



Designation: C578 – 17

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

This standard is issued under the fixed designation C578; 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 standard has been approved for use by agencies of the U.S. Department of Defense.*

### 1. Scope

1.1 This specification<sup>2</sup> covers the types, physical properties, and dimensions of cellular polystyrene boards with or without facings or coatings made by molding (EPS) or extrusion (XPS) of expandable polystyrene. Products manufactured to this specification are intended for use as thermal insulation for temperatures from -65 to +165°F (-53.9 to +73.9°C). This specification does not apply to laminated products manufactured with any type of rigid board facer including fiberboard, perlite board, gypsum board, or oriented strand board.

1.1.1 For Type XIII only, this specification covers the physical properties, and dimensions of cellular polystyrene intended for use as thermal insulation for temperatures from -297 to +165°F (-183 to +73.9°C).

1.2 Consult the manufacturer for specific recommendations and properties in cryogenic conditions.

1.2.1 This specification does not cover cryogenic properties except for the k-factors for Type XIII in **Appendix X1**. For Type XIII in specific cryogenic applications, the manufacturer and purchaser shall agree upon the actual temperature limits and physical property requirements in addition to the k-factors in **Appendix X1**.

1.3 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 and wind pressure resistance. Guidelines regarding these end use considerations are included in **Appendix X1**.

1.4 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.

1.5 *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.*

1.6 *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.*

### 2. Referenced Documents

2.1 *ASTM Standards:*<sup>3</sup>

- C165** Test Method for Measuring Compressive Properties of Thermal Insulations
- C168** Terminology Relating to Thermal Insulation
- C177** Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus
- C203** Test Methods for Breaking Load and Flexural Properties of Block-Type Thermal Insulation
- C272** Test Method for Water Absorption of Core Materials for Structural Sandwich Constructions
- C303** Test Method for Dimensions and Density of Preformed Block and Board-Type Thermal Insulation
- C335** Test Method for Steady-State Heat Transfer Properties of Pipe Insulation
- C390** Practice for Sampling and Acceptance of Thermal Insulation Lots
- C518** Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus
- C550** Test Method for Measuring Trueness and Squareness of Rigid Block and Board Thermal Insulation
- C870** Practice for Conditioning of Thermal Insulating Materials

<sup>1</sup> This specification is under the jurisdiction of ASTM Committee C16 on Thermal Insulation and is the direct responsibility of Subcommittee C16.22 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 American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, <http://www.ansi.org>.

<sup>3</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For Annual Book of ASTM Standards volume information, refer to the standard’s Document Summary page on the ASTM website.