

**Designation: C 578 – 95**

## **Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation<sup>1</sup>**

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 ( $\epsilon$ ) 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<sup>2</sup> 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 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.*

### **2. Referenced Documents**

#### **2.1 ASTM Standards:**

- C 165 Test Method for Measuring Compressive Properties of Thermal Insulations<sup>3</sup>
- C 168 Terminology Relating to Thermal Insulating Materials<sup>3</sup>
- C 177 Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus<sup>3</sup>
- C 203 Test Methods for Breaking Load and Flexural Properties of Block-Type Thermal Insulation<sup>3</sup>
- C 236 Test Method for Steady-State Thermal Performance of Building Assemblies by means of a Guarded Hot Box<sup>3</sup>

<sup>1</sup> 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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<sup>2</sup> This specification is similar to ISO 4898-1984, “Cellular Plastics—Specification for Rigid Cellular Materials Used in the Thermal Insulation of Buildings,” in title only. The scope and technical content are significantly different. ISO standards are available from ANSI, 11 W. 42nd St., 13th Floor, New York, NY 10036.

<sup>3</sup> *Annual Book of ASTM Standards*, Vol 04.06.

- C 272 Test Method for Water Absorption of Core Materials for Structural Sandwich Constructions<sup>4</sup>
- C 303 Test Method for Density of Preformed Block-Type Thermal Insulation<sup>3</sup>
- C 390 Criteria for Sampling and Acceptance of Preformed Thermal Insulation Lots<sup>3</sup>
- C 518 Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus<sup>3</sup>
- C 550 Practice for Measuring Trueness and Squareness of Rigid Block and Board Thermal Insulation<sup>3</sup>
- C 870 Practice for Conditioning of Thermal Insulating Materials<sup>3</sup>
- C 976 Test Method for Thermal Performance of Building Assemblies by Means of a Calibrated Hot Box<sup>3</sup>
- C 1045 Practice for Calculating Thermal Transmission Properties from Steady-State Heat Flux Measurements<sup>3</sup>
- C 1058 Practice for Selecting Temperatures for Reporting and Evaluating Thermal Properties of Thermal Insulation<sup>3</sup>
- C 1114 Test Method for Steady-State Thermal Transmission Properties by Means of the Thin-Heater Apparatus<sup>3</sup>
- D 1600 Terminology Relating to Abbreviated Terms Relating to Plastics<sup>5</sup>
- D 1621 Test Method for Compressive Properties of Rigid Cellular Plastics<sup>5</sup>
- D 1622 Test Method for Apparent Density of Rigid Cellular Plastics<sup>5</sup>
- D 2126 Test Method for Response of Rigid Cellular Plastics to Thermal and Humid Aging<sup>5</sup>
- D 2863 Test Method for Measuring the Minimum Oxygen Concentration to Support Candle-like Combustion of Plastics (Oxygen Index)<sup>6</sup>
- E 84 Test Method for Surface Burning Characteristics of Building Materials<sup>7</sup>
- E 96 Test Methods for Water Vapor Transmission of Materials<sup>3</sup>
- E 176 Terminology Related to Fire Standards<sup>7</sup>

### **3. Terminology**

#### **3.1 Definitions:**

<sup>4</sup> *Annual Book of ASTM Standards*, Vol 15.03.

<sup>5</sup> *Annual Book of ASTM Standards*, Vol 08.01.

<sup>6</sup> *Annual Book of ASTM Standards*, Vol 08.02.

<sup>7</sup> *Annual Book of ASTM Standards*, Vol 04.07.