follows:

4.4.1. Failure—Any continuous loss of pressure resulting from the transmission of the test liquid through the body of the specimen under test.

4.4.2. Ballooning—Any abnormal localized expansion of a pipe specimen while under internal hydraulic pressure.

4.4.3. Bursting—A break in the pipe with immediate loss of test

[8] See footnotes 1 and 2, page 1.

liquid and continued loss at essentially no pressure.

4.4.4. Seepage or weeping—Failure that occurs through essentially microscopic breaks in the pipe wall, frequently only at or near the test pressure. At lower pressures the pipe may carry liquids without evidence of loss of the liquids.

4.5. Burst pressure—The minimum burst pressure shall be determined with at least five specimens in accordance with ASTM D 1599–62T, *Tentative Method of Test for Short-Time Rupture Strength of Plastic Pipe, Tubing, and Fittings.*[9] The time of testing each specimen shall be between 60 and 70 seconds.

5. DEFINITIONS

5.1. General—Definitions and abbreviations are in accordance with ASTM D 883–69, *Standard Nomenclature Relating to Plastics;*[9] ASTM D 1600–69, *Standard Abbreviations of Terms Relating to Plastics;*[9] and Plastics Pipe Institute[10] Technical Report PPI–TR1–NOV 1968, *A Glossary of Plastics Piping Terms.*[11]

5.1.1. Hydrostatic design stress—The estimated maximum tensile stress in the wall of the pipe in the circumferential orientation due to internal hydrostatic water pressure that can be applied continuously with a high degree of certainty that failure of the pipe will not occur.

5.1.2. Pressure rating—The estimated maximum pressure that water in the pipe can exert continuously with a high degree of certainty that failure of the pipe will not occur.

5.1.3. Relation between dimensions, design stress, and pressure rating—The following expression, commonly known as the ISO equation (see ISO R161–1960, *Pipes of Plastic Materials for the Transport of Fluids*[12]), is used in this Standard to relate dimensions, design stress, and pressure rating:

$$\frac{2S}{P} = \text{SDR} - 1 \quad \text{or} \quad \frac{2S}{P} = \frac{\text{OD}}{t} - 1$$

where S=design stress, psi
P=pressure rating, psi
OD=average outside diameter, inches
t=minimum wall thickness, inches
SDR=Standard Dimension Ratio

5.1.4. Standard thermoplastic pipe materials designation code—The pipe materials designation code consists of the abbreviation ABS for the type of plastic, followed by the ASTM type and grade in Arabic numerals and the design stress in units of 100 psi with any decimal figures dropped. When the design stress code contains less than two figures, a zero is used before the number. Thus a complete material code consists of three letters and four figures. See 2.2.1.3.

5.1.5. Standard Dimension Ratio (SDR)—SDR is the ratio of the pipe diameter to the wall thickness. For ABS pipe it is calculated by dividing the average outside diameter of the pipe in inches by the minimum wall thickness in inches. If the wall thickness to be used in

[9] See footnotes 1 and 2, page 1.
[10] A division of The Society of the Plastics Industry, Inc., 250 Park Ave., New York, N. Y. 10017.
[11] See footnote 2, page 1.
[12] See footnote 4, page 1.

calculating SDR is less than 0.060 inch, it is arbitrarily increased to 0.060 inch.

6. MANDATORY MARKING

Marking on the pipe shall include the following, spaced at intervals of not more than 5 feet:

(1) The nominal pipe size (e.g., 2″).

(2) The pipe material designation code (e.g., ABS1210).

(3) The Standard Dimension Ratio (e.g., SDR21), or the pressure rating in psi (e.g., 200 psi), except that when the pipe is intended for pressure application the pressure rating shall be shown. The pressure rating for threaded pipe shall be identified with a "T" after the value (e.g., 100T psi). When the indicated pressure rating is lower than that calculated in accordance with 5.1.3 the SDR shall also be included.

(4) This Product Standard designation, PS 19–69.

(5) The manufacturer's name (or trademark) and code.

(6) Pipe intended for transporting potable water shall include the seal of approval (or "nSf" mark) of the National Sanitation Foundation Testing Laboratory, Inc., or of some other testing laboratory accredited by Federal or State Public Health agencies. This marking shall be spaced at intervals required by the organization establishing the specifications but not more than 5 feet.[13]

7. IDENTIFICATION

In order that purchasers may identify products complying with all requirements of this voluntary Product Standard, producers choosing to produce such products in compliance with this voluntary Standard may include a statement in conjunction with their name and address on labels, invoices, sales literature, and the like. The following statement is suggested when sufficient space is available.

> This ABS plastic pipe conforms to all of the requirements established in Product Standard PS 19–69, developed cooperatively with the industry and published by the National Bureau of Standards under the voluntary Product Standards procedures of the U.S. Department of Commerce. Full responsibility for the conformance of this product with 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 19–69, (name and address of producer or distributor).

8. EFFECTIVE DATE

The effective date of a 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 the requirements of a Product Standard may not actually occur until some time after the effective date. Products shall not be labeled or otherwise described as conforming to a Product Standard until such time as all applicable requirements

[13] Manufacturers using the seal of approval of an accredited testing laboratory must obtain authorization from the laboratory concerned.

established in the Standard are met. The effective date of this Standard is December 31, 1969.

9. HISTORY

9.1. First edition—On November 14, 1962, The Society of the Plastics Industry, Inc., requested the assistance of the Department of Commerce in the establishment of standard dimensions, water pressure ratings, and other quality requirements for acrylonitrile-butadiene-styrene plastic pipe (SDR–PR and Class T). With the assistance and cooperation of the industry, Commercial Standard CS 254–63 was developed and was published on July 1, 1963.

9.2. Current revision—On July 11, 1967, approval was granted to process a revision of CS 254–63 in accordance with the *Procedures for the Development of Voluntary Product Standards* as published by the Department of Commerce on December 10, 1965. This revision was submitted to the National Bureau of Standards by the Plastics Pipe Institute of The Society of the Plastics Industry, Inc., to bring the Standard up to date through the incorporation of advanced technical knowledge regarding acrylonitrile-butadiene-styrene plastic pipe.

With the approval of its reconstituted Standing Committee, public announcement was made and the recommended Product Standard was widely circulated on November 14, 1969, for consideration and acceptance. The response to this circulation recorded sufficient acceptance from producers, distributors, and users of acrylonitrile-butadiene-styrene plastic pipe to indicate success of the project.

Accordingly, on December 24, 1969, PS 19–69, *Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe (Standard Dimension Ratio)*, was announced to become effective on December 31, 1969.

Technical Standards Coordinator:
Karl G. Newell, Jr., Product Standards Section, Office of Engineering Standards Services, National Bureau of Standards, Washington, D.C. 20234.

10. STANDING COMMITTEE

The following individuals comprise the membership of the Standing Committee which is to review all revisions proposed to keep this Standard abreast of progress. Comments concerning the Standard and suggestions for revision may be addressed to any member of the committee or to the Office of Engineering Standards Services, National Bureau of Standards, U.S. Department of Commerce, which acts as secretary for the committee.

Representing Producers

Frank J. Furno (Chairman), Celanese Plastics Company, 4550 Cemetery Road, Hilliard, Ohio 43026

Paul F. Finn, Kerona, Inc., 2547 West Jackson Street, Phoenix, Arizona 85009

Frank W. Reinhart, Plastics Pipe Institute, 9918 Sutherland Road, Silver Spring, Maryland 20901

E. W. Hendrick, Can-Tex Industries, P.O. Box 340, Mineral Wells, Texas 76067

Representing Distributors

James H. Peery, Central Supply Association, 221 North LaSalle Street, Chicago, Illinois 60601

W. K. Klein, Joseph T. Ryerson & Son, Inc., P.O. Box 8000–A, Chicago, Illinois 60680

Robert E. Hottle, Garden State Wholesale, Inc., 1437 Pine Street, Camden, New Jersey 08101

Robert C. Jones, Federal Corporation, 120 East Main Street, Oklahoma City, Oklahoma 73104

Representing Users

Philip N. Shrake, Mobile Homes Manufacturers Association, 20 North Wacker Drive, Chicago, Illinois 60606

C. William Boyer, Halby Chemical Company, Inc., Terminal Avenue and Golding Street, Wilmington, Delaware 19899

Byron R. Eplett, National Association of Plumbing-Heating-Cooling Contractors, 544 Grove Avenue, Johnstown, Pennsylvania 15902

Leonard Weiss, Whirlpool Corporation, Evansville Division, Highway 41 North Evansville, Indiana 47727

General Interest

R. N. Bowen, National Sanitation Foundation Testing Laboratory, Inc., 2355 West Stadium Boulevard, Ann Arbor, Michigan 48106

Robert E. Lyons, General Services Administration, Federal Supply Service, Standardization Division, Washington, D.C. 20405

W. K. Rodman, Department of Housing and Urban Development, Federal Housing Administration, Washington, D.C. 20411

Grover C. Sherlin, Building Research Division, National Bureau of Standards, Washington, D.C. 20234

11. ACCEPTORS

The manufacturers, 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

ABS Institute, New York, New York
American Institute of Supply Associations, Inc., Washington, D.C.
Indiana Farm Bureau Cooperative Association, Inc., Indianapolis, Indiana
National Association of Home Builders, Washington, D.C.
National Sanitation Foundation, Ann Arbor, Michigan
Plastics Pipe Institute, New York, New York

PRODUCERS

A B & I Plastics, Newark, California
Acadia Plastics, Inc., Westbury, New York
Baker, Glenn M., Huntingdon, Pennsylvania
Bunnell Plastics, Inc., Camden, New Jersey
Busada Manufacturing Corporation, Flushing, New York
Carlon Products, Division of Continental Oil Company, Wilton, Connecticut
Celanese Plastics Company, Hilliard, Ohio
Colonial Plastics Manufacturing Company, Tampa, Florida
Continental Plastics Industries, Inc., Denver, Colorado
Cresline Plastic Pipe Company, Inc., Evansville, Indiana
Olin Evanite Plastics, Carrollton, Ohio
Perkasie Industries Corporation, Perkasie, Pennsylvania
Permalite Plastics Corporation, Costa Mesa, California
Perma-Pipe Corporation, Stone Mountain, Georgia
Petro Plastic Company, Inc., Barwood, New Jersey
Phillips Products Company, Inc., Bartlesville, Oklahoma
Plastiline, Inc., Pompano Beach, Florida
Precision Polymers, Inc., Rockaway, New Jersey
Pyramid Industries, Inc., Erie, Pennsylvania