



Designation: C1917 – 23

Standard Specification for Rigid Polyvinyl Chloride (PVC) Jacketing for Insulation¹

This standard is issued under the fixed designation C1917; 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.

1. Scope

1.1 This specification covers rigid polyvinyl (PVC) jacketing for thermal and acoustical insulation for pipe, rigid tubing and equipment operating at either above or below ambient temperatures in non-direct sunlight exposure.

1.2 This material specification does not cover exposure to direct sunlight. Refer to manufacturer's guidelines for direct sunlight exposure.

1.3 This specification does not address PVC jacketing used as fitting covers over thermal insulation.

1.4 This is a material specification and does not cover insulation systems of which this material is a component, nor imply that an installed insulation system using these materials will provide the physical properties and performance characteristics specified in Section 7.

1.5 This material specification does not cover sizing calculations or installation of rigid PVC jacketing.

1.6 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

1.7 *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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.8 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

¹ This specification is under the jurisdiction of ASTM Committee C16 on Thermal Insulation and is the direct responsibility of Subcommittee C16.40 on Insulation Systems.

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2. Referenced Documents

2.1 ASTM Standards:²

C168 Terminology Relating to Thermal Insulation

C1263 Test Method for Thermal Integrity of Flexible Water Vapor Retarders

C1338 Test Method for Determining Fungi Resistance of Insulation Materials and Facings

D1784 Classification System and Basis for Specification for Rigid Poly(Vinyl Chloride) (PVC) Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds

D5420 Test Method for Impact Resistance of Flat, Rigid Plastic Specimen by Means of a Striker Impacted by a Falling Weight (Gardner Impact)

D5947 Test Methods for Physical Dimensions of Solid Plastics Specimens

E84 Test Method for Surface Burning Characteristics of Building Materials

E96/E96M Test Methods for Gravimetric Determination of Water Vapor Transmission Rate of Materials

3. Terminology

3.1 *Definitions*—Definitions in Terminology C168 apply to terms used in this specification.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *circumferential dimension, n*—the length of PVC jacketing to fit around the installed pipe or tubing insulation.

3.2.2 *crazing, n*—the phenomenon that produces a network of fine cracks on the surface of a material.

3.2.3 *rigid PVC, n*—Poly Vinyl Chloride in sheet form having high impact resistance and low flexibility, using compounds as characterized per Classification System D1784.

4. Significance and Use

4.1 The primary functions of rigid PVC jacketing are to provide physical damage protection, moisture protection, and finished system aesthetics.

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.

4.2 This specification is used to specify material by physical properties and performance characteristics that are addressed in Sections 7 to 10. The designer of an insulation system, after determining the system requirements, shall use this specification to specify the appropriate rigid PVC jacketing.

4.3 Rigid PVC jacketing shall be installed per manufacturer's instructions.

5. Classification

5.1 Classification of rigid PVC jacketing is based upon product thickness.

6. Materials and Manufacture

6.1 Rigid PVC jacketing shall be manufactured from PVC compounds meeting the requirements of Classification System D1784, CLASS 13344. This designation is defined in Classification System D1784, Subsection 4.2 as shown in Fig. 1.

6.2 Rigid PVC jacketing shall not contain phthalates.

6.3 Rigid PVC jacketing shall be supplied in rolls or in pre-cut sheets.

6.4 Rigid PVC jacketing shall be available in white or various colors, or both.

7. Physical Properties and Performance Characteristics

7.1 Required physical properties and performance characteristics are shown in Table 1.

7.2 *Thickness*—Product thickness for a specific Type I, or II of rigid PVC jacketing shall be as shown in Table 1 when measured per 10.2. The following tolerance for Type I and II is:

Type	Tolerance
I	±0.002 in. (± 0.051 mm)
II	±0.003 in. (± 0.076 mm)

7.3 *Water Vapor Permeance*—Maximum permeance for rigid PVC jacketing shall be as shown in Table 1 when tested in accordance to 10.3. Values for permeance requirements are rounded to two decimals.

TABLE 1 Physical Property Requirements and Performance Characteristics

Product Properties	Type I	Type II
Thickness, in. (mm)	0.020 (0.51)	0.030 (0.76)
Water Vapor Permeance, Perm (ng·Pa ⁻¹ ·s ⁻¹ ·m ⁻²)	≤0.05 (2.88)	≤0.03 (1.73)

7.4 *Surface Burning Characteristics*—All rigid PVC jackets shall demonstrate a flame spread index of 25 or less and smoke developed index of 50 or less in accordance with 10.4. See Note 1.

7.5 *Thermal Integrity*—All rigid PVC jacketing shall not crack or delaminate at temperatures from 0°F (−17.8°C) to 150° F (65.6°C) (exposed surface) when tested in accordance with 10.5.

7.6 *Fungi Resistance*—All rigid PVC jacketing shall not sustain growth of fungi when tested in accordance with 10.6.

7.7 *Impact Resistance*—Minimum Impact resistance for rigid PVC jacketing shall be 1.2 in lb/mil (5.2 J/mm) when tested in accordance with 10.7.

NOTE 1—When insulation systems are used in an application covered by a code or regulation, it is likely that the complete insulation system is required to comply with requirements for surface burning characteristics.

8. Dimensions and Permissible Variations

8.1 Rolls:

8.1.1 Standard widths are 35.5 in. (0.9 m) and 48 in. (1.22 m).

8.1.2 Other widths shall be as agreed to by purchaser and seller.

8.1.3 Width tolerance shall be ± 0.25 in. (6 mm).

8.1.4 Length is typically based on maintaining a reasonable weight for hand-carrying and shall be as agreed to by purchaser and seller.

8.1.5 Length tolerance shall be +5% / −0%.

8.2 Pre-cut Sheets:

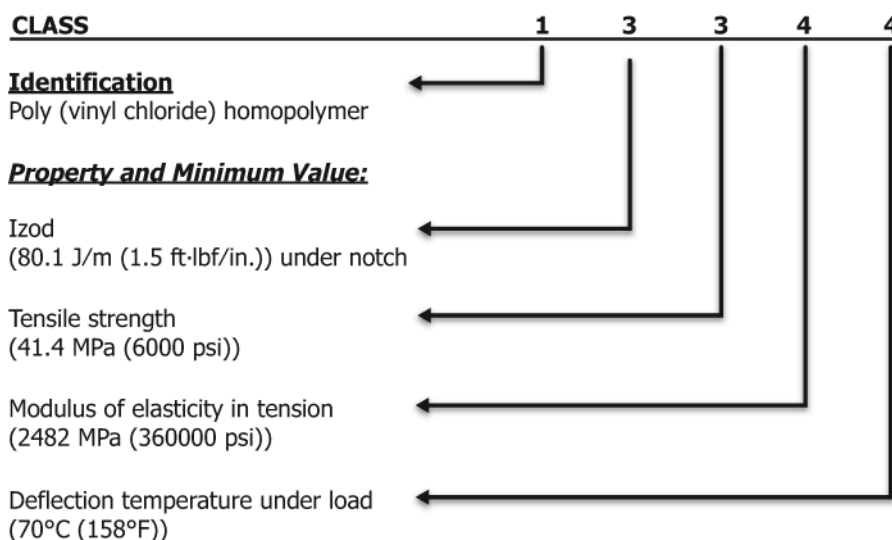


FIG. 1 CLASS 13344