



Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation¹

This standard is issued under the fixed designation C 578; 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 specification has been approved for use by agencies of the DoD, replacing HH-1-524C. Consult the DoD Index of Specifications and Standards for the specific year of issue which has been adopted by the Department of Defense.

NOTE—Designation date was changed July 1992 to reflect January 1992 approval date.

1. Scope

1.1 This specification covers the types, physical properties, and dimensions of cellular polystyrene intended for use as thermal insulation for temperatures from -65 to $+165^{\circ}\text{F}$ (-53.9 to $+73.9^{\circ}\text{C}$). This specification does not cover cryogenic applications. Consult the manufacturer for specific recommendations and properties in cryogenic conditions.

1.2 The use of thermal insulation materials covered by this specification may be regulated by building codes that address fire performance. For some end uses, specifiers should also address the effect of moisture. Guidelines regarding these end use considerations are included in Appendix X1.

1.3 The values stated in inch-pound units are to be regarded as the standard. The values given in parentheses are provided for information only.

1.4 *This standard does not purport to address all of the safety problems, 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.*

2. Referenced Documents

2.1 ASTM Standards:

- C 165 Test Method for Measuring Compressive Properties of Thermal Insulations²
- C 168 Terminology Relating to Thermal Insulating Materials²
- C 177 Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded Hot Plate Apparatus²
- C 203 Test Methods for Breaking Load and Flexural Properties of Block-Type Thermal Insulation²
- C 272 Test Method for Water Absorption of Core Materials for Structural Sandwich Constructions³
- C 303 Test Method for Density of Preformed Block-Type Thermal Insulation²
- C 390 Criteria for Sampling and Acceptance of Preformed Thermal Insulation Lots²

- C 518 Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus²
- C 550 Practice for Measuring Trueness and Squareness of Rigid Block Thermal Insulation²
- C 870 Practice for Conditioning of Thermal Insulating Materials²
- D 1600 Terminology Relating to Abbreviations, Acronyms, and Codes for Terms Relating to Plastics⁴
- D 1621 Test Method for Compressive Properties of Rigid Cellular Plastics⁵
- D 1622 Test Method for Apparent Density of Rigid Cellular Plastics⁵
- D 2126 Test Method for Response of Rigid Cellular Plastics to Thermal and Humid Aging⁵
- D 2863 Test Method for Measuring the Minimum Oxygen Concentration to Support Candle-like Combustion of Plastics (Oxygen Index)⁵
- E 84 Test Method for Surface Burning Characteristics of Building Materials⁶
- E 96 Test Methods for Water Vapor Transmission of Materials²

3. Terminology

3.1 Definitions:

3.1.1 Terms used in this specification are defined in Terminology C 168.

3.2 Descriptions of Terms Specific to This Standard:

3.2.1 RCPS—letter designations for the rigid cellular polystyrene thermal insulation classified by this specification that identifies the product as rigid cellular polystyrene.

3.2.2 PS—used in this specification to represent polystyrene in accordance with Terminology D 1600.

4. Classification

4.1 This specification covers ten types of RCPS thermal insulations currently commercially available as described by the physical property requirements in Table 1.

5. Ordering Information

5.1 Acquisition documents shall specify the following:

5.1.1 Title, number, and year of this specification,

¹ This specification is under the jurisdiction of ASTM Committee C-16 on Thermal Insulation and is the direct responsibility of Subcommittee C 16.22 on Organic and Nonhomogeneous Inorganic Thermal Insulations.

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² Annual Book of ASTM Standards, Vol 04.06.

³ Annual Book of ASTM Standards, Vol 15.03.

⁴ Annual Book of ASTM Standards, Vol 08.01.

⁵ Annual Book of ASTM Standards, Vol 08.02.

⁶ Annual Book of ASTM Standards, Vol 04.07.